



ST. ALOYSIUS' COLLEGE

**AUTONOMOUS
JABALPUR- 482001
MADHYA PRADESH, INDIA**

CRITERION-1

CURRICULAR ASPECTS



Key Indicator – 1.1



Curriculum Design and Development

Metric No.: 1.1.2

**The programmes offered by the institution focus on Employability/
Entrepreneurship/ Skill Development and their course syllabi are
adequately revised to incorporate contemporary requirements**

Document Name

**Highlighted Program Curriculum Showing
Employability/ Entrepreneurship/ Skill Development
UG Curriculum**



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

HIGHLIGHTED PROGRAM CURRICULUM SHOWING



**LOCAL/REGIONAL/NATIONAL/GLOBAL
NEEDS**



**EMPLOYABILITY/ ENTREPRENEURSHIP/
SKILL DEVELOPMENT**



CROSS-CUTTING ISSUES



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SYLLABUS
UG
MATHEMATICS

ST. ALOYSIUS COLLEGE (AUTO), JABALPUR
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BACHELOR IN SCIENCE (B.Sc.)
 2023-24

Course Code	S1-MATH 1T
Course Title	Algebra, Vector Analysis and Geometry
Course Type	Core Course
Pre- requisite (if any)	To study this course a student must have had the subject Mathematics in class 12th
Course Learning Outcomes	The course will enable the student to: <ol style="list-style-type: none"> 1. Recognize consistent and inconsistent systems of linear equation by the row, echelon from the augmented matrix, using the rank of matrix 2. To find the Eigen values and corresponding Eigen vectors for a square matrix. 3. Using the knowledge of vector calculus in geometry 4. Enhance the knowledge of three dimensional geometrical figure(eg. Cone and cylinder)
Credit Value	Theory : 6
Total Marks	Max. Marks 25+75

Unit	Topics	No. of Lectures
I	1.1 Historical Background : 1.1.1. Development of Indian Mathematics: Later Classical Period(500-1250) 1.1.2. A brief biography of Varahamihira and Aryabhata 1.2 Rank of a Matrix 1.3 Echelon and Normal Form of Matrix 1.4 Characteristic Equations of a Matrix 1.4.1 Eigen values 1.4.2 Eigen vectors	15
II	2.1 Cayley's Hamilton Theorem 2.2 Application of Cayley's Hamilton Theorem to find the inverse of a matrix 2.3 Application of Matrix to solve a System of linear equations 2.4 Theorems on consistency and inconsistency of a system	18

	<p>of linear equations</p> <p>2.5 Solving linear equations up to three unknowns</p> <p>2.6 Introduction to Congruence Modulo, Addition & Multiplication of Congruence Modulo. Its Applications</p>	
III	<p>3.1 Scalar and Vector product of three and four vectors</p> <p>3.2 Reciprocal vectors</p> <p>3.3 Vector differentiation</p> <p> 3.3.1 Rules of differentiation</p> <p> 3.3.2 Derivative of triple products</p> <p>3.4 Gradient, Divergence and Curl</p> <p>3.5 Directional derivatives</p> <p>3.6 Vector identities</p> <p>3.7 Vector equations</p>	18
IV	<p>4.1 Vector Integration</p> <p>4.2 Gauss theorem (without proof) and problems based on it.</p> <p>4.3 Green theorem (without proof) and problems based on it.</p> <p>4.4 Stoke theorem (without proof) and problems based on it.</p>	15
V	<p>5.1 General equation of second degree</p> <p>5.2 Tracing of conics</p> <p>5.3 System of conics</p> <p>5.4 Cone:</p> <p> 5.4.1 Equation of cone with given base</p> <p> 5.4.2 generators of cone</p> <p> 5.4.3 condition for three mutually perpendicular generators</p> <p> 5.4.4 Right circular cone</p> <p>5.5 Cylinder</p> <p> 5.5.1 Equation of cylinder and its properties</p> <p> 5.5.2 Right Circular Cylinder,</p> <p> 5.5.3 Enveloping Cylinder</p>	24
Text Books, Reference Books, Other Resources		

Suggested Reading

Text Books:

1. K.B. Datta: Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd. New Delhi 2000
2. Shanti Narayan- A Text Book of Vector Calculus, S. Chand & Co., New Delhi. 1987.
3. S.L. Loney- The Elements of Coordinate Geometry Part -I New Age International (P) Ltd. Publishers, New Delhi 2016

4. P. K. Jain and Khalil Ahmad- A Text Book of Analytical Geometry of Three Dimensions Willey Eastern Ltd.,1999.
5. Gerard G. Emch.R. Sridharan M.D. Srinivas: Contributions to the History of Indian Mathematics, Hindustan Book Agency Vol. 3,2005
6. मध्यप्रदेशहिंदीग्रंथअकादमी कीपुस्तके।

Reference Books:

1. **Chandrika Prasad:** A Text Book on Algebra and Theory of Equations, Pothishala Pvt. Ltd.,Allahabad, 2017
2. **N. Jacobson :** Basic Algebra Vol. I and II, W.H.Freeman.2009.
3. **I.S.Luther and I.B.S. Passi:** Algebra Vo. I and II, Narosa Publishing House 1997.
4. N.Saran and S.N. Nigam- Introduction to Vector Analysis, Pothishala Pvt. Ltd. Allahabad 1990.
5. Murray R. Spiegel- Vector Analysis, Schaum Publishing Company.,New York,2017
6. Gorakh Prasad and H.C. Gupta- Text Book on Coordinate Geometry, Pothishala Pvt. Ltd. Allahabad 2000
7. P. K. Jain and Khalil Ahmad- A Text Book of Analytical Geometry of Two Dimensions Macmillan India Ltd.,1994.
8. S.L.Loney- The Elements of Coordinate Geometry,Part-2 Macmillan,1923.
9. N.Saran and R.S. Gupta- Analytical Geometry of Three Dimension, Pothishala Pvt. Ltd. Allahabad .1994.
10. R.J.T. Bell- Elementary Treatise on Coordinate Geometry of Three Dimensions, Macmillan India Ltd.,1994
11. BibhutibhusanDatta and Avadhesh Narayan Singh: History of Hindu Mathematics, Asia Publishing House 1962

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BACHELOR IN SCIENCE (B.Sc.)

Course Code	S1-MATH 2T
Course Title	Calculus differential equation (paper 2)
Course Type	Core Course
Pre- requisite (if any)	To study this course a student must have had the subject Mathematics in class 12 th
Course Learning Outcomes	The course will enable the student to: <ol style="list-style-type: none"> 1. Sketch curves in a plane using its mathematical in the different coordinate system of reference. 2. Using the derivatives in Optimization Social sciences, Physics and Life sciences etc. 3. Formulate the Differential equations for various Mathematical models. 4. Using techniques to solve and analyze various Mathematical models.
Credit Value	Theory : 6
Total Marks	Max. Marks 25+75 min passing marks 33

Unit	Topics	No. of Lectures
I	1.1 Historical Background : <ol style="list-style-type: none"> 1.1.1. Development of Indian Mathematics: Ancient and Early Classical Period (till 500 CE) 1.1.2. A brief biography of Bhaskaracharya (with special reference to Lilavati and Madhava) 	15

	<p>1.2 Successive differentiation</p> <p>1.2.1 Leibnitz theorem</p> <p>1.2.2 Maclaurin's series expansions</p> <p>1.2.3 Taylor's series expansions</p> <p>1.3 Partial Differentiation</p> <p>1.3.1 Partial derivative of higher order</p> <p>1.3.2 Euler's theorem on homogeneous functions</p> <p>1.4 Asymptotes</p> <p>1.4.1 Asymptotes of algebraic curves</p> <p>1.4.2 Conditions for existence of Asymptotes</p> <p>1.4.3 Parallel Asymptotes</p> <p>1.4.4 Asymptotes of polar curves</p>	
II	<p>2.1 Curvature</p> <p>2.1.1 Formula of radius of Curvature</p> <p>2.1.2 Curvature at origin</p> <p>2.1.3 Centre of Curvature</p> <p>2.2 Concavity and Convexity</p> <p>2.2.1 Concavity and convexity of curves</p> <p>2.2.2 Points of inflexion</p> <p>2.2.3 Singular point</p> <p>2.2.4 Multiple points</p> <p>2.3 Tracing of curves</p> <p>2.3.1 Curves represented by Cartesian Equation</p> <p>2.3.2 Curves represented by Polar Equations</p>	18
III	<p>3.1 Integration of transcendental functions</p> <p>3.2 Introduction to Double and Triple Integral</p> <p>3.3 Reduction formulae</p> <p>3.4 Quadrature</p> <p>3.4.1 For Cartesian coordinates</p> <p>3.4.2 For Polar coordinates</p> <p>3.5 Rectification</p> <p>3.5.1 For Cartesian coordinates</p> <p>3.5.2 For Polar coordinates</p>	18
IV	<p>4.1 Linear differential equations</p> <p>4.1.1 Linear equations</p> <p>4.1.2 Equations reducible to the linear form</p> <p>4.1.3 Change of variables</p> <p>4.2 Exact differential equations</p> <p>4.3 first order and higher degree equations</p> <p>4.3.1 Equation solvable for x, y and p</p> <p>4.3.2 Equations homogeneous in x and y</p> <p>4.3.3 Clairaut's equation</p> <p>4.3.4 singular solutions</p> <p>4.3.5 geometrical meaning of a differential equation</p> <p>4.3.6 Orthogonal trajectories</p>	18
V	5.1 Linear differential equation with constant coefficients	18

5.2 Homogeneous linear ordinary differential equations	
5.3 Linear differential equations of second order	
5.4 Transformation of equations by changing the dependent variable/ independent variable	
5.5 Method of variation of parameters.	
Text Books, Reference Books, Other Resources	

Suggested Reading

Text Books:

1. Gorakh Prasad- Differential Calculus, Pothishala Private Ltd., Allahabad.
2. Gorakh Prasad- Integral Calculus, Pothishala Pvt. Ltd. Allahabad.
3. M. D. Raisinghanianar: Ordinary and Partial Differential equations. S. Chand & Co Ltd.2017
4. Gerard G. Emch.R. Sridharan M.D. Srinivas: Contributions to the History of Indian Mathematics, Hindustan Book Agency Vol. 3,2005
5. मध्यप्रदेशहिंदीग्रंथअकादमी कीपुस्तके।

Reference Books:

1. N.Piskunov - Differential and Integral Calculus, CBS Publishers,1996 .
2. G.F. Simmons- Differential Equation, Tata McGraw Hill, 1972.
3. E.A.Codington- An Introduction to ordinary differential Equation, Prentice Hall of India, 1961.
4. D.A.Murray- Introductory Course in Differential Equations, Orient Longman(India) 1967.
5. H.T.H. Piaggio- Elementary Treatise on Differential Equations and their Application, C.B.S. Publisher & Distributors, Delhi, 1985
6. BibhutibhusanDatta and Avadhesh Narayan Singh: History of Hindu Mathematics, Asia Publishing House 1962

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Class: B.Sc. III Sem	Subject: Mathematics	Session 2023-24
Course Code	S2-MATH II	
Course Title	Abstract Algebra and Linear Algebra	
Course Type	Major/Minor	
Pre- requisite (if any)	To study this course, a student must have had the subject Mathematics in Certificate Course or equivalent.	
Course Learning Outcomes	<p>The course will enable the students to:</p> <ol style="list-style-type: none"> 1. Recognize the algebraic structures as a group, and classify them as abelian, cyclic and permutation groups, etc. 2. Link the fundamental concepts of groups and symmetrical figures. 3. Analyze the subgroups of cyclic groups. 4. Explain the significance of the notion of cosets, normal subgroups, and quotient groups. 5. The fundamental concept of rings, fields, subrings, integral domains and the corresponding morphisms. 6. Analyze whether a finite set of vectors in a vector space is linearly independent. Explain the concepts of basis and dimension of a vector space. 7. Understand the linear transformations, rank and nullity, matrix of a linear transformation, algebra of transformations and change of basis. 8. Compute the characteristic polynomial, eigenvalues, eigenvectors, and eigenspaces, as well as the geometric and the algebraic multiplicities of an eigenvalue and apply the basic diagonalization result. 	
Credit Value	6	
Total Marks	Max. Marks 40+60	

Unit	Topics	No. of Lectures
	1.1 Historical background: 1.1.1 A brief historical background of the Algebra in the	

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 Head
 Department of Mathematics

I	<p>context of India and Indian heritage and culture</p> <p>1.1.2 A brief biography of Brahmagupta</p> <p>1.2 Groups, Subgroups and their basic properties</p> <p>1.3 Cyclic groups</p> <p>1.4 Coset decomposition</p> <p>1.5 Lagrange's and Fermat's theorem</p> <p>1.6 Normal subgroups</p> <p>1.7 Quotient groups</p>	18
II	<p>2.1 Homomorphism and Isomorphism of groups</p> <p>2.2 Fundamental theorem of homomorphism</p> <p>2.3 Transformation and permutation group S_n ($n < 5$)</p> <p>2.4 Cayley's theorem</p> <p>2.5 Group automorphism</p> <p>2.6 Inner automorphism</p> <p>2.7 Group of automorphisms</p>	18
III	<p>3.1 Definition and basic properties of rings</p> <p>3.2 Ring homomorphism</p> <p>3.3 Subring</p> <p>3.4 Ideals</p> <p>3.5 Quotient ring</p> <p>3.6 Polynomial ring</p> <p>3.7 Integral domain</p> <p>3.8 Field</p>	18
IV	<p>4.1 Definition and examples of Vector space</p> <p>4.2 Subspaces</p> <p>4.3 Sum and direct sum of subspaces</p> <p>4.4 Linear span, Linear dependence, linear independence and their basic properties</p> <p>4.5 Basis</p> <p>4.6 Finite dimensional vector space and dimension</p> <p>4.6.1 Existence theorem</p> <p>4.6.2 Extension theorem</p> <p>4.6.3 Invariance of the number of elements</p> <p>4.7 Dimension of sum of subspaces</p> <p>4.8 Quotient space and its dimension</p>	18
V	<p>5.1 Linear transformation and its representation as a matrix</p> <p>5.2 Algebra of linear transformation</p> <p>5.3 Rank-Nullity theorem</p> <p>5.4 Change of basis, dual space, bi-dual space and natural isomorphism</p>	18

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5.5 Adjoint of a linear transformation 5.6 Eigenvalues and Eigenvectors of a linear transformation Diagonalization	
Keywords / Tags: Brahmagupta, Groups, Subgroups, Homomorphism and Isomorphism of groups, Ring, Ideals, Field, Vector space, Basis and dimension, Linear transformation, Diagonalization.	
Text Books, Reference Books, Other Resources	

<p>Text Books:</p> <ol style="list-style-type: none"> 1. I. N. Herstein: Topics in Algebra, Wiley Eastern Ltd. New Delhi. 1977. 2. K. B. Datta: Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd. New Delhi. 2000. 3. Gerard G. Emch, R. Sridharan and M. D. Srinivas: Contributions to the History of Indian Mathematics, Hindustan Book Agency, Vol. 3, 2005. 4. मध्यप्रदेश हिंदी ग्रंथ अकादमी की पुस्तके । <p>Reference Books:</p> <ol style="list-style-type: none"> 1. Surjeet Singh and Qazi Zameeruddin: Modern Algebra, Vikas Publishing House Pvt Ltd; Eighth edition, 2006. 2. N. Jacobson: Basic Algebra. Vol. I and II, W. II Freeman, 1980. 3. I. S. Luther and I. B. S. Passi: Algebra. Vol. I and II, Narosa Publishing House, 1997. 4. Shanti Narayan: A text Book of Modern Abstract Algebra, S. Chand and Company. New Delhi, 1967. 5. A. K. Vasishtha and A. R. Vasishtha: Modern Algebra, Krishna Publication; 68th edition, 2015. 6. K. Hoffman and R. Kunze: Linear Algebra. 2nd Edition, Prentice Hall Englewood Cliffs, New Jersey, 1971. 7. A. R. Vasishtha and J. N. Sharma: Linear Algebra, Krishna Prakashan Media (P) Ltd., 2019. 8. Bibhutibhusan Datta and Avadhesh Narayan Singh: History of Hindu Mathematics, Asia Publishing House, 1962.
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Assessment and Evaluation	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	100
Continuous Comprehensive Evaluation (CCE):	40 Marks
External Exam:	60 Marks
Internal Assessment:	Total Marks: 40
Continuous Comprehensive Evaluation (CCE)	
External Assessment:	Total Marks: 60

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Class: B.Sc. III Sem	Subject: Mathematics	Session 2023-24
Course Code	S2-MATHII	
Course Title	Abstract Algebra and Linear Algebra	
Course Type	Elective	
Pre- requisite (if any)	To study this course, a student must have had the subject Mathematics in Certificate Course or equivalent.	
Course Learning Outcomes	<p>The course will enable the students to:</p> <ol style="list-style-type: none"> 1. Recognize the algebraic structures as a group, and classify them as abelian, cyclic and permutation groups, etc. 2. Link the fundamental concepts of groups and symmetrical figures. 3. Analyze the subgroups of cyclic groups. 4. Explain the significance of the notion of cosets, normal subgroups, and quotient groups. 5. The fundamental concept of rings, fields, subrings, integral domains and the corresponding morphisms. 6. Analyze whether a finite set of vectors in a vector space is linearly independent. Explain the concepts of basis and dimension of a vector space. 7. Understand the linear transformations, rank and nullity, matrix of a linear transformation, algebra of transformations and change of basis. 8. Compute the characteristic polynomial, eigenvalues, eigenvectors, and eigenspaces, as well as the geometric and the algebraic multiplicities of an eigenvalue and apply the basic diagonalization result. 	
Credit Value	6	
Total Marks	Max. Marks 30+70	

Unit	Topics	No. of Lectures
	1.1 Historical background: 1.1.1. A brief historical background of the Algebra in the	

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I	<p>context of India and Indian heritage and culture</p> <p>1.1.2. A brief biography of Brahmagupta</p> <p>1.2 Groups, Subgroups and their basic properties</p> <p>1.3 Cyclic groups</p> <p>1.4 Coset decomposition</p> <p>1.5 Lagrange's and Fermat's theorem</p> <p>1.6 Normal subgroups</p> <p>1.7 Quotient groups</p>	18
II	<p>2.1 Homomorphism and Isomorphism of groups</p> <p>2.2 Fundamental theorem of homomorphism</p> <p>2.3 Transformation and permutation group S_n ($n < 5$)</p> <p>2.4 Cayley's theorem</p> <p>2.5 Group automorphism</p> <p>2.6 Inner automorphism</p> <p>2.7 Group of automorphisms</p>	18
III	<p>3.1 Definition and basic properties of rings</p> <p>3.2 Ring homomorphism</p> <p>3.3 Subring</p> <p>3.4 Ideals</p> <p>3.5 Quotient ring</p> <p>3.6 Polynomial ring</p> <p>3.7 Integral domain</p> <p>3.8 Field</p>	18
IV	<p>4.1 Definition and examples of Vector space</p> <p>4.2 Subspaces</p> <p>4.3 Sum and direct sum of subspaces</p> <p>4.4 Linear span, Linear dependence, linear independence and their basic properties</p> <p>4.5 Basis</p> <p>4.6 Finite dimensional vector space and dimension</p> <p>4.6.1 Existence theorem</p> <p>4.6.2 Extension theorem</p> <p>4.6.3 Invariance of the number of elements</p> <p>4.7 Dimension of sum of subspaces</p> <p>4.8 Quotient space and its dimension</p>	18
1.		
<p>Keywords / Tags: Brahmagupta, Groups, Subgroups, Homomorphism and Isomorphism of groups, Ring, Ideals, Field, Vector space, Basis and dimension, Linear transformation, Diagonalization.</p>		
Text Books, Reference Books, Other Resources		

Dr. Mandira Kar
 Head
 Department of Mathematics

Suggested Readings:**Text Books:**

1. I. N. Herstein: Topics in Algebra, Wiley Eastern Ltd. New Delhi. 1977.
2. K. B. Datta: Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd. New Delhi. 2000.
3. Gerard G. Emch, R. Sridharan and M. D. Srinivas: Contributions to the History of Indian Mathematics, Hindustan Book Agency, Vol. 3, 2005.
4. मध्यप्रदेश हिंदी ग्रंथ अकादमी की पुस्तके ।

Reference Books:

1. Surjeet Singh and Qazi Zameeruddin: Modern Algebra, Vikas Publishing House Pvt Ltd; Eighth edition, 2006.
2. N. Jacobson: Basic Algebra. Vol. I and II, W. II Freeman, 1980.
3. I. S. Luther and I. B. S. Passi: Algebra. Vol. I and II, Narosa Publishing House, 1997.
4. Shanti Narayan: A text Book of Modern Abstract Algebra, S. Chand and Company. New Delhi, 1967.
5. A. K. Vasishtha and A. R. Vasishtha: Modern Algebra, Krishna Publication; 68th edition, 2015.
6. K. Hoffiman and R. Kunze: Linear Algebra. 2nd Edition, Prentice Hall Englewood Cliffs, New Jersey, 1971.
7. A. R. Vasishtha and J. N. Sharma: Linear Algebra, Krishna Prakashan Media (P) Ltd., 2019.
8. Bibhutibhusan Datta and Avadhesh Narayan Singh: History of Hindu Mathematics, Asia Publishing House, 1962.

Assessment and Evaluation**Suggested Continuous Evaluation Methods:**

Maximum Marks:	100
Continuous Comprehensive Evaluation (CCE):	40 Marks
External Exam:	60 Marks

Internal Assessment:

Continuous Comprehensive Evaluation (CCE)

Total Marks: 40**External Assessment:****Total Marks: 60**

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Class: B.Sc. IV Sem	Subject: Mathematics	Session 2023-24
Course Code	S2-MATH 2T	
Course Title	Advanced Calculus and Partial Differential Equations	
Course Type	Major/Minor	
Pre- requisite (if any)	To study this course, a student must have had the subject Mathematics in Certificate Course or equivalent.	
Course Learning Outcomes	<p>The course will enable the students to:</p> <ol style="list-style-type: none"> 1. Understand many properties of the real line and sequences. 2. Calculate the limit superior, the limit inferior, and the limit of a bounded sequence. 3. Apply the mean value theorems and Taylor's theorem. 4. Apply the various tests to determine convergence and absolute convergence of an infinite series of real numbers. 5. Formulate, classify and transform partial differential equations into canonical form. 	
Credit Value	6	
Total Marks	Max. Marks 40+60	

Unit	Topics	No. of Lectures
1	1.1 Historical background: 1.1.1 A brief historical background of Calculus and partial differential equations in the context of India and Indian heritage and culture 1.1.2 A brief biography of Bodhayana 1.2 Field structure and ordered structure of \mathbb{R} , intervals, bounded and unbounded sets, supremum and infimum, completeness in \mathbb{R} , absolute value of a real number. 1.3 Sequence of real numbers 1.4 Limit of a sequence 1.5 Bounded and monotonic sequences 1.6 Cauchy's general principle of convergence 1.7 Algebra of sequence and some important theorems	18
II	2.1 Series of non-negative terms 2.2 Convergence of positive terms series	

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	2.3 Alternating series and Leibnitz's test 2.4 Absolute and Conditional Convergence of Series of real terms 2.5 Uniform continuity 2.6 Chain rule of differentiability 2.7 Mean value theorems and their geometrical interpretations	18
III	3.1 Limit and continuity of functions of two variables 3.2 Change of variables 3.3 Euler's theorem on homogeneous functions 3.4 Taylor's theorem for functions of two variables 3.5 Jacobians 3.6 Maxima and Minima of functions of two variables 3.7 Lagrange's multiplier method 3.8 Beta and Gamma Functions	18
IV	4.1 Partial differential equations of the first order 4.2 Lagrange's solution 4.3 Some special types of equations which can be solved easily by methods other than the general method 4.4 Charpit's general method 4.5 Partial differential equations of second and higher orders	18
V	5.1 Classification of partial differential equations of second order 5.2 Homogeneous and non-homogeneous partial differential equations of constant coefficients 5.3 Partial differential equations reducible to equations with constant Coefficients	18

Keywords/Tags:

Bodhayana, Sequence, Series, Jacobians, Maxima and Minima, Beta and Gamma functions, Partial differential equations.

Text Books, Reference Books

Dr. Mandira Kar
 Head
 Department of Mathematics

Text Books:

1. Devi Prasad: Advanced Calculus, Prentice Hall India Learning Private Limited, 2009.
2. S C Malik and Savita Arora: Mathematical Analysis, New Age International Private Limited, 1st edition, 2017.
3. M. D. Raysinghania: Ordinary and Partial Differential Equations, S. Chand & Company, New Delhi, 2017.
4. Gerard G. Emch, R. Sridharan and M. D. Srinivas: Contributions to the History of Indian Mathematics. Hindustan Book Agency, Vol. 3, 2005.
5. मध्यप्रदेश हिंदी ग्रंथ अकादमी की पुस्तके ।

Reference Books:

1. R. R. Goldbeg: Methods of Real Analysis, Oxford & I.B.H. Publishing co. New Delhi, 2020.
2. T. M. Apostol: Mathematical Analysis, Narosa Publishing House. New Delhi. 1985.
3. D. Soma Sundaram and B. Choudhary: A first Course in mathematical Analysis, Narosa Publishing, House, New Delhi, 1997.
4. Murray R. Spiegel: Theory and problems of advance Calculus, Schauma Publishing Co. New York, 1974.
5. Donald R. Sherbert, Robert G. Bartle: Introduction to Real Analysis, Wiley, 4th edition, 2011.
6. Shah Nita H. Ordinary and Partial Differential Equation Theory and Applications, PHI Learning Private Limited, Second edition, 2015.
7. Gorakh Prasad: Integral Calculus, Pothishala Pvt. Ltd. Allahabad, 2015.
8. K. Sankara Rao: Introduction to Partial Differential Equations, PHI, 3rd edition, 2010.
9. Bibhutibhusan Datta and Avadhesh Narayan Singh: History of Hindu Mathematics, Asia Publishing House, 1962.

Assessment and Evaluation**Suggested Continuous Evaluation Methods:**

Maximum Marks:	100
Continuous Comprehensive Evaluation (CCE):	40 Marks
External Exam:	60 Marks

Internal Assessment:

Continuous Comprehensive Evaluation (CCE)

Total Marks: 40**External Assessment:****Total Marks: 60**

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Class: B.Sc. IV Sem	Subject: Mathematics	Session: 2023-24
Course Code	S2-MATH2T	
Course Title	Advanced Calculus and Partial Differential Equations	
Course Type	Elective	
Pre-requisite (if any)	To study this course, a student must have had the subject Mathematics in Certificate Course or equivalent.	
Course Learning Outcomes	The course will enable the students to: 1. Understand many properties of the real line and sequences 2. Calculate the limit superior, the limit inferior, and the limit of a bounded sequence 3. Apply the mean value theorems and Taylor's theorem 4. Apply the various tests to determine convergence and absolute convergence of an infinite series of real numbers 5. Formulate, classify and transform partial differential equations into canonical form	
Credit Value	6	
Total Marks	Max. Marks 40+60	
	Topics	No. of Lectures
	1.1 Historical background: 1.1.1A brief historical background of Calculus and partial differential equations in the context of India and Indian heritage and culture 1.1.2 A brief biography of Bhāskara 1.2 Field structure and ordered structure of \mathbb{R} , intervals, bounded and unbounded sets, supremum and infimum, completeness in \mathbb{R} , absolute value of a real number. 1.3 Sequence of real numbers 1.4 Limit of a sequence 1.5 Bounded and monotonic sequences 1.6 Cauchy's general principle of convergence 1.7 Algebra of sequence and some important theorems	18
	2.1 Series of non-negative terms 2.2 Convergence of positive terms series 2.3 Alternating series and Leibnitz's test 2.4 Absolute and Conditional Convergence of Series of real terms 2.5 Uniform continuity 2.6 Chain rule of differentiability	18

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2.7 Mean value theorems and their geometrical interpretations	
3.1 Limit and continuity of functions of two variables 3.2 Change of variables 3.3 Euler's theorem on homogeneous functions 3.4 Taylor's theorem for functions of two variables 3.5 Jacobians 3.6 Maxima and Minima of functions of two variables 3.7 Lagrange's multiplier method 3.8 Beta and Gamma Functions	18
4.1 Partial differential equations of the first order 4.2 Lagrange's solution 4.3 Some special types of equations which can be solved easily by methods other than the general method 4.4 Charpit's general method 4.5 Partial differential equations of second and higher orders	18
Text Books, Reference Books	

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Text Books:

5. Devi Prasad: Advanced Calculus, Prentice Hall India Learning Private Limited, 2009.
6. S C Malik and Savita Arora: Mathematical Analysis, New Age International Private Limited, 1st edition, 2017.
7. M. D. Raysinghania: Ordinary and Partial Differential Equations, S. Chand & Company, New Delhi, 2017.
8. Gerard G. Emch, R. Sridharan and M. D. Srinivas: Contributions to the History of Indian Mathematics. Hindustan Book Agency, Vol. 3, 2005.
6. मध्यप्रदेश हिंदी ग्रंथ अकादमी की पुस्तके ।

Reference Books:

1. R. R. Goldbeg: Methods of Real Analysis, Oxford & I.B.H. Publishing co. New Delhi, 2020.
2. T. M. Apostol: Mathematical Analysis, Narosa Publishing House. New Delhi. 1985.
3. D. Soma Sundaram and B. Choudhary: A first Course in mathematical Analysis, Narosa Publishing, House, New Delhi, 1997.
4. Murray R. Spiegel: Theory and problems of advance Calculus, Schauma Publishing Co. New York, 1974.
5. Donald R. Sherbert, Robert G. Bartle: Introduction to Real Analysis, Wiley, 4th edition, 2011.
6. Shah Nita H.: Ordinary and Partial Differential Equation Theory and Applications, PHI Learning Private Limited, Second edition, 2015.
7. Gorakh Prasad: Integral Calculus, Pothishala Pvt. Ltd. Allahabad, 2015.
8. K. Sankara Rao: Introduction to Partial Differential Equations, PHI, 3rd edition, 2010.
9. Bibhutibhusan Datta and Avadhesh Narayan Singh: History of Hindu Mathematics, Asia Publishing House, 1962.

Assessment and Evaluation**Suggested Continuous Evaluation Methods:**

Maximum Marks:	100
Continuous Comprehensive Evaluation (CCE):	40 Marks
External Exam:	60 Marks

Internal Assessment:

Continuous Comprehensive Evaluation (CCE)

Total Marks: 40**External Assessment:****Total Marks: 60**

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B.Sc. III Year

Part A - Introduction

2023-24

1	Course Title	Fundamentals of Boolean Algebra (Theory)
2	Course Type	Minor/Elective
3	Credit Value	Theory: 6 Credit
4	Total Marks	Max. Marks: 30 + 70 Min. Passing Marks: 35
5	Course Objective	Know how to apply the knowledge they have gained to solve real problems. And realize that there are multiple solutions to a given problem and these solutions will have a real impact on people's lives and know how to apply tools and ideas from mathematics and theoretical computer science to structure and solve complex problems.
6	Course Learning Outcomes (CLO)	The course will enable the students 1 Using the Boolean algebra in logical Problems. 2 Minimize the Boolean Function using Karnaugh Map. 3 Understanding the various logic gates. 4 Applying the circuits in logical problems.
7		

Part B - Content of Course

Unit	Topics	No. of Lectures
I	1.1 Indian logic 1.1.1 Origins 1.1.2 The school Vaisheshika 1.1.3 Catuskoti 1.1.4 Nyaya 1.1.5 Join Logic 1.1.6 Buddhist Logic 1.1.7 Navya-Nyaya 1.1.8 Influence Logic and Indian Thought 1.1.9 Boolean Logic and Indian Thoughts 1.2 Boolean Algebra:	24

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	1.2.1 Truth Table 1.2.2 Properties of Boolean Algebra 1.2.3 Principle of Duality 1.2.4 De Morgan's Theorem	
II	2.1 Boolean Expression 2.2 Boolean Function 2.3 Min-term or Minimal Boolean Function 2.4 Disjunctive Normal Form or Canonical Form 2.5 Complete Disjunctive Normal Form or Complete Canonical Form 2.6 Boole's Expansion Theorem 2.7 Complete Function of Boolean Function in Disjunctive Normal Form 2.8 Max-term or Maximal Boolean Function 2.9 Conjunctive Normal Form or Dual Canonical Form 2.10 Complete Conjunctive Normal Form 2.11 Complement Function of a Boolean Function in Conjunctive Normal Form 2.12 SOP & POS Forms 2.13 Minimize the Boolean function using Karnaugh-Map upto 3 variables	24
III	3.1 AND Gate 3.2 OR Gate 3.3 NOT Gate 3.4 NAND Gate 3.5 NOR Gate 3.6 NOR Gate 3.7 XNOR Gate 3.8 Buffer Gate 3.9 Universal Gate 3.10 Application of Logic Gates	18
IV	Circuits 4.1 Switching Circuits 4.2 Parallel Circuits 4.3 Series Circuits 4.4 Relay Circuits 4.5 Various Positions of Switching and Currents in Electric Circuits 4.6 Simple Arithmetic and Logic Circuits 4.7 Combinational Circuits 4.7.1 Adder	24

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 Department of Mathematics

	4.7.2 Subtractor 4.8 Simple Combinational Circuit Design Problems	
	<p>Text Books:</p> <ol style="list-style-type: none"> 1. J. p. Trembley and R. Manohar, Discrete Mathematics Structures with Application To Computer Science, McGraw Hill Education, 1st edition, 2017. 2. C. L. Liu: Elements of Discrete Mathematics, Hill Education, 4th Edition, 2017 <p>Reference Books:</p> <ol style="list-style-type: none"> 1 Seymour Lipschutz and Mark Lipson: Discrete Mathematics (Schaums Outline), McGraw Hill Education, 1st edition, 2017. 2 Edger G. Goodaire and Michael M. Parmenter. Discrete Mathematics with Graph Theory, Pearson Education Pt. Ltd., Indian Reprint 2003. 	

Assessment and Evaluation	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	100
Continuous Comprehensive Evaluation (CCE):	30 Marks
External Exam:	70 Marks
Internal Assessment:	Total Marks: 30
Continuous Comprehensive Evaluation (CCE)	
External Assessment:	Total Marks: 70

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B.Sc III Year 2023-24

1	Course Title	Numerical Methods and Scientific Computation	
2	Course Type	Discipline Specific Elective (DSE) (Group- A, Paper - I)	
3	Course Learning Outcomes (CLO) -	<p>The course will enable the students:</p> <ol style="list-style-type: none"> 1. Understand numerical methods to find the solution of a system of linear equations. 2. Compute interpolation value for real data. 3. Find quadrature by using various numerical methods. 4. Solve system of linear equations by using various numerical techniques. 5. Obtain solutions of ordinary differential equations by using numerical methods. 	
4	Credit Value	Theory: 6 Credit	
5	Total Marks	Max. Marks: 30 + 70	
	Unit	Topics	No. of Lectures
I		Methods for solving Algebraic and Transcendental Equations: 1.1 Ramanujan 1.2 Bisection 1.3 Regula Falsi 1.4 Secant 1.5 Newton-Raphson	18
II		Interpolation and Numerical Integration: 2.1 Lagrange Interpolation 2.2 Finite difference operators 2.3 Interpolation formula using Differences 2.3.1 Gregory-Newton Forward Difference Interpolation 2.3.2 Gregory-Newton Backward Difference Interpolation 2.4 Numerical Integration 2.4.1 Newton-Cote's formulae 2.4.2 Trapezoidal rule 2.4.3 Simpson's 1/3 Rule 2.4.4 Simpson's 3/8 Rule 2.4.5 Gauss Integration	24
III		Methods to Solve System of Linear Equations:	24

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	<p>3.1 Direct method for solving system of linear equations</p> <p>3.1.1 Gauss elimination</p> <p>3.1.2 LU decomposition</p> <p>3.1.3 Cholesky decomposition</p> <p>3.2 Iterative method</p> <p>3.2.1 Jacobi</p> <p>3.2.2 Gauss-Seidel</p>	
IV	<p>Numerical Solution of Ordinary Differential Equations:</p> <p>4.1 Single step methods</p> <p>4.1.1 Picard</p> <p>4.1.2 Taylor's series</p> <p>4.1.3 Euler</p> <p>4.1.4 Runge-Kutta</p> <p>4.2 Multistep methods</p> <p>4.2.1 Predictor-corrector</p> <p>4.2.2 Modified Euler</p> <p>4.2.3 Milne-Simpson</p>	24
	<p>Suggested Readings:</p> <p>Text Books:</p> <ol style="list-style-type: none"> 1. S. S. Sastry: Introductory Methods of Numerical Analysis, Prentice Hall India Learning Private Limited, Fifth edition, 2012. 2. E. Balagurusamy: Numerical Methods, Tata McGraw Hill Publication, 2017. <p>3. मध्य प्रदेश हिंदी ग्रंथ अकादमी की पुस्तक </p> <p>Reference Books:</p> <ol style="list-style-type: none"> 1. M.K. Jain, S. R. K. Iyengar, R. K. Jain, Numerical Method for Scientific and Engineering Computation, New Age International(P) Ltd.,1999. 2. Saxena H. C. : Finite Differences & Numerical Analysis, S Chand, 2010. 	

Assessment and Evaluation	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	100
Continuous Comprehensive Evaluation (CCE):	30 Marks
External Exam:	70 Marks
Internal Assessment:	Total Marks: 30
Continuous Comprehensive Evaluation (CCE)	
External Assessment:	Total Marks: 70

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 B.Sc III Year 2023-24

1	Course Title	Elements of Discrete Mathematics
2	Course Type	Discipline Specific Elective (DSE) (Group- A, Paper - II)
3	Course Learning Outcomes (CLO) -	The course will enable the students: 6. Apply the Boolean algebra, Switching circuits and their applications. 7. Minimizing the Boolean Function using Karnaugh Map. 8. Understand the lattices and their types. 9. Graphs, their types and its application in study of shortest path algorithms. 10. Test whether two given graphs are isomorphic. 11. Understand the Eulerian and Hamiltonian graphs. 12. Represent graphs using adjacency and incidence matrices.
4	Credit Value	Theory: 6 Credit
5	Total Marks	Max. Marks: 30 + 70
6		

Part B - Content of the Course

Unit	Topics	No. of Lectures
I	1.1 Indian Logic 1.1.1 Origins 1.1.2 The schools Vaisheshiks 1.1.3 Catuskoti 1.1.4 Nyaya 1.1.5 Jain Logic 1.1.6 Buddhist Logic 1.1.7 Navya-Nyaya 1.1.8 Influence of Indian Logic on Modern Logic 1.1.9 Boolean Logic and Indian Thoughts 1.2 Relations 1.2.1 Binary, Inverse, Composite and Equivalence relation 1.2.2 Equivalence classes and its properties	18

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	<ul style="list-style-type: none"> 1.2.3 Partition of a set 1.2.4 Partial order relation 1.2.5 Partially ordered and Totally ordered sets 1.2.6 Hasse diagram 1.3 Lattices <ul style="list-style-type: none"> 1.3.1 Definition and examples 1.3.2 Dual, bounded, distributive and complemented lattices 	
II	<ul style="list-style-type: none"> 2.1 Boolean Algebra <ul style="list-style-type: none"> 2.1.1 Definition and properties 2.1.2 Switching circuits and its applications 2.1.3 Logic gates and circuits 2.2 Boolean functions <ul style="list-style-type: none"> 2.2.1 Disjunctive and conjunctive normal forms 2.2.2 Bool's expansion theorem 2.3 Minimize the Boolean function using Karnaugh Map 	24
III	<ul style="list-style-type: none"> Graphs: <ul style="list-style-type: none"> 3.1 Definition and types of graph 3.2 Subgraphs 3.3 Walk, path and circuit 3.4 Connected and disconnected graph 3.5 Euler graph 3.6 Hamiltonian path and circuit 3.7 Dijkstra's Algorithm for shortest paths in weighted graph 	24
IV	<ul style="list-style-type: none"> Tree: <ul style="list-style-type: none"> 4.1 Trees and properties 4.2 Rooted, Binary and Spanning tree 4.3 Rank and nullity of a graph 4.4 Kruskal's and Prim's Algorithm 4.5 Cut- set and Its Properties 4.6 Fundamental Circuits and Cut- set 4.7 Planar graphs 4.8 Kuratowski's two graph 4.9 Matrix representation of graph <ul style="list-style-type: none"> 4.9.1 Incidence 4.9.2 Adjacency 4.9.3 Circuit 4.9.3 Cut – Set 4.9.4 Path 	24

	<p>Text Books</p> <ol style="list-style-type: none"> 1. J. P. Tremblay and R. Manohar, Discrete Mathematical Structures With Applications To Computer Science, MACGraw Hill Education, 1 st edition, 2017. 2. Satinder Bal Gupta, C. P. Gandhi: Discrete Structures, Laxmi Publication, 2010. 3. C. L. Liu: Elements of Discrete Mathematics, MACGraw Hill Education, 4 th edition, 2017. 4. Narsingh Deo: Graph Theory with Applications to Engineering and Computer Science, Prentice Hall India Learning Private Limited, 1997. 5. मध्य प्रदेश हिंदी ग्रन्थ अकादमी की पुस्तके। <p>Reference Books:</p> <ol style="list-style-type: none"> 1. Seymour Lipschutz and Mark Lipson: Discrete Mathematics (Schaums Outline), MACGraw Hill Education , 3 rd edition, 2017. 2. Edgar G. Goodaire and Michael M. Parmenter. Discrete Mathematics with Graph Theory, Pearson Education Pt. Ltd., Indian Reprint 2003. 	
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Assessment and Evaluation	
Suggested Continuous Evaluation Methods:	
Maximum Marks:	100
Continuous Comprehensive Evaluation (CCE):	30 Marks
External Exam:	70 Marks
Internal Assessment:	Total Marks: 30
Continuous Comprehensive Evaluation (CCE)	
External Assessment:	Total Marks: 70

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Jabalpur (M.P.), India

PART A - INTRODUCTION

Class	: BA
Semester	: I
Subject	: English Literature (Theory)
Paper	: I (Study of Drama (Theory))
Compulsory / Optional	: Compulsory (MAJOR/MINOR)
Max. Marks	: 100 (40 + 60)
Credits	: 6(4Theory+2Practical)
Course Outcomes	: The course will inculcate team work, communicative ability, creativity, and aesthetic sense in students, enabling them to understand in detail, drama and the theatre.

Through this course, the students will acquire the knowledge of

- Different genres of drama, like comedy, tragedy, epic theatre, and commedia dell'arte
- Distinctive features of Sanskrit, Greek, English, American and Indian plays
- Dramatic techniques and elements like plot, theme, character, spectacle and narrative

Shahrukh Khan
Neelanjana Singh
[Signatures]

PART B – CONTENTS OF THE COURSE

	Title	No. of Lectures
Unit I	Drama: Nature, Scope and Forms Classical Drama 1.1 Sophocles : Oedipus Rex – Story	15
Unit 2	Renaissance Drama 2.1 Christopher Marlowe : Dr. Faustus 2.2 William Shakespeare : Tragedy in <i>The Merchant of Venice</i>	18
Unit 3	Restoration Drama 3.1 John Dryden : All for Love	12
Unit 4	Indian Drama 4.1 Girish Karnad : Hayavadana	15

PART C – LEARNING RESOURCES

Suggested Readings :

Boulton, Marjorie. *The Anatomy of Drama*. London: Routledge and Kegan Paul Ltd., 1959.

Charlton, H.B. *Shakespearean Comedy*. Routledge Kegan and Paul, 1966.

Karnad, Girish. *Girish Karnad: Three Plays*. New Delhi: OUP, 2002.

Nicoll, Allardyce. *British Drama*. Delhi: Doaba House

Stanivukovic, Goran, and John Cameron. *Tragedies of the English Renaissance: An Introduction (Renaissance Dramas and Dramatists)*, 1st ed. Edinburgh University Press, 2018.

Straub, Kristina, et al. *The Routledge Anthology of Restoration and Eighteenth-Century Drama*. 1st ed. Routledge, 2017.

Suggested digital platforms weblinks :

"Restoration Drama in England Encyclopedia Com Encyclopesha.Com. 2010,
www.encyclopedia.com/humanities/culture-magazines/restoration-drama-england



Shahriyath
Neelanjani
Sugha

Wikipedia contributors "English Drama Wikipedia, 26 Mar 2021,

en [wikipedia.org/wiki/English_drama](https://en.wikipedia.org/wiki/English_drama)

Renaissance Drama

<https://www.cootes.com/homework-help-what-main-sharacteriatic-renaissance-drama>

Restoration Drama Characteristics

<https://englishsummary.com/restoration-dramaresc.tab:0>

Shakespeare Sonnets Summary & Analysis 154 sonnets with translation

<https://shakespearequotesandplass.com/shakespeare-sonnets>

Abhijnanashakuntala work by Kalidasa

<https://www.britannica.com/topic/Abhinanashakuntala>

Oedipus Rex Greek mythology

<https://www.britannica.com/topic/Oedipus-Greek-mythology>

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Zakaria
Syaiful
Rahman
Mehar
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Jabalpur (M.P.), India

PART A - INTRODUCTION

Class	: BA
Semester	: I
Subject	: English Literature (Practical)
Paper	: I (Applied Drama (Practical))
Compulsory / Optional	: Compulsory (MAJOR/MINOR)
Max. Marks	: 100 (40 + 60)
Credits	: 2
Course Outcomes	: The course will inculcate team work, communicative ability, creativity, and aesthetic sense in students, enabling them to understand in detail, drama and the theatre. Through this course, the students will acquire the knowledge of

- Different genres of drama, like comedy, tragedy, epic theatre, and commedia dell'arte
- Distinctive features of Sanskrit, Greek, English, American and Indian plays
- Dramatic techniques and elements like plot, theme, character, spectacle and narrative

Shahrukh Khan
Neelanjana
Srinivas Kumar
Srinivas Kumar
Srinivas Kumar
Srinivas Kumar
Srinivas Kumar

PART B – CONTENTS OF THE COURSE

	Title	No. of Lectures
Unit 1	American Drama 1.1 Arthur Miller : All My Sons	10
Unit 2	Modern Drama 2.1 J. M Synge : Riders to the Sea	10
Unit 3	Applied Drama : Problems and Prospects 3.1 Difference between comedy, tragedy and tragicomedy: Theme, plot, diction, characters, comic, elements, stage and costumes 3.2 Dialogue, action, conflict and mood of the audience 3.3 Rising and falling action and climax	10

PART C – LEARNING RESOURCES

Suggested Readings –

Ibsen, Henrik, et al. *Ibsen: 4 Major Plays, Vol 2: Ghosts/ An Enemy of the People/ The Lady from the Sea/ John Gabriel Borkman (Signet Classics)*. Reissue, Signet, 2001.

Krasner, David. *A Companion to Twentieth-Century American Drama*. 1st ed., Wiley-Blackwell, 2007.

Lopez, Jeremy. *The Routledge Anthology of Early Modern Drama*. 1st ed., Routledge, 2020.

Miller, Arthur, and Christopher Bigsby. *All My Sons (Penguin Classics)*. New Ed, Penguin Classics, 2000.



Handwritten signatures of faculty members, including Shahrez Khan, Neelanjana, and others.

O'Neill, Eugene, and Harold Bloom. *Long Day's Journey into Night*. 2nd ed., Yale University Press, 2002.

Watt, Stephen, and Gary Richardson. *American Drama: Colonial to Contemporary*. 1st ed., Heinle & Heinle Pub, 1994.

Williams, Tennessee. *A Streetcar Named Desire (Modern Classics (Penguin))*. 5th or later Edition, Penguin Books, 2009.

Suggestive digital platforms web links -

"American Literature - Drama" Encyclopedia Britannica, 2019.
www.britannica.com/art/American-literature/Drama

Wikipedia contributors, "Theater in the United States", Wikipedia, 18 May 2021,
en.wikipedia.org/wiki/Theater_in_the_United_States.



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Jabalpur (M.P.), India

PART A - INTRODUCTION

Class	: BA
Semester	: I
Subject	: English Literature (Theory)
Paper	: I (Study of Drama (Theory))
Compulsory / Optional	: Compulsory (ELECTIVE)
Max. Marks	: 100 (40 + 60)
Credits	: 3
Course Outcomes	: The course will inculcate team work, communicative ability, creativity, and aesthetic sense in students, enabling them to understand in detail, drama and the theatre.

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- Distinctive features of Sanskrit, Greek, English, American and Indian plays
- Dramatic techniques and elements like plot, theme, character, spectacle and narrative

Shahin Khan
Neelanjana
[Signatures]

PART B – CONTENTS OF THE COURSE

	Title	No. of Lectures
Unit I	Drama: Nature, Scope and Forms Classical Drama 1.1 Sophocles : Oedipus Rex – Story	15
Unit 2	Renaissance Drama 2.1 Christopher Marlowe : Dr. Faustus 2.2 William Shakespeare : Tragedy in <i>The Merchant of Venice</i>	18
Unit 3	Restoration Drama 3.1 John Dryden : All for Love	12

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Charlton, H.B. *Shakespearean Comedy*. Routledge Kegan and Paul, 1966.

Karnad, Girish. *Girish Karnad: Three Plays*. New Delhi: OUP, 2002.

Nicoll, Allardyce. *British Drama*. Delhi: Doaba House

Stanivukovic, Goran, and John Cameron. *Tragedies of the English Renaissance: An Introduction (Renaissance Dramas and Dramatists)*, 1st ed. Edinburgh University Press, 2018.

Straub, Kristina, et al. *The Routledge Anthology of Restoration and Eighteenth-Century Drama*. 1st ed. Routledge, 2017.

Suggested digital platforms weblinks :

"Restoration Drama in England Encyclopedia Com Encyclopesha.Com. 2010,
www.encyclopedia.com/humanities/culture-magazines/restoration-drama-england



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Wikipedia contributors "English Drama Wikipedia, 26 Mar 2021,

en [wikipedia.org/wiki/English_drama](https://en.wikipedia.org/wiki/English_drama)

Renaissance Drama

<https://www.cootes.com/homework-help-what-main-sharacteriatic-renaissance-drama>

Restoration Drama Characteristics

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Shakespeare Sonnets Summary & Analysis 154 sonnets with translation

<https://shakespearequotesandplass.com/shakespeare-sonnets>

Abhijnanashakuntala work by Kalidasa

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PART A - INTRODUCTION

Class	: BA
Semester	: I
Subject	: English Literature (Practical)
Paper	: I (Applied Drama (Practical))
Compulsory / Optional	: Compulsory (ELECTIVE)
Max. Marks	: 100 (40 + 60)
Credit	: 1
Course Outcomes	: The course will inculcate team work, communicative ability, creativity, and aesthetic sense in students, enabling them to understand in detail, drama and the theatre. Through this course, the students will acquire the knowledge of

- Different genres of drama, like comedy, tragedy, epic theatre, and commedia dell'arte
- Distinctive features of Sanskrit, Greek, English, American and Indian plays
- Dramatic techniques and elements like plot, theme, character, spectacle and narrative

Shahrukh Khan
Neelanjana
S. Singh
S. Singh
S. Singh
S. Singh
S. Singh
S. Singh

PART B – CONTENTS OF THE COURSE

	Title	No. of Lectures
Unit 1	American Drama 1.1 Arthur Miller : All My Sons	10
Unit 2	Modern Drama 2.1 J. M Synge : Riders to the Sea	10
Unit 3	Applied Drama : Problems and Prospects 3.1 Difference between comedy, tragedy and tragicomedy: Theme, plot, diction, characters, comic, elements, stage and costumes 3.2 Dialogue, action, conflict and mood of the audience 3.3 Rising and falling action and climax	10

PART C – LEARNING RESOURCES

Suggested Readings –

Ibsen, Henrik, et al. *Ibsen: 4 Major Plays, Vol 2: Ghosts/ An Enemy of the People/ The Lady from the Sea/ John Gabriel Borkman (Signet Classics)*. Reissue, Signet, 2001.

Krasner, David. *A Companion to Twentieth-Century American Drama*. 1st ed., Wiley-Blackwell, 2007.



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Neelanjani
Sugan

Lopez, Jeremy. *The Routledge Anthology of Early Modern Drama*. 1st ed., Routledge, 2020.

Miller, Arthur, and Christopher Bigsby. *All My Sons (Penguin Classics)*. New Ed, Penguin Classics, 2000.

O'Neill, Eugene, and Harold Bloom. *Long Day's Journey into Night*. 2nd ed., Yale University Press, 2002.

Watt, Stephen, and Gary Richardson. *American Drama: Colonial to Contemporary*. 1st ed., Heinle & Heinle Pub, 1994.

Williams, Tennessee. *A Streetcar Named Desire (Modern Classics (Penguin))*. 5th or later Edition, Penguin Books, 2009.

Suggestive digital platforms web links -

"American Literature - Drama" Encyclopedia Britannica, 2019.

www.britannica.com/art/American-literature/Drama

Wikipedia contributors, "Theater in the United States", Wikipedia, 18 May 2021,

en.[wikipedia.org/wiki/Theater_in_the_United_States](https://en.wikipedia.org/wiki/Theater_in_the_United_States).



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Jabalpur (M.P.), India
SESSION- 2022-23

PART A - INTRODUCTION

Class	: BA (A1-FENGIT)
Semester	: I
Subject	: Functional English
Paper	: I (Introduction and Functions of Language)
Compulsory / Optional	: Compulsory (MINOR)
Max. Marks	: 100
Credits	: 6
Course Course Outcomes	: By the end of this course students will be able

to:

- Describe the basic concepts and purposes of language.
- Evaluate the practical classification and functions of language

PART B – CONTENTS OF THE COURSE



Shahrukh Khan
Neelanjana
[Other signatures]

Total No. of Lectures-Tutorials-Practical in hours per week): L-T-P 3 HOURS PER WEEK

Total No. of Lectures: 90 HOURS PER WEEK: THREE

UNITS	TOPICS	NO. OF LECTURES
I	Language 1. The concept and definitions of language 2. The purpose of language The role of language in human development	15
II	Language and Communication 1. Context, environment, knowing the audience and occasion 2. Language Ladder	15
III	Practical Classification of Language 1. Conversational language 2. Academic language 3. Intimate and Personal language 4. Persuasive language: sales and advertisements 5. Scientific, Legal and Technical language 6. Commercial language	15
IV	Functions of Language 1. Referential function 2. Expressive function 3. Directive function 4. Phatic function 5. Poetic function 6. Metalingual function	15
V	English Language 1. Development of English 2. Status and role of English in the era of globalization Varieties of English: American, British, Indian	15

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	Keywords - Language, human development, communication, globalization	
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College with Potential for Excellence by UGC
DST FIST Supported & Star College Scheme by DBT
Jabalpur (M.P.), India
SESSION- 2022-23

PART A - INTRODUCTION

Class	: BA (A1-FENGIT)
Semester	: I
Subject	: Functional English
Paper	: I (Introduction and Functions of Language)
Compulsory / Optional	: Compulsory (ELECTIVE)
Max. Marks	: 100
Credits	: 4
Course Course Outcomes	: By the end of this course students will be able

to:

- Describe the basic concepts and purposes of language
- Evaluate the practical classification and



 Shahrin Khan, Neelanjana, and other faculty members' signatures.

functions of language

PART B – CONTENTS OF THE COURSE

Total No. of Lectures-Tutorials-Practical in hours per week): L-T-P 3 HOURS PER WEEK

Total No. of Lectures: 60 HOURS PER WEEK: THREE

UNITS	TOPICS	NO. OF LECTURES
I	Language 1. The concept and definitions of language 2. The purpose of language The role of language in human development	15
II	Language and Communication 1. Context, environment, knowing the audience and occasion 2. Language Ladder	15
III	Practical Classification of Language 1. Conversational language 2. Academic language 3. Intimate and Personal language 4. Persuasive language: sales and advertisements 5. Scientific, Legal and Technical language 6. Commercial language	15
IV	Functions of Language 1. Referential function 2. Expressive function 3. Directive function 4. Phatic function 5. Poetic function 6. Metalingual function	15
	Keywords - Language, human development, communication, globalization	

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Neelanjani
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DST FIST Supported & STAR College Scheme by DBT
JABALPUR (M.P) INDIA**

Subject/Course type : **FOUNDATION COURSE**
Class : **BA/BSC/BCOM/BCA/BBA I SEMESTER**
Paper Code : **XI-FCHBIT**
Paper Title : **ENGLISH LANGUAGE AND INDIAN CULTURE**
Credits : **2 credits**

COURSE OUTCOMES:

1. Prepare for various competitive exams by developing their English language competence.
2. Promote their comprehension skills by being exposed to a variety of texts and their interpretations.
3. Build and enhance their vocabulary
4. Develop their communication skills by strengthening grammar and usages
5. Inculcate values which make them aware of national heritage and environmental issues and making them responsible citizens.

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Neelanjani
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Unit-I	<p>Reading, Writing and Interpretation Skills:</p> <ol style="list-style-type: none"> 1. Where the Mind is Without Fear- Rabindranath Tagore (Keyword: Patriotism) 2. National Education-M. K. Gandhi (Keyword: Edification) 3. The Axe-R K Narayan [Keyword: Environment] 4. The Wonder That Was India-A. L Basham(an excerpt)[Keyword: indianness]) 5. Preface to the Mahabharata C. Rajagopalachari [Keyword: Indian Mythology] 6. Child Bride- Rajiv Khandelwal
Unit- II	<p>Comprehension Skill:</p> <p>Unseen Passage followed by Multiple choice questions</p>
Unit- III	<p>Basic Language Skills</p> <ol style="list-style-type: none"> 1. Vocabulary Building: <p>Suffix, Prefix, Synonyms, Antonyms, Homophones, Homonyms and One-word substitution</p> <ol style="list-style-type: none"> 2. Basic Grammar: <p>Noun, Pronoun, Adjective, Verb, Adverb, Prepositions, Articles, Time and Tense</p>

Textbooks, Reference Books, Other Resources: Suggested Readings-

1. Essential English Grammar-Raymond¹ Murphy, Cambridge University Press.
2. Practical English Grammar Exercises1 -A.J.Thomson & A.V.Martinet, Oxford India.
3. Practical English Usage-Michael Swan, Oxford
4. English Grammar in Use-Raymond Murphy, Cambridge University Press.



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 Neelanjana
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Jabalpur (M.P.), India

PART A - INTRODUCTION

Class	: BA
Semester	: II
Subject	: English Literature (Theory)
Course Code	: A1-ELIT2T
Course Title	: Study of Poetry
Paper	: II (Theory)
Course Type	: Core Course (MAJOR/MINOR)
Course Learning Outcome	: The study of Poetry will not only instruct and delight the students, but also inspire them to have positivity, creativity and a new way of thinking. . After the study of this paper, the students will be able: <ul style="list-style-type: none">● To identify, interpret, analyse and appreciate the various elements of poetry,● To develop literary intellect, and● To appreciate the lyrical and sonorous quality of Languages
Total Marks	: 100 (40+60)
Credit Value	: 6 (4Theory+2Practical)

PART B – CONTENTS OF THE COURSE



Shahriya Khan
Neelanjana
[Other signatures]

Unit	Topics	No. Of Lectures
I	<p>1. Introduction to Literature and its classification—Poetry from Chaucer to Milton</p> <p>1.1 Figures of Speech: Definition of Poetry according to the Poets discussed in this paper: Different ages with different socio-economic and political backgrounds; Literary Terminology</p> <p>1.2 Geoffrey Chaucer: The Wife of Bath, The Pardoner (from <i>The Prologue to The Canterbury Tales</i>)</p> <p>1.3 John Donne: Death Be Not Proud</p> <p>1.4 John Milton: On His Blindness</p> <p>Keywords/ Tags: <i>Figurative language, Extended metaphor, Hyperbole, imagery, Iambic pentameter, Foot Line, Narrative Poetry, Metaphysical Poetry, Puritan era</i></p>	15
II	<p>2. Poetry in Neoclassical and Romantic Age</p> <p>2.1 Alexander Pope: The Rape of the Lock - Canto III</p> <p>2.2 William Wordsworth: Solitary Reaper. Daffodils</p> <p>2.3 John Keats: Ode to Autumn</p> <p>Keywords/ Tags: Nature Poet, Wordsworth's theory of poetry, Spontaneity, Lyrical Ballads, Fancy and Imagination, Supernatural Poetry, Revolutionary Poet, Sensuousness, Hellenism, Negative capability, Aesthetic beauty</p>	15


 A collection of handwritten signatures in black ink, including names like Shahrezad Khan, Neelanjana, and others, arranged in two rows.

III	<p>3. Poetry in Victorian Age</p> <p>3.1 Alfred Lord Tennyson. Break Break Break</p> <p>3.2 Robert Browning. The Last Ride Together</p> <p>3.3 Matthew Arnold: Dover Beach</p> <p>Keywords / Tags: Victorian age. Industrial revolution. Victorian society, Autobiographical note. Tennyson and Clough. Dramatic monologue, Pastoral elegy. Oxford movement, Campus Poetry</p>	15
IV	<p>4. Indian Poetry</p> <p>4.1 Toru Dutt: Our Casuarina Tree, Sita</p> <p>4.2 Sarojini Naidu: Indian Weavers</p> <p>4.3 Rabindranath Tagore: Gitanjali Song No. 1 & 2</p> <p>Keywords/ Tags: Indo-Anglican poetry, Simile and Metaphor. Spirituality. Poetry of Indian Independence. Indian theme. Mysticism, Spiritualism, Indian Mythological Characters</p>	15

PART C – LEARNING RESOURCES

Suggested Readings:

1. "A History of Modern Poetry: Modernism and After: " Perkins, David Paperback. 1989
2. Glossary of Literary Terms" Abrams M H, Prism Books Pvt. Limited 1993
3. "John Donne- The Major works OWC?". Carcy, John and Dunne, John. UK: Oxford University Press, 2009. Print.
4. John Keats: His life and Poetry. His Friends. Critics and After Fame. " Colvin Sidney, London: Macmillan. 1917.
5. "Letter to George and Thomas Keats. 21 December 1817 " and 'Letter to Richard

Shahin Khan
 Neelanjana
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- Woodhouse 27 October. 1818* ' in Romantic "Prose and Poetry" Keats, John. ed Harold Bloom and Lionel Trilling (New York: OUP, 1973) pp. 766-68. 777—8.
6. "Lyrical Ballads with Pastoral and Other Poems." Wordsworth, William (1803). (4 ed.) London: Printed for Longman, Hurst, Rees, and Orme. by R. Taylor
 7. "The Canterbury Tales." Chaucer, Geoffrey. Trans. Nevill Coghill "New" Delhi Penguin Classics, 2002. Print. Brown, Peter. Geoffrey Chaucer. OWC. New Delhi: Oxford University Press, 2011. Print.
 8. "Toru Dutt (1856—1877), Indian Poet, Translator, and Novelist". Lokuge, Chandani (12 September 2019). Oxford: Oxford University Press.

Suggestive digital platforms web links:

1. Athar. "Indian Poetry In English." *English Summary*, 17 Nov 2017. englishsummary.com/indian-poets-in-english.
2. Literatutemini.Com. "The Brief History of English Poe www.literaturemini.com/2018/08/the-brief-history-of-english-poetry.html try." 2018, 2018.
3. Polly. "A Brief History of English Poetry." *The Culture Project*, 17 Apr. 2017, thecultureprojectblog.wordpress.com/2017/03/19/a-brief-history-of-english-poets/
4. Wikipedia contributors. "English Poetry." *Wikipedia*, 21 May 2021, en.wikipedia.org/wiki/English_poetry.

Suggested equivalent online courses:

<https://www.edx.org/course/ap-english-literature-composition-part-2-poems-2>

AP English Literature and Composition, Part 2. Poems on EDX by Maggie Sokolik, University of California, Berkeley

<https://www.coursera.org/learn/modpo> Modern and Contemporary American Poetry by Al Filreis, University of Pennsylvania.

<https://www.classcentral.com/course/modern-american-poetry-5963> Modern American Poetry- Free online Course

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Neelanjana
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Jabalpur (M.P.), India

PART A - INTRODUCTION

Class	: BA
Semester	: II
Subject	: English Literature (Practical)
Course Code	: A1-ELIT2T
Course Title	: Applied Poetry
Paper	: II (Practical)
Course Type	: Core Course (MAJOR/MINOR)
Course Learning Outcome	: The study of Poetry will not only instruct and delight the students, but also inspire them to have positivity, creativity and a new way of thinking. . After the study of this paper, the students will be able: <ul style="list-style-type: none">● To identify, interpret, analyse and appreciate the various elements of poetry,● To develop literary intellect, and● To appreciate the lyrical and sonorous quality of Languages
Total Marks	: 100 (40+60)
Credit Value	: 6 (4 + 2)

PART B – CONTENTS OF THE COURSE



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Unit	Topics	No. Of Lectures
I	<p>1. American Poetry</p> <p>1.1 Walt Whitman O Captain! My Captain!</p> <p>1.2 Robert Frost: The Road Not taken</p> <p>Keywords/ Tags: <i>Modern poetry. WWI, Imagination and Reality, War poetry'. Symbolist movement. Patriotic poetry, WWII, The Holocaust, Confessional poetry</i></p>	10
II	<p>2. British and Indian Poetry</p> <p>2.1 William Shakespeare: Sonnet 116 <i>Let Me Not to the Marriage of True Minds</i></p> <p>2.2 PB Shelley: Ode to the West Wind</p> <p>2.3 Guru Nanak Dev: The Sky is Your Platter</p> <p>Keywords/ Tags: <i>Romanticism. Revolutionary spirit . Impact of the French revolution. Lord Byron. Disillusionment, Irish literary revival</i></p>	10
III	<p>3. Applied Poetry : Problems and Prospects</p> <p>3.1 Creating Poetry: Problems in Writing Poetry. Parameters of Poetry. Imagination and other Contemporary Issues</p> <p>3.2 Subjectivity, Objectivity Negativity. Resilience</p> <p>3.3 Language, Vocabulary and Other Essential Elements</p> <p>Keywords/ Tags: <i>Meter Rhyme scheme, Regular rhythm. Word sounds. Allegory-, Shape. Mood. Stanza</i></p>	10

PART C – LEARNING RESOURCES

Suggested Readings:

1. Dove, Rita. *The Penguin Anthology of Twentieth-Century American Poetry*. 1st ed, Penguin Books. 2013.
2. Eliot, V. T. S. *Eliot: Collected Poems. 1909—1962 The Centenary Edition*. 1st ed. Harcourt Brace Jovanovich, 1991.



 Shahrin Khan, Neelanjana, and several other faculty members' signatures.

3. Frost, Robert. *The Poems of Robert Frost: Poetry for the Ages*. Independently published, 2019
4. Lehman David, and John Brehm. *The Oxford Book of American Poetry*. 1st ed., Oxford University Press, 2006.
5. Plath, Sylvia *The Collected Poems*. Reprint, Harper Perennial Modern Classics, 2018
6. Shakespeare, William. *Love Poems and Sonnets of William Shakespeare* Independently published 2020.
7. Walt Whitman et,al *Walt Whitman Poetry Collection: Various Works and Poems and a Complete Biography of Walt Whitman* , Independently Published 2020

Suggestive digital platforms web links

- "375 Poems by William Shakespeare." William Shakespeare Net, 2018.
 - www.williamshakespeare.net/poems.jsp.
- "Eliot's Poetry: 'The Love Song of J. Alfred Prufrock.'" Sparknotes, 2019.
 - www.sparknotes.com/poetn/eliot/section_1
- "Ode to the West Wind Poem Summary and Analysis." Litcharts, 2020.
 - www.litcharts.com/poetry/percy-bysshe-she-ley/ode-to-the-west-wind.
- Poetry Foundation. "Song of Myself {1892 Version} by Walt Whitman." Poetry Foundation, 1892.
 - www.poetryfoundation.org/poems/45477/song-of-myself-1892-version
- "Walt Whitman." Poetry Foundation, 2020.
 - www.Poetryfoundation.org/poets/walt-whitman.
- Poets.org - Academy of American Poets. "Robert Frost." Academy of American Poets, 2019, poets.org/poet/robert-frost.
- The Editors of Encyclopedia Britannica. "Sylvia Plath | Biography, Poems, Books, Death, & Facts."
- Encyclopedia Britannica. 2018 www.britannica.com/biography/Sylvia-Plath

Suggested equivalent online courses:



- <https://www.edx.org/course/ap-english-literature-composition-part-2-poems-2> AP English Literature and Composition, Part 2 Poems on EDX by Maggie Sokolik, University of California, Berkeley.
- <https://www.coursera.org/learn/modpo> Modern and Contemporary American Poetry by Al Filreis, University of Pennsylvania
- <https://www.classcentral.com/course/modern-american-poetry-5963-Modern-American>
Poetry- Free online Course

Shahin Khan
 Nazaryani
 Zaidi
 Ali
 M. A. Khan
 G. H.

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Jabalpur (M.P.), India

PART A - INTRODUCTION

Class	: BA
Semester	: II
Subject	: English Literature (Theory)
Course Code	: A1-ELIT2T
Course Title	: Study of Poetry
Paper	: II (Theory)
Course Type	: Core Course (ELECTIVE)
Course Learning Outcome	: The study of Poetry will not only instruct and delight the students, but also inspire them to have positivity, creativity and a new way of thinking. . After the study of this paper, the students will be able: <ul style="list-style-type: none">• To identify, interpret, analyse and appreciate the various elements of poetry,• To develop literary intellect, and• To appreciate the lyrical and sonorous quality of Languages
Total Marks	: 100 (40+60)
Credit Value	: 3

PART B – CONTENTS OF THE COURSE

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Neelgani
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Unit	Topics	No. Of Lectures
I	<p>1. Introduction to Literature and its classification—Poetry from Chaucer to Milton</p> <p>1.1 Figures of Speech: Definition of Poetry according to the Poets discussed in this paper: Different ages with different socio-economic and political backgrounds; Literary Terminology</p> <p>1.2 Geoffrey Chaucer: The Wife of Bath, The Pardoner (from <i>The Prologue to The Canterbury Tales</i>)</p> <p>1.3 John Donne: Death Be Not Proud</p> <p>1.4 John Milton: On His Blindness</p> <p>Keywords/ Tags: <i>Figurative language, Extended metaphor, Hyperbole, imagery, Iambic pentameter, Foot Line, Narrative Poetry, Metaphysical Poetry, Puritan era</i></p>	15
II	<p>2. Poetry in Neoclassical and Romantic Age</p> <p>2.1 Alexander Pope: The Rape of the Lock - Canto III</p> <p>2.2 William Wordsworth: Solitary Reaper. Daffodils</p> <p>2.3 John Keats: Ode to Autumn</p> <p>Keywords/ Tags: Nature Poet, Wordsworth's theory of poetry, Spontaneity, Lyrical Ballads, Fancy and Imagination, Supernatural Poetry, Revolutionary Poet, Sensuousness, Hellenism, Negative capability, Aesthetic beauty</p>	15


 A collection of handwritten signatures in black ink, including names like Shahriar Khan, Neelanjana, and others, arranged in two rows.

III	<p>3. Poetry in Victorian Age</p> <p>3.1 Alfred Lord Tennyson. Break Break Break</p> <p>3.2 Robert Browning. The Last Ride Together</p> <p>3.3 Matthew Arnold: Dover Beach</p> <p>Keywords / Tags: Victorian age. Industrial revolution. Victorian society, Autobiographical note. Tennyson and Clough. Dramatic monologue, Pastoral elegy. Oxford movement, Campus Poetry</p>	15
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PART C – LEARNING RESOURCES

Suggested Readings:

1. "A History of Modern Poetry: Modernism and After: " Perkins, David Paperback. 1989
2. *Glossary of Literary Terms*" Abrams M H, Prism Books Pvt. Limited 1993
3. "John Donne- The Major works OWC?". Carcy, John and Dunne, John. UK: Oxford University Press, 2009. Print.
4. *John Keats: His life and Poetry. His Friends, Critics and After Fame.* " Colvin Sidney, London: Macmillan. 1917.
5. "Letter to George and Thomas Keats. 21 December 1817 " and 'Letter to Richard Woodhouse 27 October. 1818 '. in Romantic "Prose and Poetry" Keats, John. ed Harold Bloom and Lionel Trilling (New York: OUP, 1973) pp. 766-68. 777—8.
6. "Lyrical Ballads with Pastoral and Other Poems. " Wordsworth, William(1803). (4 ed .) London: Printed for Longman, Hurst, Rees. and Orme. by R. Taylor
7. "The Canterbury Tales. "Chaucer. Geoffrey. Trans. Nevill Coghill "New" Delhi Penguin Classics, 2002. Print. Brown, Peter. Geoffrey Chaucer. OWC. New Delhi: Oxford University Press, 2011. Print.
8. " Toru Dutt (1856—1877), Indian Poet, Translator. and Novelist". Lokuge, Chandani (12 September 2019). Oxford: Oxford University Press.

Suggestive digital platforms web links:

1. Athar. "Indian Poetry In English." *English Summary*, 17 Nov 2017.
englishsummary.com/indian-poets-in-english.
2. Literatutemini.Com. "The Brief History of English Poe
www.literatutemini.com/2018/08/the-brief-history-of-english-poetry.html
try ." 2018, 2018.
3. Polly. "A Brief History of English Poetry." *The Culture Project*, 17 Apr. 2017,
thecultureprojectblog.wordpress.com/2017/03/19/a-brief-history-of-english-poets/
4. Wikipedia contributors. "English Poetry." *Wikipedia*, 21 May 2021,
en.wikipedia.org/wiki/English_poetry.

Suggested equivalent online courses:

<https://www.edx.org/course/ap-english-literature-composition-part-2-poems-2>

AP English Literature and Composition, Part 2. Poems on EDX by Maggie Sokolik, University of California, Berkeley

<https://www.coursera.org/learn/modpo> Modern and Contemporary American Poetry by Al Filreis, University of Pennsylvania.

<https://www.classcentral.com/course/modern-american-poetry-5963> Modern American Poetry- Free online Course

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Neelanjani
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Jabalpur (M.P.), India

PART A - INTRODUCTION

Class	: BA
Semester	: II
Subject	: English Literature (Practical)
Course Code	: A1-ELIT2T
Course Title	: Applied Poetry
Paper	: II (Practical)
Course Type	: Core Course (ELECTIVE)
Course Learning Outcome	: The study of Poetry will not only instruct and delight the students, but also inspire them to have positivity, creativity and a new way of thinking. . After the study of this paper, the students will be able: <ul style="list-style-type: none">● To identify, interpret, analyse and appreciate the various elements of poetry,● To develop literary intellect, and● To appreciate the lyrical and sonorous quality of Languages
Total Marks	: 100 (40+60)
Credit Value	:1

PART B – CONTENTS OF THE COURSE

Shahriya Khan *Shahriya Khan* *Shahriya Khan* *Shahriya Khan* *Shahriya Khan* *Shahriya Khan*
Neelanjana *Neelanjana* *Neelanjana* *Neelanjana* *Neelanjana* *Neelanjana*

Unit	Topics	No. Of Lectures
I	<p>1. American Poetry</p> <p>1.1 Walt Whitman O Captain! My Captain!</p> <p>1.2 Robert Frost: The Road Not taken</p> <p>Keywords/ Tags: <i>Modern poetry. WWI, Imagination and Reality, War poetry'. Symbolist movement. Patriotic poetry, WWII, The Holocaust, Confessional poetry</i></p>	10
II	<p>2. British and Indian Poetry</p> <p>2.1 William Shakespeare: Sonnet 116 <i>Let Me Not to the Marriage of True Minds</i></p> <p>2.2 PB Shelley: Ode to the West Wind</p> <p>2.3 Guru Nanak Dev: The Sky is Your Platter</p> <p>Keywords/ Tags: <i>Romanticism. Revolutionary spirit . Impact of the French revolution. Lord Byron. Disillusionment, Irish literary revival</i></p>	10
III	<p>3. Applied Poetry : Problems and Prospects</p> <p>3. I Creating Poetry: Problems in Writing Poetry. Parameters of Poetry. Imagination and other Contemporary Issues</p> <p>3.2 Subjectivity, Objectivity Negativity. Resilience</p> <p>3.3 Language, Vocabulary and Other Essential Elements</p> <p>Keywords/ Tags: <i>Meter Rhyme scheme, Regular rhythm. Word sounds. Allegory-, Shape. Mood. Stanza</i></p>	10

PART C – LEARNING RESOURCES



 Shahrin Khan, Neelanjana, and several other faculty members' signatures.

Suggested Readings:

1. Dove, Rita. *The Penguin Anthology of Twentieth-Century American Poetry*. 1st ed, Penguin Books. 2013.
2. Eliot, V. T. S. *Eliot: Collected Poems. 1909—1962 The Centenary Edition*. 1st ed. Harcourt Brace Jovanovich, 1991 .
3. Frost, Robert. *The Poems of Robert Frost: Poetry for the Ages*. Independently published, 2019
4. Lehman David, and John Brehm. *The Oxford Book of American Poetry*. 1st ed., Oxford University Press, 2006.
5. Plath, Sylvia *The Collected Poems*. Reprint, Harper Perennial Modern Classics, 2018
6. Shakespeare, William. *Love Poems and Sonnets of William Shakespeare* Independently published 2020.
7. Walt Whitman et,al *Walt Whitman Poetry Collection: Various Works and Poems and a Complete Biography of Walt Whitman* , Independently Published 2020

Suggestive digital platforms web links

- "375 Poems by William Shakespeare." William Shakespeare Net, 2018.
 - www.williamshakespeare.net/poems.jsp.
- "Eliot's Poetry: 'The Love Song of J. Alfred Prufrock.'" Sparknotes, 2019.
 - www.sparknotes.com/poetn/eliot/section_1
- "Ode to the West Wind Poem Summary and Analysis." Litcharts, 2020,
 - www.litcharts.com/poetr/percv-bysshe-she-Hey/ode-to-the-west-wind.
- Poetry Foundation. "Song of Myself (1892 Version) by Walt Whitman." Poetry Foundation, 1892.
www.poetryfoundation.org/poems/45477/song-of-myself-1892-version
- "Walt Whitman." Poetry Foundation, 2020.
 - www.Poetryfoundation.org/poets/walt-whitman.
- Poets.org - Academy of American Poets. "Robert Frost." Academy of American Poets, 2019, poets.org/poet/robert-frost.
- The Editors of Encyclopedia Britannica. "Sylvia Plath | Biography, Poems, Books, Death, & Facts."



Shahreen Khan
Neelanjana
Sanya
Shreya
Anshu
Meha
Ghosh

- Encyclopedia Britannica. 2018 www.britannica.com/biography/Sylvia-Plath

Suggested equivalent online courses:

- <https://www.edx.org/course/ap-english-literature-composition-part-2-poems-2> AP English Literature and Composition, Part 2 Poems on EDX by Maggie Sokolik. University of California, Berkeley.
- <https://www.coursera.org/learn/modpo> Modern and Contemporary American Poetry by Al Filreis, University of Pennsylvania
- <https://www.classcentral.com/course/modern-american-poetry-5963-Modern-American>
Poetry- Free online Course

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 Neelanjani
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DST FIST Supported & Star College Scheme by DBT
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PART A - INTRODUCTION

Class	: BA (A2-FENG2T)
Semester	: II
Subject	: Functional English
Paper	: II (Functional Grammar of English)
Compulsory / Optional	: Compulsory (MINOR)
Max. Marks	: 100
Credits	: 6
Course Course Outcomes	: By the end of this course students will be able to-
	<ul style="list-style-type: none">• Demonstrate an understanding of grammatical structures in English language,• Practice the skills of grammar in writing, conversations and discussions.• Develop English language competence for enhanced employability prospects.

Shahin Khan
Neelgani
[Signatures]

PART B – CONTENTS OF THE COURSE

Total No. of Lectures-Tutorials-Practical in hours per week): L-T-P 3 HOURS PER WEEK

Total No. of Lectures: 90 HOURS PER WEEK: THREE

UNITS	TOPICS	NO. OF LECTURES
I	(a) Sentence: Subject-Predicate, Types of Sentences (b) Noun - Kinds, Use, Numbers, Genders (c) Pronoun — Kinds, Use, Case (d) Adjectives- Kinds, Degree of Comparison (e) Articles and other Determiners Suggested Subject Enrichment Activity (SEA): Written/ spoken tasks and assignments such as descriptive paragraph on a person/ place/event using grammar points prescribed in the unit.	15
II	a) Verbs — Principal and Auxiliary, Transitive, Intransitive, Finite, Non Finite b) Infinitives and Imperatives, Participles and Gerunds c) Modals d) Adverbs Suggested Subject Enrichment Activity SEA- Written/ spoken tasks and assignments such as framing sentences using Modal verbs of: (a) Permission (Principal), (b) Modal verbs of	15


 A collection of handwritten signatures in black ink, including names like Shahriya Khan, Neelanjana, and others, arranged in two rows.

	Responsibility (of a teacher), (c) Modal verbs of Advice (to your friend) etc	
III	<p>a) Tenses b) Subject verb agreement-Common Errors c) Conjunction and Prepositions</p> <p>Suggested Subject Enrichment Activity (SEA) -Written/ spoken tasks and assignments such as narration of daily routine, habits and narration of past experiences and future planning</p>	15
IV	<p>a) Voice: Active/ Passive b) Narration: Direct/Indirect</p> <p>Suggested Subject Enrichment Activity (SEA) - Written/ spoken tasks and assignments such as:</p> <ul style="list-style-type: none"> • Instruction based activities like bank account opening, ticket booking, making news reports from newspaper headlines and vice a versa, cookery demonstration/ <i>spons</i> commentary • Dialogue based questions on direct indirect speech, comic strips activities. 	15
V	<p>a) Types of Sentences: simple, compound and complex b) Clauses c) Transformation of sentences d) Question Tags e)</p> <p>Suggested Subject Enrichment Activity (SEA) - Written/ spoken tasks and assignments such as Question Tag activities to demonstrate agreement, transforming simple sentences into compound/complex etc.</p>	15

	Keywords - Functional Grammar, Communicative English, Parts of Speech	
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PART A - INTRODUCTION

Class	: BA (A2-FENG2T)
Semester	: II
Subject	: Functional English
Paper	: II (Functional Grammar of English)
Compulsory / Optional	: Compulsory (ELECTIVE)
Max. Marks	: 100
Credits	: 4
Course Course Outcomes	: By the end of this course students will be able to- <ul style="list-style-type: none"> • Demonstrate an understanding of grammatical structures in English language.



 Shahrudin Khan, Neelanjana, and several other faculty members' signatures.

- Practice the skills of grammar in writing, conversations and discussions.
- Develop English language competence for enhanced employability prospects.

PART B – CONTENTS OF THE COURSE

Total No. of Lectures-Tutorials-Practical in hours per week): L-T-P 3 HOURS PER WEEK

Total No. of Lectures: 90 HOURS PER WEEK: THREE

UNITS	TOPICS	NO. OF LECTURES
I	(f) Sentence: Subject-Predicate, Types of Sentences (g) Noun - Kinds, Use, Numbers, Genders (h) Pronoun — Kinds, Use, Case (i) Adjectives- Kinds, Degree of Comparison (j) Articles and other Determiners Suggested Subject Enrichment Activity (SEA): Written/ spoken tasks and assignments such as descriptive paragraph on a person/ place/event using grammar points prescribed in the unit.	15
II	e) Verbs — Principal and Auxiliary, Transitive, Intransitive, Finite, Non Finite f) Infinitives and Imperatives, Participles and Gerunds g) Modals h) Adverbs	15


 Shahrin Khan
 Neelanjana
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	Suggested Subject Enrichment Activity SEA- Written/ spoken tasks and assignments such as framing sentences using Modal verbs of: (a) Permission (Principal), (b) Modal verbs of Responsibility (of a teacher), (c) Modal verbs of Advice (to your friend) etc	
III	d) Tenses e) Subject verb agreement-Common Errors f) Conjunction and Prepositions Suggested Subject Enrichment Activity (SEA) -Written/ spoken tasks and assignments such as narration of daily routine, habits and narration of past experiences and future planning	15
IV	c) Voice: Active/ Passive d) Narration: Direct/Indirect Suggested Subject Enrichment Activity (SEA) - Written/ spoken tasks and assignments such as: <ul style="list-style-type: none"> • Instruction based activities like bank account opening, ticket booking, making news reports from newspaper headlines and vice a versa, cookery demonstration/ spons commentary • Dialogue based questions on direct indirect speech, comic strips activities. 	15

Shahrin Khan
 Neelanjana
 [Other signatures]

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PART A- INTRODUCTION

Class : BA
Year : II
Subject : English Literature (Theory)
Course Code : A2-ELIT1T
Course Title : Study of Prose
Paper : II (Theory)
Course Type : Core Course (MAJOR)
Course Learning Outcome : After the completion of this course, the students will be able:

- Analyze literary devices , forms and techniques in order to appreciate and interpret the text,
- Broaden analytical skills and develop critical thinking skills
- Cultivate wisdom and world –view within themselves; and
- Develop language and communication skills and creativity.

Shahin Khan
Neelanjani
Surya
Shri Anand
A. B. S. S. S.
Mehar
G. S.

Total Marks : 100 (40+60)

Min. Pass Marks: 33

Credit Value : 6(4+2)

PART B – CONTENTS OF THE COURSE

Total No. of Lectures (in hours per week): 02

Total Lectures: 60 Hours

Unit	Topics	No. Of Lectures
I	1. Early Prose Writers 1. Prose and its forms 2. Michel de Montaigne: On Sorrow (Translated By Charles Cotton) 3. Francis Bacon: Of Studies, Of Truth 4. Oliver Goldsmith: The Man in Black Keywords: <i>Elizabethan age, aphoristic essay, Satire, Brevity, Idiomatic language, Ornamental prose</i>	15
II	0. Eighteen/Nineteenth Century Prose 1. Joseph Addison : The Spectator's Account of Himself 2. William Hazlitt: On the Ignorance of the Learned 3. Charles Lamb: Dream Children Keywords/Tags: <i>Periodical Essay, Dispersed Mediation, Humour and Pathos, Autobiographical Prose</i>	15
III	0. Prose in Modern Period: 1. A. G Gardiner: On the Rule of the Road 2. Robert Lynd: The Pleasures of Ignorance 3. Aldous Huxley: The Divine Within (Chapters 1-2) Keywords/Tags: <i>Modern Essayist, Prose Style, Irony, Spirituality, Civic Sense, Philosophical Prose</i>	15
IV	0. Political Writing: 1. Nelson Mandela: Long Walk to Freedom 2. Arundhati Roy: The Algebra of Infinite Justice 3. Rajmohan Roy: Why Gandhi Still Matters Keywords/Tags: <i>Political writing, Social Upheaval, Dandi march, Satyagraha, Unsentimental view</i>	15

Shahriyhan
Neelanjani
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PART A- INTRODUCTION

Class : BA
Year : II
Subject : English Literature (Practical)
Course Code : A2-ELIT1T
Course Title : Study of Prose
Paper : II (Practical)
Course Type : Core Course (MAJOR)

Course Learning Outcome : On the completion of the course the students will be able to grasp the technicalities of prose. The course will help the students:

- Conceptualise abstract ideas into converse writing.
- Experiment with different genres of literature with theatrical activities.
- Analyse and compare the American and Indian English fiction.
- Create new dimensions in literary craft with the help of several jobs.
- Expand creativity and imagination.
- Strengthen their confidence and language skills with practical exercises; and
- Articulate complex ideas and emotions.

Shahrukh Khan
Neelanjana
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Credit Value

: 2

PART B – CONTENTS OF THE COURSE

Total No. of Lectures (in hours per week): 01

Total Lectures: 30 Hours

Unit	Topics	No. Of Lectures
I	1. American Poets 1. R. W Emerson: Self Reliance 2. Henry James: The Art of Fiction 3. Cleanth Brooks: Poetry as a Way of Saying Keywords/Tags: <i>American Prose, Naturalism, Philosophy, Literary Criticism</i>	15
II	0. Indian Thinkers 1. Swami Vivekanand : Our Motherland 2. Rabindranath Tagore: Sadhana- The Realization of Life (Part1 and 2- The Relation of the Individual to the Universe and Soul Consciousness) 3. J. Krishnamurti: Individual and Society Keywords/Tags: <i>Indian Culture, Spiritualism, Religion, Transcendentalism</i>	15

Shahriyhan
Neelanjani
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Shri. S. S. S.
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PART A - INTRODUCTION

Class : BA
Year : II
Subject : English Literature (Theory)
Course Code : A2-ELIT2T
Course Title : Study of Fiction
Paper : II (Theory)
Course Type : Core Course (MINOR)

Course Learning Outcome : On completion of this course, the students will be able to engage with different narrative forms and views in fiction dealing with simple and complex issue. The course will motivate the students to:

- Understand various aspects and forms of fiction
- Trace the origin and development of English novel,
- Appreciate morality and humanity,
- Improve the understanding of the world and the complexities of human mind; and
- Expand creativity and imagination and enrich the vocabulary in a delightful manner.

Total Marks : 100 (40+60) Min. Pass Marks: 33
Credit Value : 6(4+2)

Shahrukh Khan
Neelanjana
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PART B – CONTENTS OF THE COURSE

Total No. of Lectures (in hours per week): 02

Total Lectures: 60 Hours

Unit	Topics	No. Of Lectures
I	<p>1. Forms of Early Fiction</p> <p>1. Fiction and its types</p> <p>2. Daniel Defoe: Robinson Crusoe</p> <p>3. Samuel Richardson: Pamela</p> <p>4. Jane Austen: Pride and Prejudice</p> <p>Keywords: Elements of novel, Augustan age, Age of Enlightenment, Literary trends in eighteenth century, Impact of Renaissance, Epistolary novel, Narrative technique</p>	15
II	<p style="text-align: center;">0. Victorian Fiction</p> <p>2.1 Charles Dickens: A Tale of Two Cities</p> <p>2.2 Thomas Hardy: The Mayor of Casterbridge</p> <p>2.3 George Eliot: Middlemarch</p> <p>Keywords/Tags: Victorian age, Realism, Pessimism, Fate and destiny, Regional novel, Social novel, Tragic novel, Historic fiction, Industrial age</p>	15
III	<p style="text-align: center;">0. Modern Fiction</p> <p>3.1 D. H. Lawrence: Sons and Lovers</p> <p>3.2 Virginia Woolf: Mrs. Dalloway</p> <p>3.3 George Orwell: 1984</p> <p>Keywords/Tags: Modern age, Autobiographical novel, Dystopia, Fantasy, Stream of consciousness, Oedipus complex, Electra complex, Symbolism, Formalism, Individualism, Absurdism, Identity and existential crisis, Totalitarianism, Psychological realism</p>	15
IV	<p style="text-align: center;">0. Detective Literature and Science Fiction:</p> <p>4.1 Mary Shelley: Frankenstein</p> <p>4.2 R. L. Stevenson: Dr. Jekyll and Mr. Hyde</p> <p>4.3 Arthur Conan Doyle: The Hound of the Baskervilles</p> <p>Keywords/Tags: Mystery, Scientific discovery, Sherlock Holmes, Parallel universe, Gothic, Science fiction</p>	15



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PART A- INTRODUCTION

Class : BA
Year : II
Subject : English Literature (Practical)
Course Code : A2-ELIT2T
Course Title : Study of Fiction
Paper : II (Practical)
Course Type : Core Course (MINOR)

Course Learning Outcome : On the completion of the course the students will be able to grasp the technicalities of prose. The course will help the students:

- Strengthen their knowledge of communicative English, vocabulary, syntax etc.
- Experiment with various prose styles,
- Distinguish and categorise linguistic undertones in Prose; and
- Discover a new appreciation for the propagation of ideas with language as the essential medium.

Total Marks : 100 (40+60) Min. Pass Marks: 33
Credit Value :2

PART B – CONTENTS OF THE COURSE



Total No. of Lectures (in hours per week): 01

Total Lectures: 30 Hours

Unit	Topics	No. Of Lectures
I	0. American Fiction 1. Nathaniel Hawthorne: <i>The Scarlet Letter</i> 2. Herman Melville: <i>Moby Dick</i> 3. Ernest Hemmingway: <i>The Old Man and the Sea</i> Keywords/Tags: <i>American fiction, Historical fiction, Realism, Redemption, Epistemology, Travelogue</i>	15
II	0. Indian fiction 1. R. K Narayan: <i>the English Teacher</i> 2. Mulk Raj Anand: <i>Untouchable</i> 3. Anita Desai: <i>Cry, the Peacock</i> Keywords/Tags: <i>Indian fiction in English, Supernaturalism, Social Novel, Feminism in India, Psychological novel, Regional literature, Social tabbos</i>	15

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PART A - INTRODUCTION

Class : BA
Year : II
Subject : English Literature (Theory)
Course Code : A2-ELIT2T
Course Title : Study of Fiction
Paper : II (Theory)
Course Type : Core Course (ELECTIVE)

Course Learning Outcome : On completion of this course, the students will be able to engage with different narrative forms and views in fiction dealing with simple and complex issue. The course will motivate the students to:

- Understand various aspects and forms of fiction
- Trace the origin and development of English novel,
- Appreciate morality and humanity,
- Improve the understanding of the world and the complexities of human mind; and
- Expand creativity and imagination and enrich the vocabulary in a delightful manner.

Total Marks : 100 (30+70) Min. Pass Marks: 33

Credit Value :3

PART B – CONTENTS OF THE COURSE

Total No. of Lectures (in hours per week): 02

Total Lectures: 60 Hours


The image shows several handwritten signatures in black ink, arranged in two rows. The top row contains five signatures, and the bottom row contains two. The signatures are written in a cursive style.

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PART A- INTRODUCTION

Class : BA
Year : II
Subject : English Literature (Practical)
Course Code : A2-ELIT2T
Course Title : Study of Fiction
Paper : II (Practical)
Course Type : Core Course (ELECTIVE)

Course Learning Outcome : On the completion of the course the students will be able to grasp the technicalities of prose. The course will help the students:

- Strengthen their knowledge of communicative English, vocabulary, syntax etc.
- Experiment with various prose styles,
- Distinguish and categorise linguistic undertones in Prose; and
- Discover a new appreciation for the propagation of ideas with language as the essential medium.

Total Marks : 100 (30+70) Min. Pass Marks: 33
Credit Value :1

PART B – CONTENTS OF THE COURSE

Total No. of Lectures (in hours per week): 01

Total Lectures: 30 Hours



Unit	Topics	No. Of Lectures
I	<p>0. American Poets</p> <ol style="list-style-type: none"> 1. R. W Emerson: Self Reliance 2. Henry James: The Art of Fiction 3. Cleanth Brooks: Poetry as a Way of Saying <p>Keywords/Tags: <i>American Prose, Naturalism, Philosophy, Literary Criticism</i></p>	15
II	<p>0. Indian Thinkers</p> <ol style="list-style-type: none"> 1. Swami Vivekanand : Our Motherland 2. Rabindranath Tagore: Sadhana- The Realization of Life (Part1 and 2- The Relation of the Individual to the Universe and Soul Consciousness) 3. J. Krishnamurti: Individual and Society <p>Keywords/Tags: <i>Indian Culture, Spiritualism, Religion, Transcendentalism</i></p>	15

Shahriyhan
 Neelanjani
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PART A: Introduction COURSE OBJECTIVES			
The objective of the course is to make learning English language interesting. The course gives students general proficiency in day to day English language in practical manner. The objective is also to familiarize the students with English language and make them comfortable with it. The emphasis is on practical use of English language.			
Program: DIPLOMAT	-	Class: B.A.	Year: II Session: 2022-23
Subject: FUNCTIONAL ENGLISH			
1.	Course Code	A2-FENG2T	
2.	Course Title	COMMUNICATIVE ENGLISH	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	ELECTIVE	
4.	Pre-Requisite if any		
5.	Course Learning Outcomes (CLO)	. Learners improve the ability to express themselves. . Learners make use of English language in everyday activity with confidence. Learners will develop language skills like Listening, Speaking, Reading and Writing.	
6.	Credit Value :	6 Credit	
7.	Total Marks (INTERNAL ASSESSMENT)	Max. Marks :- 100	Min. Passing Marks: 33
PART B: Content of the Course			
Total No. of Lectures-Tutorials-Practical (in hours per week : L-7-P 3 HOURS PER WEEK			
Total No. of Lectures: 90 HOURS PER WEEK : THREE			
Unit	Topics		No. of Lectures



 Shahrin Khan, Neelanjana, and several other faculty members' signatures are present at the bottom of the page.

I	<p>Listening and Speaking</p> <ol style="list-style-type: none"> 1. Listening to get and ask for information. 2. Giving information of self and others. 3. Giving instructions and responses to opinions. 4. Participating in a group discussion. 5. Giving a brief presentation. 6. Connecting ideas for discussion. 7. Ordering, offering, questioning, enquiring requesting ,giving suggestions, listening, encouraging and obliging. 8. Presentation skills-OHP, LCD, PPT and Hyperlink (A brief knowledge) 9. Role play 10. Production of speech sounds. <p>Key words-Listening, Speaking, Communicative skills.</p>	15
II	<p>Reading and Writing</p> <ol style="list-style-type: none"> 1. Reading newspapers and material posted on social media. 2. Reading a short poem and a passage. 3. Reading for getting overall idea and main idea. <p>(Extensive and Intensive reading)</p> <ol style="list-style-type: none"> 1. A meaningful paragraph writing: Structure, topic sentence, coherence, connecting ideas and the title. 1. Writing simple letters, applications and note -taking. 1. Writing short essays. 1. Precis writing. 1. E-mail writing. <p>Key words-Reading, Writing, Comprehension.</p>	15



 Shahrin Khan

 Naeem Khan

111	<p>Classroom skill based activities</p> <ol style="list-style-type: none"> Using concise dictionaries, platforms such as Google meet, zoom, What's App and emoticons etc. Be aware of guidelines for using net based resources. For listening and comprehension, using Ted x /standard podcast every week. Listening to and watching a national/international classic award winning films and serials. <p>Preparing and presenting short skits on given subjects. Preparing and delivering welcome, inaugural and a vote of thanks speeches. 7. Role play Using Audio-visual learning resources</p> <p>Key words-Classroom skills, online platforms.</p>	15
PART C: Learning Resources		
Textbooks, Reference Books, Other Resources		
<p>Krishna Mohan and Meera Banerjee-Developing Communicative Skills (Macmillan) R.K. Bansal and J.B Harrison-Spoken English (Orient Longman) E-learning Resources .SWAYAM-Audio visual e - content e-pathshala Randall's ESL Cyber Listening Lab(http://www-esl-lab.com)</p>		


 Shahrin Khan
 Neelanjana
 [Other signatures]

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PART A - INTRODUCTION

Subject/Course type : FOUNDATION COURSE
 Class : BA/BSC/BCOM/BCA/BBA II YEAR
 Paper Code : X2-FCHBIT
: ENGLISH LANGUAGE AND FOUNDATION
 Credits : 2 credits

COURSE OUTCOMES: Through this course the students will be able to:

- Strengthen their grammar and vocabulary
 - Acquire and develop LSRW (Listening, Speaking, Reading and Writing) skills
 - Learn to think creatively and critically
- After the completion of the course, students are expected to gain competency and proficiency in English language to perform at professional and personal level as well as to face competitive

exams

PART B – CONTENTS OF THE COURSE

Unit-I	Text Interpretation Skills: 1. Daffodils — Wordsworth 2. Bangle Sellers — Sarojini Naidu 3. Patriotism Beyond Politics and Religion — A.P.J. Kalam 4. Letter to God — G.L. Swanteh (Translated by Donald Yates) 5. God Sees the Truth but Waits — Leo Tolstoy	10
Unit-II	Comprehension Skills: Multiple choice questions based on unseen passages	03



Unit-III	Language Skills: Use of idioms, phrases and punctuations, Mis-Spelt & Inappropriate Words and Cloze Test, Conjunctions, re-organizing jumbled sentences, Spotting the errors.	07
Unit-IV	Writing Skills: Advertisement and Notice-writing, Letter Writing (Formal & Informal)	05
Unit-V	Speech Skills: Vowel and consonant sounds, phonetic symbols Accent, Modulation and Intonation	05
	Key Words: Daffodils, Wordsworth, Wandered, Bangles, Shining, Bridal, Politics, Religion, Patriotism, God, Letter, Lencho, Swanteh, Truth, Waits, Tolstoy	

PART C – LEARNING RESOURCES

Textbooks, Reference Books, Other Resources: Suggested Readings-

Suggested Readings and web materials:

1. Oxford English Language Reference. Compact Oxford Dictionary, Thesaurus and Word Power Guide. OUP.
2. Brush Up Your English by S T Imam. BharatiBhawan Publishers & Distributors, 2017
3. N. D. Turton and J.B. Heaton. Dictionary of Common Errors. Longman Ltd, 1998
4. SuzanaRoopa. A Practical Course in English Pronunciation. McGraw Hill Education India
5. Chris Lele. The Vocabulary Builder Workbook. Zephyros Press
6. S. P. Dhanvel. English and Soft Skills. Orient Black Swan, 2010.
7. Dr M. Farook. English for Communication, Emerald Publishers, 2015.
8. Dr Mathew Joseph. Fine-tune your English. Orient Black Swan, 2010.
9. E. Suresh Kumar, B Yadava Raju and C Muralikrishna. Skills in English. Orient Black Swan, 2013.
10. Bill Bryson. The Mother Tongue: English and How it Got it that Way. Harper Collins, 1990.

Web Sources:

www.englishclub.com<https://nptel.ac.in>

<http://www.bbc.co.uk/learningenglish><https://www.eslfast.com><https://www.mvenglishpages.com>

Shahrukh Khan
Neelanjana
Surya
Shubra
Anshu
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Gloria

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Subject	:	English Literature
Class	:	B.A. Part-III
Paper	:	I
Title	:	Poetry
Maximum Marks	:	40

Course Objective:

- To enable the students to interpret poetry and its advancement through the different ages.
- To enable learners to appreciate different thoughts and images of poets from different parts of the world.
- To enable students to recite poems by capturing the emotions and feelings.

Course Outcome:

- Ability to understand linguistic/practical frameworks to appreciate literary texts and language use
- Ability to place and connect with pertinent scholarly works in order to develop one's own critical position and present views comprehensibly and credibly.
- Ability to situate one's own reading in terms of society, religion, caste, region, gender, and politics
- Ability to understand the world, to think critically and clearly about the local and the global through a reading of literatures in translation and in the original.
- Enhanced competency to understand and appreciate the nuances of suggestive language, figures of speech and cryptic messages

Note: The syllabus of BA- III consists of theory of 40 marks and there will be 20 marks for the Internal Assessment. Out of the 20 marks allocated for the Internal Assessment, 10 marks will be given after three months and 10 marks will be given after six months of the course.

The scheme of examination and the allotment of marks shall be as under:-

Section A	Objective Type Questions (At least one question to be set from each unit)	1X5=5 Marks
Section B	Short Answer Type Questions(Annotations) Ten Questions (Minimum two from each unit) to be set from Unit I, II, III, IV, and five to be attempted.	2X5 =10 Marks
Section C	Long Answer Type Questions Ten questions(two from each unit) I, II, III, IV &V and five to be attempted.	5X5= 25 Marks
TOTAL		40 marks

Course Content

Unit I	Alfred Tennyson	: Lotos Eaters Ulysses
Unit-II	W. B. Yeats	: A Prayer for My Daughter The Second Coming Sailing to Byzantium Among School Children
Unit-III	T. S. Eliot	: The Love Song of J. Alfred Prufrock , Journey of the Man The Hollow Men
Unit- IV	W. H. Auden	: In Memory of W. B. Yeats The Unknown Citizen The Shield of Achilles' Petition September 1, 1939
Unit -V	Philip Larkin A.K. Ramanujan	: Next Please Deceptions : A River Obituary

Books and References:

David Perkins, A History of Modern Poetry, Harvard University Press.
Parathasarthi, R. Ten Twentieth Century Indian Poets. New Delhi: OUP
B. Prasad, A Background to the study of English literature. Macmillan
Sainstbur, G. Short Story of English Literature, London. J.M. Dent & Sons,
1928 Legouis, E. Short History of English Literature, O.U. P. ,1976
Abrahams W. H. A Glossary of Literary Times Banagalore Prism Pvt.
Ltd. Hudson W. H. An Outline History of English Literature
J.A. Cuddon: Dictionary of Literary Terms, Penguin Edition
Daiches David: A Critical History of English Literature, Volume I & II

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Subject : English Literature
Class : B.A. Part-III
Paper : II
Title : Fiction
Maximum Marks : 40

Course Objective:

- To help students acquire a practical command of the different socio-cultural issues raised in the prescribed novels by novelists from different countries.
- To create an overall understanding of different themes related to life raised in prescribed works.
- To help them understand how human beings are connected and the complex dynamics of human relationships through the lens of imaginative literature.

Course Outcome

- The student shall be familiar with full-length novels, selected from across nations demonstrating a range of sub-genres in fiction.
- Have the knowledge of different periods of historical implication and their impact on the fiction of that age
- Be furnished with the appropriate social, political and cultural history of the period, which they can bring to their reading and exploration of the texts.
- Familiarity of learners with different genres in fiction.
- Familiarity with different types of fictional narratives.
- The learners will gain an idea of the growth of fiction over the period of the last three centuries.
- Development of critical thinking and imagination through long and short fiction and with cultural diversity through different representative samples of fiction.

Note: The syllabus of B.A. Part-III consists of two theory papers of 40 marks each and there will be 20 marks for the Internal Assessment. Out of the 20 marks allocated for the Internal Assessment, 10 marks will be given after three month and 10 marks will be given after six month of the course.

The scheme of examination and allotment of marks shall be as under:-

Section A	Objective Type Questions (At least one question to be set from each unit)	1X5=5 Marks
Section B	Short Answer Type Questions Ten Questions (Min. two from each unit) to be set from Unit- I,II,III,IV and V and five to be attempted.	2X5= 10 Marks
Section C	Long Answer Type Questions Ten Questions (Two from each unit) to be set from Unit- I,II,III,IV and V and five to be attempted.	5X5= 25 Marks
	TOTAL	40

Course Content

Unit-I	Joseph Conrad	: Lord Jim
Unit- II	D.H. Lawrence	: Sons and Lovers
Unit- III	E.M. Forster	: A Passage to India
Unit- IV	Raja Rao	: Kanthapura Kiran Desai :The Inheritance of Loss
Unit-V	V.S. Naipaul	: A House for Mr. Biswas

Books & References

Forster E.M. Aspects of the Novel, Penguin,
2005 Naik M.K. A History of Indian English
Literature

Iyengar K.R.S., Indian Writing in English, Sterling Publishers Pvt. Ltd.

B. Prasad, A Background to the study of English Literature, Macmillan

Saintsbury, G. Short History of English Literature, London, J.M. Dent & Sons,

1928 Legouis, E. Short History of English Literature, OUP, 1976

Abrahams M.H., A Glossary of Literary Terms, Bangalore, Prism Book

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St. Aloysius' College, (Autonomous),

Reaccredited 'A+' by NAAC (CGPA – 3.68/4.00)

College with Potential for Excellence by UGC

DST FIST Supported & Star College Scheme by DBT

Jabalpur (M.P.), India

Subject : **Functional English**
Class : **B.A. Part-III**
Paper : **I**
Title : **Writing Skills**
Maximum Marks : **40**

Course Objective:

- To define the specific outcomes or competencies to be achieved in terms of skills, knowledge, attitude and values
- To develop ability to combine previous experiences with new material to form a whole new structure
- To develop good reading strategies
- To structure paragraphs and sentences
- To be able to organize thoughts in writing

Course Outcome

To develop writing skills by introduction of different types of text to acquire knowledge of writing and drafting different types of letters, reports and technical writing.

Note: The syllabus of BA- III consists of two theory papers of 40 marks each and there will be 20 marks for the Internal Assessment. Out of the 20 marks allocated for the Internal Assessment, 10 marks are assigned for each assessment held at the interval of 03 months and 06 months respectively. In addition of this there will be Practical Examination of 50 marks.

The scheme of examination and the allotment of marks shall be as under:-

Section A	Objective Type Questions (One question to be set from each unit)	5x1=5 Marks
Section B	Short Answer Type Questions Ten Questions (Two from each unit) to be set five to be attempted.	5x2=10 Marks
Section C	Long Answer Type Questions Ten questions(two from each unit) And five to be attempted.	5X5= 25 Marks
TOTAL		40 marks

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Unit I	(a) Narrating a sequence of events from different points of view (b) Writing anecdotes and appeal.
Unit II	a) Agenda and the Minutes of a Meeting (b) Notices, Circulars and Orders
Unit III	(a) Correspondence (b) Official & commercial Correspondence (c) Importance of Technical Writing (d) Technical Report Writing (e) Technical Description of Objects and Process
Unit IV	(a) Applications (b) Grievances/Complaints (c) Dialogue Writing
Unit V	(a) Report Writing (b) Feature Writing

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St. Aloysius' College, (Autonomous),

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College with Potential for Excellence by UGC

DST FIST Supported & Star College Scheme by DBT

Jabalpur (M.P.), India

Subject : **Functional English**
Class : **B.A. Part-III**
Paper : **II**
Title : **Conversational Skills**
Maximum Marks : **40**

Course Objective:

- To use English free from flagrant errors of grammar
- To be able to clearly state questions, concerns and ideas so that both the teacher and student can understand the intent
- To be able to verbally condense larger amounts of information into concise analysis
- To build confidence in students

Course Outcome:-

- To acquire knowledge and ability to speak, read and write clearly in English and to use critical concept and categories with clarity.
- Expansion of creativity and imagination to visualize situations and for different kinds of dialogue.
- Better preparedness to face job / internship/ vocational interviews as per theoretical rules learnt.
- To be able to give and understand official effective presentations.
- To know the difference between formal and business English and use it as per need.
- To be better communicators both in dyadic and in group conversation.

Note: The syllabus of BA- III consists of two theory papers of 40 marks each and there will be 20 marks for the Internal Assessment. Out of the 20 marks allocated for the Internal Assessment, 10 marks are assigned for each assessment held at the interval of 03 months and 06 months respectively. In addition of this there will be Practical Examination of 50 marks.



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The scheme of examination and the allotment of marks shall be as under:-

Section A	Objective Type Questions (One question to be set from each unit)	5X1=5 Marks
Section B	Short Answer Type Questions Ten Questions (Two from each unit) to be set five to be attempted.	5X2=10 Marks
Section C	Long Answer Type Questions Ten questions(two from each unit) And five to be attempted.	5X5= 25 Marks
	TOTAL	40 marks

Unit I	(a) The essentials of good conversation (b) Ways to make effective conversation (c) Interviews (d) Presentations
Unit II	(a) English for Business (b) Purpose and functions of English for Business Collocation: (a) Positions of the Collocates in some expression (b) Collocations and Grammatical Patterns (c) Internal Arrangement of List of Collocates (d) Open and Restricted sets of Collocates
Unit III	Situational Conversation: (a) At the Post Office (b) At the Railway Station/Airport (c) At the Bank (d) Weather Conditions (e) At the College (f) Using Expression of Time
Unit IV	Situational Conversation: (a) At the Tailor's (b) At the Restaurant (c) At the Chemist (d) Going shopping and talking about shopping (e) Lending and borrowing money (f) Talking about eating and ordering food

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Unit V	(a) Telephonic Conversations (b) Group Discussion (c) Discussing educational matters (d) Discussing social issues and cultural events (e) Discussing economic and political issues (f) Participating in debate
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Books Recommended

Verma et.al: Modern Applied Linguistics, Madras: Macmillan

Verma & Krishnamurthy: Modern Linguistics, Delhi: OUP

Mohan & Banerjee: Developing Communication Skills, Delhi: Macmillian

Taylor, Grant: English Conversation Practice, Delhi: Tata MC-Graw

Barr and Fletcher: Topics and Skills in English, London: Holder and Stoughton

Neil: English in Situation, OUP

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St. Aloysius' College, (Autonomous),

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College with Potential for Excellence by UGC

DST FIST Supported & Star College Scheme by

DBT Jabalpur (M.P.), India

Class	: B.A./B.S.C./B.Com./B.C.A.
Year	: III
Paper	: II (English Language)
Subject	: Foundation Course
Compulsory/ Optional	: Compulsory
Max. Marks	: 30 + Internal Assessment (5) = 35

Course Objectives:

- Appreciating and understanding texts from different genres
- Revision of basic language skills
- Narrating events coherently and logically
- Effective drafting of emails
- Preparing an impressive CV

Course Outcome:-

The main purpose of the course is to prepare students for effective usage of English language in speaking and writing. It will help them in developing communicational skills and acquiring proficiency in grammar and preparing them for various competitive exams.

Unit I	1. Stopping by woods on a Snowy Evening : Robert Frost 2. Cherry Tree : Ruskin Bond 3. The Axe : R. K. Narayan 4. The Selfish Giant : Oscar Wilde 5. On the Rule of the Road : A. G. Gardiner 6. The Song of Kabir : Translated by Tagore 7. Rajiv Khandelwal : Do Lawyers have Daughters
Unit II	Basic Language Skills : Transformation of sentences, Direct Indirect Speech Active- Passive voice, Confusing words, Misused words, Similar words with different meaning
Unit III	Report writing, Narration skills, Narration of events and situations
Unit IV	Précis Writing
Unit V	Drafting C.V.

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FORMAT OF QUESTION PAPER

Maximum Marks: 30+Internal assessment (5) = 35

- Ques.1** Six objective type questions to be set any four to be attempted (multiple Choice non- multiple choice, fill in the blanks) **1x4=4 Marks**
- Ques.2** Six short answer type to be set based on the lessons **three** to be attempted. with different meaning, proverbs, transformation of sentences, direct indirect Speech, Active- Passive Voice (**Ten** to be set **Eight** to be attempted) **8 marks**
- Ques.3** Basic Language Skills: confusing words, misused words, similar words **2x3=6 marks**
- Ques. 4** English Language- Report Writing, Narration Skills- Narration of events and situations **6 marks**
- Ques. 5** Précis Writing / Drafting CV **6 marks**

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ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS UG COMMERCE

Proposed Structure of Undergraduate Programme CBCS - B Com**B. Com I & II Semester Elective \Vise Structure**

	Subject I	Subject II	Subject III	Skill Enhancement Course	Ability Enhancement Course	Field Project/ Internship/ Apprenticeship/ Community Engagement & Service	Credits	Qualification title (Credit Requirement)
S.NO	Major (6 credits)	Minor (6 credits)	Generic Elective Subjects (4 credits)	Vocational Course		# Intra/ Inter Faculty		
SEMESTER 1	Financial Accounting	Business Organization	Banking & Insurance - I		I(4Credits)		6+6+4+4=20	(40) Undergraduate Certificate In Commerce Faculty
			Advertising & Sales Promotion - I					
			Business Economics- I					
			Business Mathematics - I					
			Data Processing & Software – I					
SEMESTER 2	Business Regulatory Framework	Business Communication	Banking & Insurance - II		I(4Credits)		6+6+4+4=20	
			Advertising & Sales - Promotion - II					
			Business Economics - II					
			Business Mathematics - II					
			Programming and C language - II					

St. Aloysius' College (Autonomous), Jabalpur	
Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com 1 st Semester/ बी. कॉम 1 st सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMA1T
Course Type/ पाठ्यक्रम का प्रकार:	MAJOR
Course Title/पाठ्यक्रम का शीर्षक:	Financial Accounting
Pre – requisite/ पूर्वापेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियाँ:	<p>After completion of this course, it is expected that the student shall be able to</p> <p>CO 1- To recall basic concepts of accounting and to prepare final accounts with adjustment.</p> <p>CO 2- To describe the methods of depreciation and compute depreciation of fixed assets.</p> <p>CO 3- To Prepare accounts of royalty, investment, NPOs and consignment.</p> <p>CO 4-To understand and evaluate the complete process of accounting in partnership firm</p> <p>CO 5-To Equip with the knowledge of computerized accounting.</p>
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: (Internal 40) + (External 60) 100
Part B – Course Content	
Unit 1	Accounts: - Indian History, Definition, Objectives, Basic Concept and Principles of Double Entry System Journal Entry, Ledger, Subsidiary books, Trial Balance. Introduction of Indian Accounting Standard Final Accounts .
इकाई 1	लेखांकन : भारतीय इतिहास परिभाषा, उद्देश्य, मूल अवधारणा एवं दोहरा प्रविष्टि प्रणाली के सिद्धांत जर्नल प्रविष्टि, बहीखाते सहायक पुस्तकें, तलपट भारतीय लेखा मानकों के परिचय का विस्तृत अध्ययन समायोजन के साथ अंतिम खाता तैयार करना।
Unit 2	Accounting for Depreciation (According to Accounting Standard – 6) , Branch Account, Departmental Accounts.
इकाई 2	मूल्य ह्रास के लिए लेखांकन (लेखा मानक 6 के अनुसार), शाखा लेखे, विभागीय लेखे।
Unit 3	Royalty Accounts, Accounting of Non-Profit Organization , Investment Account, Consignment Accounts.
इकाई 3	अधिकार शुल्क खाते, गैर लाभकारी संस्थाओं के लेखे, विनियोग लेखे, प्रेषण खाते
Unit 4	Partnership Accounts : - Dissolution of Partnership (with Insolvency), Amalgamation of Partnership Firms, Conversion of Partnership firm in to joint stock company

इकाई 4	साझेदारी खाते साझेदारी का विघटन दिवालिया सहित, साझेदारी फर्मों का एकीकरण, फर्म का संयुक्त स्क्रंध प्रमंडल में परिवर्तन
Unit 5	Computerized Accounts by using any popular accounting software creating a company, configure and feature setting, creating accounting leaders and groups, creating stock items and groups, vouchers entry (with maintenance of vouchers), generating report – cash book, ledger accounts, trial balance, profit and loss account and balance sheet
इकाई 5	कम्प्यूटरीकृत खाते: किसी भी लोकप्रिय लेखा सॉफ्टवेयर का उपयोग करके एक कंपनी बनाना, विन्यास करना और सुविधाओं को सेट करना, लेखांकन बहीखाता और समूह बनाना, स्टॉक मद और समूह बनाना, वाउचर प्रविष्टि (प्रमाणको का रखरखाव के साथ), रिपोर्ट तैयार करना- कैश बुक खाता, बही खाता, परीक्षण शेष, लाभ और हानि खाता और बैलेंस शीट

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	S.M.Shukla	Financial Accounting	Sahitya Bhawan Agra
2.	Shukla & Grewal	Financial Accounting	S Chand & Sons New Delhi
3.	Dr Ramesh Mangal	Financial Accounting	Satish Printers and Publishers Indore
4.	Agrawal Dr Mahesh	Financial Accounting	Ram prasad and sons, Bhopal
5.	Gupta R.L. and Radhaswamy M	Advance Accounting	S Chand & Sons New Delhi

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks:

Continuous Comprehensive Evaluation (CCE): **Marks 40**

External Exam: **Marks 60**

Internal Assessment: Attainment Methods	Unit 1- Preparation of final accounts of local sole traders and firms (CO1) Unit 2- Calculate depreciation of industrial machineries based on industrial visits. (CO2) Unit 3- Solution of questions based on different accounts of Royalty, Consignment and Non-Profit Organization (CO3) Unit 4- Case Study on accounts of Partnership Firm (CO4) Unit 5- Lab practical / Assignment on account creation of sole trade using Tally 9 (CO 5)	Total – 40 marks
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External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective type Questions Section B: Short Questions Section C: Long Questions	Total – 60 marks
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St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com 1 st Semester/ बी. कॉम 1 st सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMA2T
Course Type/ पाठ्यक्रम का प्रकार:	MINOR
Course Title/पाठ्यक्रम का शीर्षक:	BUSINESS ORGANISATION
Pre – requisite/ पूर्वापेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	After completion of this course, it is expected that the student shall be able CO 1- To state the process to start a new business. CO 2- To compare the structure and working of sole proprietorship and partnership business in India. CO 3- To illustrate the difference between public and private company. CO 4- To sketch the functioning of co-operative societies. CO 5- To analyze various business combinations.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: (Internal 40) + (External 60) 100

Part B – Course Content

Unit 1	Indian traditional businesses and their organizational structures. Concepts of Business, Trade, Industry and Commerce Classification Relationship between Trade, Industry and Commerce. Business Organization – Concept, Characteristics Importance and Objectives Functions of Business and Steps to Start an Enterprise.
इकाई 1	परिचय: भारत के पारम्परिक व्यवसाय और उनकी संगठनात्मक संरचनाएं व्यापार, व्यवसाय, उद्योग और वाणिज्य की अवधारणा व्यवसाय उद्योग और वाणिज्य का सम्बंध और वर्गीकरण, व्यवसायिक संगठन: अवधारणा विशेषताएं एवं उद्देश्य व्यवसाय के कार्य एवं नवप्रवर्तन हेतु आवश्यक कदम।
Unit 2	FORMS OF BUSINESS ORGANIZATION: Business Organization - Classification - Factors Influencing the Choice of Suitable Form of Organization - Sole Proprietorship and Partnership - Meaning, Definition - Characteristics – Advantages, Limited liability Partnership.
इकाई 2	व्यवसायिक संगठन के प्रकार: व्यावसायिक संगठन: वर्गीकरण उपयुक्त संगठन के चयन को प्रभावित करने वाले तत्व एकल व्यवसाय-एवं-साझेदारी व्यवसाय: अर्थ, परिभाषा, विशेषताएं लाभ, सीमित दायित्व साझेदारी
Unit 3	ORGANIZATION OF COMPANIES: Concepts, Meaning, Formation, Characteristics and Significance of Private Company and Public Company.
इकाई 3	कम्पनी का संगठन: निजी कम्पनी और सार्वजनिक कम्पनी की अवधारणा, अर्थ निर्माण, विशेषताएं एवं औचित्य

Unit 4	Co-Operative Organization- Meaning Functions and Limitations of Co-operatives Societies. Social Responsibility of a business, Business Ethics - meaning, concept, role of ethics in business. Case Study on Co-operative Organization in Jabalpur.
इकाई 4	कोऑपरेटिव-संगठन: अर्थ-कार्य एवं सीमाएं। सामाजिक दायित्व, व्यवसायिक नैतिकता- अवधारणा, अर्थ, व्यापार में नैतिकता की भूमिका। जबलपुर में सहकारी संगठन पर केस स्टडी।
Unit 5	Multinational Companies (MNC'S) and the Challenges of their organization in India, Business Combination- meaning and its types.
इकाई 5	बहुराष्ट्रीय कम्पनीयां कार्य और भारत में इनके संगठन में आने वाली चुनौतियां। व्यापार संयोजन- अर्थ एवं प्रकार।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Dr S C Saxena	Business Organization and Communication	Sahitya Bhawan Publications
2.	Sanjay Gupta	Business Organization and Communication	SBPD Publication

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks:

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

Internal Assessment: Attainment Methods	Unit 1- Role play on steps to start a new business. (CO1) Unit 2- Report on Comparative study between sole proprietorship and partnership business in India (CO2) Unit 3- Conduct a debate between groups stating the merits and demerits of public and private companies. (CO3) Unit 4- Project on Co-operative societies in Jabalpur. (CO4) Unit 5- Prepare a Report/Case Studies on MNC's and types of combination. (CO5)	Total – 40 marks
External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective Type Questions Section B: Short Questions Section C: Long Questions	Total – 60 marks

St. Aloysius' College (Autonomous), Jabalpur	
Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com 1 st Semester/ बी. कॉम 1 st सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMC1T
Course Type/ पाठ्यक्रम का प्रकार:	GENERAL ELECTIVE
Course Title/पाठ्यक्रम का शीर्षक:	BUSINESS ECONOMICS
Pre-requisite/ पूर्वपेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1- To understand the use of economic theory in business decision-making problems.</p> <p>CO 2- To analyze traditional and modern definitions of economics.</p> <p>CO 3- To demonstrate an understanding, usage, and application of basic economic principles or laws.</p> <p>CO 4- To understand the law of demand and how equilibrium price and quantity are determined.</p> <p>CO 5- To perform demand analysis to analyze the impact of economic events on Markets.</p> <p>CO 6- To derive demand curves from utility functions and identify income and substitution effects.</p> <p>CO 7- To demonstrate the measurement of demand and elasticity relative to changes in price, income, and price of substitute goods.</p> <p>CO 8- To interpret the relation between a price change and elasticity.</p> <p>CO 9- To understand the meaning of marginal revenue and marginal cost and their relevance for firm profitability. To learn the Cost theory and equilibrium to Analyze the Cost and Revenue of a firm.</p> <p>CO 10- To understand the major characteristics of different market structures.</p>
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: (Internal 40) + (External 60) 100
Part B – Course Content	
Unit 1	Historical background of economics in India with special reference to Kautilya, Amartya Sen and Nobel laureate Abhijeet Banerjee , Definition of

	Economics, Economics Law and their nature, Significance of Economics, Basics problems of Economics. Concept of Micro and Macro Economics, Methods of Economics study.
इकाई 1	भारत में अर्थशास्त्र की ऐतिहासिक पृष्ठभूमि कौटिल्य, अमर्त्य सेन एवं नोबेल पुरस्कार विजेता अभिर्जात बनर्जी के विशेष संदर्भ में, अर्थशास्त्र की परिभाषा, अर्थशास्त्र के नियम और उनकी प्रकृति, अर्थशास्त्र का महत्व, अर्थशास्त्र की आधारभूत समस्याएं सूक्ष्म और व्यापक अर्थशास्त्र की अवधारणा, आर्थिक अध्ययन की रीतियाँ।
Unit 2	Law of Demand- Meaning and Definition, Characteristics, Types of demand, Determinants of Law of Demand, Demand Function – determinants of individual demand – Market v/s Individual demand - Consumer Equilibrium Exceptions of Law of Demand.
इकाई 2	मांग का नियम- अर्थ एवं परिभाषाएं, विशेषताएं, मांग के प्रकार, मांग के नियम के निर्धारक तत्व, मांग फलन-व्यक्तिगत मांग के निर्धारक-बाजार बनाम व्यक्तिगत मांग-उपभोक्ता संतुलन, मांग के नियम के अपवाद मांग फलन-व्यक्तिगत मांग के निर्धारक-बाजार बनाम व्यक्तिगत मांग-उपभोक्ता संतुलन।
Unit 3	Elasticity of Demand, Concept and measurement of Elasticity of Demand, Price, Income and cross elasticity and Elasticity of Demand, Determination of Elasticity of Demand, Importance of Elasticity of Demand.
इकाई 3	मांग की लोच, मांग की लोच की अवधारणा और मांग की कीमत, आय और आड़ी लोच, औसत आगम, सीमांत आगम और मांग की लोच, मांग की लोच का निर्धारण, मांग की मूल्य सापेक्षता का महत्व।
Unit 4	Cost and Revenue Analysis: Short Run and Long Run, Average and Marginal Cost, Average and Marginal Revenue, Theory of cost. Market Concept and their classification.
इकाई 4	लागत और आगम विश्लेषण: अल्पावधि और दीर्घावधि - औसत और सीमांत लागत औसत और सीमांत आगम, लागत का सिद्धांत। बाजार संकल्पना और उनका वर्गीकरण।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Kennedy John	Fundamentals of Business Economics	Himalaya Pub. Nagpur
2.	Singh Dr. S.K.	Business Economics	Sahitya Bhavan Publication Agra
3.	Bhatiya H.L.	Micro Economics	Modern Publisher New Delhi.
4.	Sinha Dr. V.C.& Dr. Pushpa	Business Economics	SBPD Publication Agra
5.	मिश्र डा जे. पी.	व्यावसायिक अर्थशास्त्र	साहित्य भवन पब्लिकेशन आगरा
6.	H.L. Ahuja	Business Economics	S. Chand Publication

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 Marks

Internal Assessment: Attainment Methods	Unit 1- Presentation on Comparison between Traditional and Modern Definitions of Economics. (CO1) Discussion on Basic Problems of Economics and their Solutions (CO2)	Total – 40 marks
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	<p>Assignment on Usage and Application of Economics Laws. (CO3)</p> <p>Unit 2- Quiz on Law of Demand. (CO4)</p> <p>Diagrammatic presentation on Demand Analysis & Shifting of Demand Curve. (CO5)</p> <p>Role Play on Income and Substitution Effect. (CO6)</p> <p>Unit 3- Tutorial on Measurement of Elasticity of Demand. (CO 7 & CO8)</p> <p>Unit 4- Quiz on different types of cost and revenue. Assignment on the theory of Cost. (CO9)</p> <p>Chart/Poster Making on Market Structure. (CO10)</p>	
<p>External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours</p>	<p>Section A: Objective Type Questions</p> <p>Section B: Short Questions</p> <p>Section C: Long Questions</p>	Total – 60 marks

St. Aloysius' College (Autonomous), Jabalpur			
Part A – Introduction			
Session:	2023-24		
Subject/ विषय:	Commerce / कॉमर्स		
Programme/कार्यक्रम:	Certificate / सर्टिफिकेट		
Class/कक्षा:	B. Com 1 st Semester / बी. कॉम प्रथम सेमेस्टर		
Course Code/ पाठ्यक्रमकोड:	C1-COMB1T		
Course Type/ पाठ्यक्रमकाप्रकार:	Elective (PAPER 2)		
Course Title/पाठ्यक्रमकाशीर्षक:	Business Mathematics /व्यवसायिक गणित		
Pre – requisite/ पूर्वापेक्षा:	open for all/सभी के लिए उपलब्ध		
Course Learning Outcome/ पाठ्यक्रमअध्ययनकीपरिलब्धियाः	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1-To recall the basic concepts of algebra and BODMAS.</p> <p>CO 2-To solve simultaneous equation related with business problems.</p> <p>CO 3-To describe the concept of logarithms and antilogarithms.</p> <p>CO 4- To apply concept of commission, brokerage, profit and loss in business</p>		
Credit Value/ क्रेडिटमान:	4 Credits		
Total Marks/ कुलअंक:	Max. Marks: (internal 40) + (external 60) 100		
Part B – Course Content			
Unit 1 इकाई 1	Rules for sign in Algebra and practice, Rules for calculation (BODMAS) and practice बीज गणित में चिन्हों संबंधी नियम एवं अभ्यास, गणना संबंधी नियम एवं BODMAS		
Unit 2 इकाई 2	Simultaneous Equations – Meaning, Characteristic, types, calculations (with word problems) युगपत समीकरण: अर्थ, विशेषताएं, प्रकार एवं गणनाएं (इबारती प्रश्न सहित)		
Unit 3 इकाई 3	Theory of indices (preliminary knowledge only formulae, Logarithms and Antilogarithms –principles and calculations घातांक के सिद्धांत (प्रारंभिक ज्ञान) लघुगणक एवं प्रतिलघुगणक सिद्धांत एवं गणनाएं		
Unit 4 इकाई 4	Commission, Brokerage, profit and loss कमीशन, दलाली, लाभ एवं हानि		
Part C – Suggested Readings			
S.No.	Author	Name of the Book	Publication
1.	Shukla Dr. S.M.	Business Mathematics	Sahitya Bhawan Publications
2.	Magar Dr. Abhilasha	Business Mathematics	Himalaya publication, Mumbai
3.	Sancheti & Kapoor	Business Mathematics	Sultan Chand and sons, New Delhi

4.	Sharma J.K.	Business Mathematics	IK International Pvt. Ltd., New Delhi
5.	Kumar Mrityunjay	Business Mathematics	S. Chand Publishing, New Delhi
6.	Agrawal Dr Mahesh	Business Mathematics	Ramprasad and sons, Bhopal
7.	Gourav Tekriwal	Maths Sutra	Penguin Books, Gudgao
8.	गुप्ता ड आलोक	व्यावसायिक गणित	एसबीपीडी पब्लिकेशन, आगरा
9.	मंगल डॉ रमेश	व्यावसायिक गणित	यूनिवर्सल पब्लिकेशन इंदौर
10.	अग्रवाल डॉ महेश	व्यावसायिक गणित	रामप्रसाद एंड संस, भोपाल

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE): Marks	Unit 1 Chart Making – explaining basic terms of algebra and BODMAS (CO - 1) Unit 2 – Project on practical problems of simultaneous equations (CO - 2) Unit 3 –Presentations on basic rules of finding log and antilog using table (CO - 3) Unit 4 – Solution of questions based on practical knowledge of Commission, Brokerage, profit and loss. (CO-4)	Total – 40 marks
External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective Type Questions Section B: Short Questions Section C: Long Questions	Total – 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com 1 st Semester / बी. कॉम
Course Code/ पाठ्यक्रम कोड:	C1-COMC2T
Course Type/ पाठ्यक्रम का प्रकार:	ELECTIVE
Course Title/पाठ्यक्रम का शीर्षक:	Banking and Insurance
Pre – requisite/ पूर्वापेक्षा:	open for all/सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>CO1: To list functions and importance of Indian commercial banks.</p> <p>CO2: To identify important events in the history of Indian banking system.</p> <p>CO3: To analyze functions performed by RBI and their impact on day-to-day life.</p> <p>CO4: To differentiate amongst various account facilities provided by banks.</p> <p>CO5: To Develop an understanding on the procedure and essential conditions to apply for different loans and advances.</p>
Credit Value/ क्रेडिट मान:	4 Credits
Total Marks/ कुल अंक:	Max. Marks: (Internal 40) + (External 60) 100

Part B – Course Content

Unit 1	Introduction to Banking: Historical background of banking, Definition, principles and importance of bank. Classification of bank. Functions of commercial bank. Structure of commercial banking in India. Features of Indian banking system, Modern Banking Practices in India- Mobile Banking.
इकाई-1	अधिकोषण का परिचय: अधिकोषण की ऐतिहासिक पृष्ठभूमि बैंक की परिभाषा, सिद्धान्त एवं महत्व बैंक का वर्गीकरण, बैंकों का वर्गीकरण, वाणिज्यिक बैंक के कार्य, भारत में वाणिज्यिक अधिकोषण की संरचना, भारतीय अधिकोषण व्यवस्था की विशेषताएँ भारत में आधुनिक बैंकिंग व्यवहार- मोबाइल बैंकिंग।
Unit 2	Central banking: RBI and its functions. Credit control. Nationalization and Merger of banks: General Introduction to Nationalization of Banks, Objective and Introduction to Private Banks Functioning and Usefulness or Importance and its effects. Evaluation of nationalization and merger of Indian banks.
इकाई-2	कन्द्रीय अधिकोषण: भारतीय रिजर्व बैंक एवं उसके कार्य, साख नियंत्रण। बैंकों का राष्ट्रीयकरण एवं विलय: बैंकों के राष्ट्रीयकरण का सामान्य परिचय, उद्देश्य, निजी बैंकों के कामकाज का परिचय और उपयोगिता या महत्व और इसके प्रभाव। भारत में राष्ट्रीयकरण एवं विलय का मूल्यांकन।
Unit 3	Bank Deposits: Meaning and types. Features of bank accounts. Auto Sweep Account. Procedure to open and close bank accounts (Including online procedure). Non-Banking Financial Institution: Introduction, Function and significance, Types of NBFCs, Difference between Banks & NBFCs.

इकाई-3	बैंक जमा: अर्थ एवं प्रकार, बैंक खातों की विशेषतायें। ऑटो स्वोप खाता। बैंक खाते खोलने एवं बंद करने की प्रक्रिया (ऑनलाइन प्रक्रिया सहित)। गैर-बैंकिंग वित्तीय संस्थान: परिचय, कार्य और महत्व, एनबीएफसी के प्रकार, बैंकों और एनबीएफसी के बीच अंतर।
Unit 4	Loans and Advances: Principles to sanction loans and advances. Classification of loans and advances. Procedure to apply for house loan, personal loan, education loan and commercial loan.
इकाई - 4	ऋण एवं अग्रिम: ऋण एवं अग्रिम स्वीकृति के सिद्धान्त, ऋण एवं अग्रिम का वर्गीकरण, गृह ऋण, व्यक्तिगत ऋण, शिक्षा ऋण एवं वाणिज्यिक ऋण हेतु आवेदन प्रक्रिया।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Gordon Natrajan,	Banking Law and Practice,	Himalaya Pub.Mumbai
2.	S.N.Maheshwari	Banking Law and Practice,	Kalyana Publishers, New Delhi (Bath
3.	Shekar,	Banking Law and Practice	Vikash Publishing House, New Delhi
4.	ओझा बी.एल	भारत में बैंकिंग विधि	आर डी हाऊस
5.	शर्मा एच. सी.	भारत में बैंकिंग विधि एवं व्यवहार	साहित्य भवन पब्लिकेशन

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): Marks

External Exam: marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE): Marks	Unit 1: Reading and collection of Magazines and newspaper articles related to banks (CO1) Unit 2: Reading events that help understand the history of the Indian Banking System. (CO2) Prepare a report on 'How the Functioning of the central bank impacts the Indian Economy.' (CO3) Unit 3: Compare the facilities provided by the banks to different types of accounts. (CO4) Unit 4: Prepare a report on the procedures and qualification criteria for applying for different types of loans. (CO5)	Total – 40 marks
External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective Types Questions Section B: Short Questions Section C: Long Questions	Total – 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / वाणिज्य
Programme/कार्यक्रम:	Certificate / सर्टिफिकेट
Class/कक्षा:	B. Com 1 st Semester/ बी. कॉम 1 st सेमेस्टर
Course Code/ पाठ्यक्रमकोड:	M1-ASPM2T
Course Type/ पाठ्यक्रम का प्रकार:	ELECTIVE
Course Title/पाठ्यक्रमकाशीर्षक:	Advertising & Sales Promotion/ विज्ञापन एवं विक्रय प्रबंध
Pre – requisite/ पूर्वापेक्षा:	open for all/सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	After completion of this course, it is expected that the student shall be able CO 1- To describe the basic concepts of advertisement. CO 2- To evaluate the different media of Advertisement. CO 3- To explain the role of advertisement agencies and their selection. CO 4- To apply various means of advertisement in real business.
Credit Value/ क्रेडिटमान:	4 credits
Total Marks/ कुलअंक:	Max. Marks: (Internal 40) + (External 60) 100

Part B – Course Content

Unit 1	Introduction- Concept, Scope, Objectives and Functions of advertising. Types of advertisement, Role of advertising in the marketing mix and the advertising process. Advertising and sales: the relationship and the difference, Approaches to Advertising - DAGMAR & AIDA Model.
इकाई 1	परिचय - विज्ञापन की अवधारणा, क्षेत्र उद्देश्य एवं कार्य, विज्ञापन के प्रकार, विज्ञापन में विपणन मिश्रण एवं प्रक्रिया की भूमिका, विज्ञापन और विक्री संबंध और अंतर :। विज्ञापन के दृष्टिकोण -DAGMAR और AIDA मॉडल।
Unit 2	Pre-launch Advertising Decision- Determination of target audience, Advertising media and their choice. Advertising Message: Preparing an effective advertising copy, Elements of a print copy- Headlines, body copy, slogan, logo, a seal of approval, Elements of a broadcast copy:
इकाई 2	विज्ञापन निर्णयन पूर्व प्रदर्शन - लक्षित श्रोता ग्राहकों का निर्धारण, विज्ञापन माध्यम एवं उनका चयन (मीडिया), विज्ञापन संदेश: एक प्रभावी विज्ञापन प्रति तैयार करना, एक प्रिंट कॉपी के तत्व- हेडलाइंस, बॉडी कॉपी, स्लोगन, लोगो, अनुमोदन की मुहर, प्रसारण प्रति के तत्व।
Unit 3	Promotional Management: Advertising department, Role of advertising agencies and their selection, Advertising budget, and Evaluation of Advertising effectiveness.
इकाई 3	प्रचार प्रबंधन- प्रबंध विज्ञापन विभाग, विज्ञापन एजेंसियों का योगदान एवं उसका चयन, विज्ञापन बजट, विज्ञापन की प्रभावशीलता का मूल्यांकन।

Unit 4	Legal, ethical and social aspects of advertising. Advertisement Scene in India, Means of advertising- Social Media Advertising & Digital Advertising. Digital Advertising: Concept, Effects, Digital Advertising in India
इकाई 4	विज्ञापन के नैतिक, विधिक एवं सामाजिक पहलू। भारत में विज्ञापन दृश्य, विज्ञापन के साधन सोशल मीडिया और विज्ञापन - डिजिटल विज्ञापन, डिजिटल विज्ञापन अवधारणा : प्रभाव, भारत में डिजिटल विज्ञापन, डिजिटल विज्ञापन एजेंसियां संरचना और कार्य - ।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	S H H Kazmi, Satish K Batra	Advertising And Sales Promotion	McGraw Hill
2.	Belch & Belch -	Advertising & Promotion -	Tata Mc Graw Hill
3.	डा. ए सी जैन व नीरज सिंह.	विक्रय एवं विज्ञापन	एस बी पी डी पब्लिकेशन ए आगरा
4.	Sanjay	Advertising And Sales Promotion-	SBPD Agra

Suggestive digital platforms and web links:

<https://raventools.com/blog/8-link-marketing-techniques-for-smbs/>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation and Attainment Methods

Maximum Marks: 100 Marks

Continuous Comprehensive Evaluation (CCE):30 Marks

External Exam : 70 Marks

Internal Assessment: Attainment Methods	Unit- 1: Role play on advertising of a product. (CO 1) Unit- 2: Survey to find the effectiveness of different media of Advertisement. (CO 2) Unit- 3: Compare the role of online and offline advertising agencies. (CO 3) Unit-4: Diagrammatic presentation of Social and Digital media of advertisement. (CO 4)	Total – 40 marks
External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective Type Questions Section B: Short Questions Section C: Long Questions	Total – 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/कार्यक्रम:	Certificate / सर्टिफिकेट
Class/कक्षा:	B. Com 2 nd semester / बी. कॉम 2 nd सेमेस्टर
Course Code/ पाठ्यक्रमकोड:	C1-COMA2T
Course Type/ पाठ्यक्रम का प्रकार:	CORE Major
Course Title/पाठ्यक्रमकाशीर्षक:	Business Regulatory Framework
Pre – requisite/ पूर्वपेक्षा:	(Open For all)
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1- To recognize the essential elements of valid contract and describe the capacities of parties to contract.</p> <p>CO 2- To evaluate rights and duties of the parties at the time of breach, bailment, pledge, and contracts of indemnity & guarantee.</p> <p>CO 3-. To distinct among different kinds of Negotiable instruments.</p> <p>CO 4- To analyze Consumer Protection Act, 1986 and 2018 and apply process and procedure of filing a complaint under the act.</p> <p>CO 5- To interrelate the provisions of the partnership act 1932 and limited liability partnership act 2008.</p>
Credit Value/ क्रेडिटमान:	6 credits
Total Marks/ कुलअंक:	Max. Marks: (Internal 40) + (External 60) 100
Part B – Course Content	

Unit 1	Historical Background of Mercantile Law in India – Scope and Characteristics, Indian Contracts Act 1872 - General Laws Definition and Nature of contract, Agreement: Offer and Acceptance, Consideration, Capacities of parties to contract, Free consent, expressly declared void agreements.
इकाई 1	भारत देश में व्यावसायिक सन्धियम की एतिहासिक पृष्ठभूमि – क्षेत्र, विशेषताएं, भारतीय अनुबंध अधिनियम 1872 – सामान्य नियम, परिभाषाएं, अनुबंध की प्रकृति, ठहराव- प्रस्ताव एवं स्वीकृति, प्रतिफल, पक्षकारों में अनुबंध करने की क्षमता, स्वतंत्र सहमति, स्पष्ट रूप से व्यर्थ घोषित ठहराव
Unit 2	Performance and Breach of contract, Contract Relating to Indemnity and Guarantee, Bailment and Pledge, Agency
इकाई 2	अनुबंधों का निष्पादन एवं अनुबंध भंग, क्षति पूर्ति एवं प्रतिभूति से सम्बंधित अनुबंध, गिरवी एवं निक्षेप, एजेंसी
Unit 3	Negotiable Instrument Act 1881 –General Introduction, Negotiable instrument (Amendment) Act 2002 , Definition and features (Promissory Note, Bill of Exchange and Cheques), Crossing and Dishonor of Cheques, Dishonor of Negotiable Instruments
इकाई 3	विनिमय साध्य लेखपत्र अधिनियम 1881 – सामान्य प्रस्तावना, विनिमय साध्य लेखपत्र अधिनियम (संशोधन) 2002, परिभाषा, लक्षण (प्रतिज्ञापत्र, विनिमय विपत्र एवं चैक), चैक का रेखांकन एवं अनादरण, विनिमय साध्य लेखपत्र का अनादरण
Unit 4	General Introduction to Consumer Protection Act, 1986 and 2018 , Introduction and features, Redressal agencies, Process, and procedure of filing a complaint under consumer protection act, Penalties, Difference between Consumer Protection Act, 1986 and 2018 , FEMA, 2000, Introduction and salient features – Regulation and Management of foreign exchange; Authorized Person, Contravention and Penalties, Difference between FERA & FEMA
इकाई 4	उपभोक्ता संरक्षण अधिनियम 1986 एवं 2018 का सामान्य विषय परिचय, प्रस्तावना एवं लक्षण, शिकायत प्रकोष्ठ, दंड, उपभोक्ता संरक्षण अधिनियम 1986 एवम 2018 के मध्य अंतर, फेमा, 2000, प्रस्तावना एवं विभिन्न विशेषताएं - विदेशी विनिमय का प्रबंध एवं नियंत्रण; अधिकृत व्यक्ति, नियमों का उल्लंघन एवं दंड, फेरा एवं फेमा के मध्य अंतर।
Unit 5	Indian Partnership Act 1932 – General Introduction, Elements and features, Partnership Deed, Limited Liability Partnership Act, 2008 .- Introduction, Registration process, Winding up
इकाई 5	भारतीय साझेदारी अधिनियम 1932 – सामान्य परिचय, मुख्य तत्व एवम लक्षण, साझेदारी संलेख, सीमित दायित्व साझेदारी अधिनियम 2008. - प्रस्तावना, पंजीयन प्रक्रिया, साझेदारी का समापन।
Part D: Assessment & Evaluation	
Suggested Continuous Evaluation and Attainment Methods	

<p>Internal Assessment: Attainment Methods</p>	<p>Unit- 1: Reference text readings on elements of valid contract and Role play for capacities of parties to contract. (CO 1)</p> <p>Unit- 2: Court trial on different situations based on breach, pledge, and contract on indemnity and guarantee. (CO 2)</p> <p>Unit- 3: Diagrammatic presentation of negotiable instruments. (CO 3)</p> <p>Unit-4: Preparation of Report on cases related to Consumer Protection Act. (CO 4)</p> <p>Unit- 5: Assignment on registration process of partnership. (CO5).</p>	<p>Total – 40 Marks</p>
<p>External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours</p>	<p>Section A: Objective type Questions</p> <p>Section B: Short Questions</p> <p>Section C: Long Questions</p>	<p>Total - 60 marks</p>

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Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com 2 nd semester / बी. कॉम 2 nd सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMA2T
Course Type/ पाठ्यक्रम का प्रकार:	MINOR
Course Title/पाठ्यक्रम का शीर्षक:	BUSINESS COMMUNICATION
Pre – requisite/ पूर्वापेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1- To explain how communication plays an important role in modern business scenario.</p> <p>CO 2- To evaluate various theories of communication.</p> <p>CO 3- To Apply skills of interview.</p> <p>CO 4- To develop their writing skills related to business letters and reports.</p> <p>CO 5- To explain and distinguish between the different barriers to communication.</p> <p>CO 6- To sketch the importance of various tools used in modern communication.</p>
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: (Internal 40) + (External 60)
Part B – Course Content	

Unit 1	COMMUNICATION: Definition, Nature, Importance, Objectives of Communication. Communication theories and process- Information theory, Interaction theory, Transaction theory, Elements of communication process.
इकाई 1	संचार: परिभाषा, स्वभाव, महत्व, उद्देश्य। संचार के सिद्धांत एवं प्रक्रिया: जानकारी का सिद्धांत, इंटरैक्शन का सिद्धांत (परस्पर क्रिया), ट्रांसेक्शन सिद्धांत, संचार प्रक्रिया के आवश्यक तत्व प्रभावी संचार को प्रमाणित करने वाले तत्व।
Unit 2	Verbal communication- meaning and types. Oral Communication: Speeches for different occasions, Guidelines for effective listening, Job Interviews, Mock Interviews and CV Preparation, Type of information.
इकाई 2	शाब्दिक सम्प्रेषण- अर्थ एवं प्रकार मौखिक संचार: विभिन्न अवसरों में दिए जाने वाले भाषण प्रभावी श्रवण हेतु दिशा निर्देश, नौकरी हेतु साक्षात्कार, मॉक इंटरव्यू और सी.वी. तैयार करना, जानकारियों के प्रकार
Unit 3	Written Communication: Writing techniques and Guidelines. Letter writing - Basic Principles, Purpose, Types of business letters. Report writing, types of reports, Drafting of report.
इकाई 3	लिखित संचार: लेखन तकनीक एवं निर्देश पत्र लेखन: व्यावसायिक पत्र: मूलभूत सिद्धांत आशय एवं प्रकार। रिपोर्ट लेखन एवं प्रकार।
Unit 4	Non-Verbal communication- body language, sign language, para language. Delphi method of communication, Barriers to Communication: Linguistic Barriers, Psychological Barriers, Interpersonal Barriers , Cultural Barriers, Physical Barriers, Organizational Barrier.
इकाई 4	अशाब्दिक सम्प्रेषण: देहिक भाषा, सांकेतिक भाषा, पार्श्व भाषा, सम्प्रेषण की डेलफी विधि। सम्प्रेषण की बाधाएं: भाषायी बाधाएं, मनोवैज्ञानिक बाधाएं, अन्तरव्यक्तिक बाधाएं, सांस्कृतिक बाधाएं, भौतिक बाधाएं, एवं संगठनात्मक बाधाएं।
Unit 5	Modern forms of communication E-mail, Video Conferencing, International Communication for Global Business . Information Technology: Form of technology, uses in modern communication system. Role of social media in modern business.
इकाई 5	संचार के आधुनिक आयाम: ई-मेल, वीडियो कान्फेरेंसिंग, विश्व व्यापार हेतु अंतर्राष्ट्रीय संचार। सूचना प्रौद्योगिकी, प्रौद्योगिकी का रूप, आधुनिक संचार प्रणाली में उपयोग आधुनिक व्यवसाय में सोशल मीडिया की भूमिका।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1	T N. Chaabra,	Business communication	Himalaya publishing house
2	K K. Sinha	Essentials of Business communication	VK Global publications
3	Dr. Ramesh Mangal	Business communication	Universal publication Agra

4.	Dr S C Saxena	Business Organization and Communication	Sahitya Bhawan Publications
5.	Sanjay Gupta	Business Organization and Communication	SBPD Publication
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method			
Maximum Marks:			
Continuous Comprehensive Evaluation (CCE): 40 Marks			
External Exam: 60 marks			
Internal Assessment: Continuous Comprehensive Evaluation (CCE): Marks	Unit 1- Models on process/theory of communication. (CO1 & CO2) Unit 2- Draft a CV (CO3) Unit 3- Write a report on a specific topic. (CO4) Unit 4- Prepare a skit highlighting different barriers to communication. (CO5) Unit 5- Project on role of social media in E-commerce. (CO6)		Total – 40 Marks
External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective type Questions Section B: Short Questions Section C: Long Questions		Total - 60 marks

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Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com 2 nd Semester/ बी. कॉम 2 nd सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMCIT
Course Type/ पाठ्यक्रम का प्रकार:	Elective
Course Title/पाठ्यक्रम का शीर्षक:	Business Economics – II
Pre – requisite/ पूर्वापेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1- To identify the factors of production and production possibilities.</p> <p>CO 2- To learn the population theory and equilibrium and to know the applications of the theory of population.</p> <p>CO 3- To Understand the basics of the production function.</p> <p>CO 4- To Identify and differentiate various market structures.</p> <p>CO 5- To Analyze operation of markets under varying competitive conditions.</p> <p>CO 6- To Understand the concept of Pricing.</p> <p>CO 7 - To Comprehend theories of rent, profit and wages.</p>
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: (Internal 40) + (External 60)

Part B – Course Content

Unit 1	Factors of Production – Land, Labor, Division of Labor, Efficiency of Labor , Capital, Organization and Enterprises, The scale of production, Theories of population.
इकाई 1	उत्पत्ति के साधन - भूमि, श्रम, श्रम विभाजन, श्रम की कार्यकुशलता, पूंजी, संगठन और साहस, उत्पादन का पैमाना, जनसंख्या के सिद्धांत
Unit 2	Production Function - Short Run and Long Run - Single variable- average and marginal product - Law of Variable Proportions – Two variables, Return to scale. ISO-Quant Curve.
इकाई 2	उत्पादन फलन दो चर - चर अनुपात का नियम - औसत और सीमांत उत्पाद एकल चर - अल्पावधि और दीर्घावधि .पैमाने का प्रतिफल ,समोत्पाद वक्र विश्लेषण।
Unit 3	Price determination under perfect competition and Equilibrium of the firm, Monopoly- price and output determination and monopoly control, Price determination under monopoly, Imperfect and monopolistic competition – price determination.
इकाई 3	पूर्ण प्रतियोगिता में कीमत निर्धारण और फर्म का साम्य, एकाधिकार - कीमत और उत्पादन निर्धारण और एकाधिकार नियंत्रण, एकाधिकार के तहत कीमत विभेद, अपूर्ण और एकाधिकृत प्रतियोगिता कीमत निर्धारण।
Unit 4	Rent-concept, Ricardian and modern theories of Rent , Quasi Rent, Wage- concept, nominal and real wages, theories of wages determination, Profit – nature, concept and Theories of profit.
इकाई 4	लगान अवधारणा, रिकार्डों का लगान सिद्धांत, लगान का आधुनिक सिद्धांत, आभास लगान , मजदूरी अवधारणा, नगद और वास्तविक मजदूरी, मजदूरी निर्धारण के सिद्धांत, लाभ - प्रकृति, अवधारणा और लाभ के सिद्धांत। व्याज के सिद्धांत।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Sinha Dr. V.C.& Dr. Pushpa	Business Economics	SBPD Publication Agra
2.	मिश्र डा जे. पी.	व्यावसायिक अर्थशास्त्र	साहित्य भवन पब्लिकेशन आगरा

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks:

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 Marks

<p>Internal Assessment: Attainment Methods</p>	<p>Unit 1- Chart/Poster Making on Factors of Production. (CO1) Assignment on Malthusian and Optimum theory of Population. (CO2)</p> <p>Unit 2- Diagrammatic presentation of Law of Variable Proportions. (CO3)</p> <p>Unit3-Presentations on Price determination of different market conditions (CO4, CO5 and CO6)</p> <p>Unit 4- Assignment on theories of rent, profit and wages. (CO7)</p>	<p>Total – 40 Marks</p>
<p>External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours</p>	<p>Section A: Objective type Questions</p> <p>Section B: Short Questions</p> <p>Section C: Long Questions</p>	<p>Total - 60 Marks</p>

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Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/कार्यक्रम:	Certificate / सर्टिफिकेट
Class/कक्षा:	B. Com 2 nd Semester / बी. कॉम 2 nd सेमेस्टर
Course Code/ पाठ्यक्रमकोड:	C1-COMB1T
Course Type/ पाठ्यक्रमकाप्रकार:	CORE 1 (PAPER 2)
Course Title/पाठ्यक्रमकाशीर्षक:	Business Mathematics /व्यवसायिक गणित
Pre – requisite/ पूर्वपिक्षा:	open for all/सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रमअध्ययनकीपरिलक्षितियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1- To apply the concept of Ratio and Proportion in business through word Problems.</p> <p>CO 2- To calculate Average, Percentage, Discount in business deals.</p> <p>CO 3-To describes effects of various types and methods of interest account.</p> <p>CO 4-To apply the concept of Vedic mathematics to enhance the speed of calculation.</p>
Credit Value/ क्रेडिटमान:	4 Credits
Total Marks/ कुलअंक:	Max. Marks: (internal 40) + (external 60) 100

Part B – Course Content

Unit 1	Ratio, Partnership - gaining and sacrificing ratios, Proportion.
इकाई 1	अनुपात, साझेदारी- त्याग एवं लाभालाभ अनुपात, समानुपात

Unit 2	Average, Percentage, Discount
इकाई 2	औसत , प्रतिशत , अपहार,(बट्टा)
Unit 3	Simple interest, Compound interest
इकाई 3	साधारण व्याज,चक्रवृद्धि व्याज
Unit 4	Brief history of Vedic mathematics in Indian knowledge tradition, methods and practice of quick calculation of addition, multiplication, division, square and square root of numbers through Vedic mathematics, method of quick verification of answers from Digit Sum.
इकाई 4	भारतीय ज्ञान परंपरा में वैदिक गणित का संक्षिप्त इतिहास, वैदिक गणित के माध्यम से संख्याओं के जोड़, गुणा, भाग, वर्ग और वर्गमूल की त्वरित गणना की विधियाँ एवं भाग अध्यापन, योगांक से उत्तर के त्वरित सत्यापन की विधि ।

Part C – Suggested Readings

S.No.	Author	Name of the Book	Publication
1.	Shukla Dr. S.M.	Business Mathematics	Sahitya Bhawan Publications
2.	Magar Dr. Abhilasha	Business Mathematics	Himalaya publication, Mumbai
3.	Sancheti & Kapoor	Business Mathematics	Sultan Chand and sons, New Delhi
4.	Sharma J.K.	Business Mathematics	IK International Pvt. Ltd., New Delhi
5.	Kumar Mrityunjay	Business Mathematics	S. Chand Publishing, New Delhi
6.	Agrawal Dr Mahesh	Business Mathematics	Ramprasad and sons, Bhopal
7.	Gourav Tekriwal	Maths Sutra	Penguin Books, Gurgaon
8.	गुप्ता डआलोक	व्यावसायिक गणित	एसबीपीडी पब्लिकेशन, आगरा
9.	मंगल डॉ रमेश	व्यावसायिक गणित	यूनिवर्सल पब्लिकेशन इंदौर
10.	अग्रवाल डॉ महेश	व्यावसायिक गणित	रामप्रसाद एंड संस, भोपाल

Web Links

- <https://www.geeksforgeeks.org/ratio-and-proportion-go/>
- <https://www.geeksforgeeks.org/program-to-find-the-discount-percentage/>
- <https://www.faceprep.in/quantitative-aptitude/simple-interest-and-compound-interest/>
- <https://www.saralstudy.com/blog/vedic-maths/>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE): Marks	Unit 1 Assignments on practical problems of Ratio, Proportion (CO - 1) Unit 2 Chart Making – formulas of Average and Percentage. (CO - 2) Unit 3 Activity based on practical knowledge of Simple interest and Compound Interest. (CO-3) Unit 4 Quiz for testing speed of calculation using tricks of Vedic Mathematics	Total – 40 marks
External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective type Questions Section B: Short Questions Section C: Long Questions	Total – 60 marks

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Class/ कक्षा:	B. Com 2 nd Semester / बी. कॉम 2nd सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMA1T
Course Type/ पाठ्यक्रम का प्रकार:	CORE
Course Title/पाठ्यक्रम का शीर्षक:	Banking and Insurance
Pre – requisite/ पूर्वापेक्षा:	(Open for all)
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>C01: To sketch an understanding of the Insurance system.</p> <p>CO2: To analyze different functions of IRDAI.</p> <p>CO3: To develop an understanding of Life Insurance, its policies, and procedures</p> <p>CO4: To organize the knowledge of General Insurance, various policies and filing of claims.</p> <p>C05: To distinguish between LIC and GICI.</p>
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: (Internal 40) + (External 60) 100

Part B – Course Content

Unit 1	Insurance: Historical background of Insurance. Meaning, elements, basic principles and importance of insurance. Kinds of insurance. Regulation of insurance in India . IRDA : Functions and role to regulate insurance in India
इकाई-1	बीमा बीमा की ऐतिहासिक पृष्ठभूमि, बीमा का अर्थ, तत्व, आधारभूत सिद्धांत तथा महत्व, बीमा के प्रकार भारत में बीमा का नियमन, आई.आर.डी.ए.: कार्य तथा भारत में बीमा नियमन में भूमिका।

Unit 2	Life Insurance: Historical background, meaning, objectives, importance, essential elements. Life insurance policy and its types. Insurance proposal to policy' Procedure. Conditions of Life insurance policies. Claim filing procedure and settlement of claims.
इकाई-2	जीवन बीमा: ऐतिहासिक पृष्ठभूमि, उद्देश्य, महत्व, आवश्यक तत्व, जीवन बीमा पत्र तथा उसके प्रकार, बीमा प्रस्ताव से बीमा पत्र प्रक्रिया जीवन बीमा पत्रों की शर्तें दावा प्रस्तुत करने की प्रक्रिया तथा दावों का निपटारा।
Unit 3	General Insurance: Meaning, objectives & importance. Kinds of general insurance and its features. Basic principles of general insurance. Procedure to apply general insurance policies. Claim filing procedure and settlement of claims.
इकाई-3	सामान्य बीमा: अर्थ, उद्देश्य, तथा महत्व, सामान्य बीमा के प्रकार तथा उनकी विशेषतायें, सामान्य बीमा के आधारभूत सिद्धांत सामान्य बीमा पत्रों की आवेदन प्रक्रिया, दावा प्रस्तुत करने की प्रक्रिया तथा दावों का निपटारा।
Unit 4	Life Insurance Corporation of India: Functions, progress and Evaluation. General Insurance Corporation of India: Functions, progress and structure. Performance of private sector companies in general insurance sector.
इकाई-4	भारतीय जीवन बीमा निगम: कार्य प्रगति तथा मूल्यांकन। भारतीय सामान्य बीमा निगम: कार्य प्रगति एवं संरचना, बीमा क्षेत्र में निजी क्षेत्र की कंपनियों का प्रदर्शन।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	M. Eswari Karthikeyan	Fundamental principles of Insurance	Himalaya Publication. Nagpur
2.	Hargovind Dayal	The fundamentals of Insurance	Sahitya Bhawan Publication Agra
3.	Dr. A. Murthy	Principles and practice of Insurance	Modern Publisher New Delhi
4.	S. Chand	Insurance – Principle and practice	SBPD Publication Agra

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

<p>Internal Assessment: Attainment</p>	<p>Unit 1: Prepare mind maps and timelines to understand the Insurance system. (CO1)</p> <p>Prepare a report consisting of different case studies based on functions of IRDAI.(CO2)</p> <p>Unit 2: Write an article on LIC and presentation on its policies and procedure (CO3)</p> <p>Unit 3: Prepare a project on how to file for claims under general insurance through online and offline modes. (CO4)</p> <p>Unit 4: Prepare a diagram on LIC & GIC highlighting their key features and differences. (C05)</p>	<p>Total – 40 Marks</p>
<p>External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours</p>	<p>Section A: Objective type Questions</p> <p>Section B: Short Questions</p> <p>Section C: Long Questions</p>	<p>Total – 60 Marks</p>

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / वाणिज्य
Programme/कार्यक्रम:	Certificate / सर्टिफिकेट
Class/कक्षा:	B. Com 2 nd Semester/ बी. कॉम 2 nd सेमेस्टर
Course Code/ पाठ्यक्रमकोड:	M1-ASPM2T
Course Type/ पाठ्यक्रम का प्रकार:	ELECTIVE
Course Title/पाठ्यक्रमकाशीर्षक:	Advertising & sales Promotion/ विज्ञापन एवं विक्रय प्रबंध
Pre – requisite/ पूर्वपेक्षा:	Not required (Open For all)/ Not Required (open for all) / सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1- Explain the basic concept, meaning and importance of sales promotion.</p> <p>CO 2- Analyze sales promotion budget.</p> <p>CO 3- Explain the tools of sales promotion in marketing.</p> <p>CO4-Describe National and International promotion strategies of sales promotion.</p> <p>CO 5 - Preparation of Sales promotion programme.</p>
Credit Value/ क्रेडिटमान:	4 credits
Total Marks/ कुलअंक:	Max. Marks: (Internal 40) + (External 60) 100

Part B – Course Content

Unit 1	<p>Historical Background of Sales Promotion in India. Nature and importance of sales promotion - Definition, Functions and limitations, Objectives, Sales Promotion Budget, Role in marketing.</p> <p>Salesmanship: Skills and qualities required to enhance personality of salesman.</p>
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इकाई 1	भारत में विक्री संवर्धन की ऐतिहासिक पृष्ठभूमि, विक्रय संवर्धन की प्रकृति और महत्व - परिभाषा, कार्य एवं सीमाएं, उद्देश्य विक्रय संवर्धन बजट, विपणन में भूमिका सेल्समैनशिप: विक्रेता के व्यक्तित्व को निखारने के लिए आवश्यक कौशल और गुण।		
Unit 2	Forms of sales promotion - Consumer Oriented, Trade Oriented, Sales Force Oriented. Major tools of sales promotion - Samples, Display and Demonstration, Fashion Shows, Sales contest, lotteries, gift offers, rebates, rewards		
इकाई 2	विक्रय संवर्धन के रूप उपभोक्ता उन्मुख, व्यापार उन्मुख, विक्रय विभाग उन्मुख। विक्रय संवर्धन के प्रमुख साधन नमूने प्रदर्शन एवं क्रियात्मक प्रदर्शन, फैशन शो, विक्रय प्रतियोगिता, लॉटरी, उपहार, छूट, पुरस्कार		
Unit 3	Sales promotion. Requirement identification, designing of sales promotion campaign , Involvement of salesmen and dealers, Outsourcing sales promotion , National and International promotion strategies , Coordination within the various promotion techniques.		
इकाई 3	विक्रय संवर्धन आवश्यकता की पहचान, विक्रम संवर्धन अभियान की डिजाइनिंग, विक्रेता व डीलर को भागीदारों, आउट सोर्सिंग विक्रय संवर्धन, राष्ट्रीय एवं अंतर्राष्ट्रीय प्रचार रणनीतियाँ, विभिन्न प्रचार तकनीकों में समन्वय		
Unit 4	Developing sales promotional programme, pre- testing implementing, evaluation of results and making necessary modifications.		
इकाई 4	विक्रय प्रचार कार्यक्रम विकसित करना, परीक्षण के पूर्व कार्यान्वयन, परिणामों का मूल्यांकन और आवश्यक संशोधन करना।		
Part C – Suggested Readings			
S. No.	Author	Name of the Book	Publication
1.	S H H Kazmi , Satish K Batra	Advertising And Sales Promotion	McGraw Hill
2.	Belch & Belch -	Advertising & Promotion -	Tata Mc Graw Hill
3.	डा. ए सी जैन व नीरज सिंह.	विक्रय एवं विज्ञापन	एसबीपीडी पब्लिकेशन ए आगरा
4.	Sanjay	Advertising And Sales Promotion-	SBPD Agra
Suggestive digital platforms and web links:			

<https://raventools.com/blog/8-link-marketing-techniques-for-smbs/>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation and Attainment Methods

Maximum Marks: 100 Marks

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 Marks

Internal Assessment: Attainment Methods	Unit- 1: Summary writing on basic concept of sales and promotion, meaning and importance (CO1); Unit- 1: Graphical survey report of Sales promotion budget (CO2); Unit- 2: Summary writing on tools of sales promotion used by real companies in marketing (CO-3); Unit- 3: Magazine article presentation on national and international promotion strategies (CO 4); Unit-4: Diagrammatically presentation of sales promotion programme of any one company (CO - 5).	Total – 40 marks
External Assessment: University/ Autonomous College Exam Section: marks Time: 3:00 hours	Section A: Objective type Questions Section B: Short Questions Section C: Long Questions	Total – 60 marks

Proposed Structure of Undergraduate Programme CBCS - B Com

B. Com III & IV Semester Elective \Vise Structure

LEVEL	S.N O	Subject I Major (6 credits)	Subject II Minor (6)	Subject III Generic Elective Subjects (4)	Skill Enhance ment Course Vocatio nal	Ability Enhanceme nt Course	Field Project/ Internship/ Apprentice ship/ Communit y Engagemen t # Intra/ Inter	Credits	Qualificatio n title (Credit Requireme nt)
LEVEL - 5	SEMESTER III	Corporate Accounting	Business Statistics - I	Applied Economics- I				6+6+4 +4 = 20	(40) Undergrad uate Certificate In Commerc e Faculty
				Corporate Law – I		I(4Credits)			
				Financial Market Operation- I					
				Principle of Management – I					
				Introduction to ASPNET And CSHARP - I					
	SEMESTER IV	Cost Accounting	Business Statistics - II	Applied Economics-				6+6+4 +4 = 20	
				Corporate Law – II		I(4Credits)			
				Financial Market Operation- II					
				Principle of Management – II					
				Entrepreneurship Development – II					
				Introduction to ASPNET And CSHARP - II					

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma/ डिप्लोमा
Class/ कक्षा:	B. Com 3rd Semester / बी. कॉम तृतीय सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2-COMA1T
Course Type/ पाठ्यक्रम का प्रकार:	MAJOR
Course Title/पाठ्यक्रम का शीर्षक:	CORPORATE ACCOUNTING
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After Completion of this course, the students will be able to-</p> <p>CO1. Understand the regulatory environment in which the companies are formed and operate</p> <p>CO2. Develop a solid foundation in accounting and reporting requirements of the Company Act and Accounting Standards</p> <p>CO3. Understand the Procedure of calculating Profit and loss prior to and post-incorporation,</p> <p>CO4. Use online software to prepare financial statements (Profit & Loss Account, Balance Sheet, etc.).</p> <p>CO5. Analyze the case study of major amalgamations of companies in India.</p>
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Maximum Marks: 40+60 Minimum Passing Marks 35

Part B – Course Content

Unit 1	Share: meaning, types, Issue, Forfeiture, Re-issue of shares Redemption of Preference shares, Corporate Social Responsibility.
इकाई 1	अंशों का अर्थ, प्रकार, निगमन, हरण, पुनर्निगमन, पूर्वाधिकारी अंशों का शोधन, निगमों का सामाजिक उत्तरदायित्व
Unit 2	Debenture: meaning, types, Issue and Redemption of Debentures, Profit Loss Account and Balance Sheet of the Company.
इकाई 2	ऋणपत्र का अर्थ, प्रकार, निगमन एवं शोधन, कंपनी का लाभ हानि खाता तथा चिट्ठा प्रारूप एवं विवरण .
Unit 3	Calculations of Profit and loss prior and post incorporation, Liquidation of company, Accounting for liquidation of companies.
इकाई 3	समामेलन के पूर्व एवं पश्चात लाभ और हानि की गणना, कंपनी का परिचय, कंपनियों के परिचय के लिए लेखांकन
Unit 4	Goodwill: Concept, types, characteristics/Nature, Valuation of Goodwill , Valuation of shares.
इकाई 4	ख्याति की अवधारणा, प्रकार, विशेषताएं/प्रकृति, ख्याति का मूल्यांकन, अंशों का मूल्यांकन
Unit 5	Meaning of Holding and Subsidiary Company, preparation of Consolidated Balance sheets. Accounting for Merger as per AS 14, Internal Reconstruction of a company as per Indian accounting Standard 14.

इकाई 5	सूत्रधारी एवं सहायक कंपनी का अर्थ, सूत्रधारी कंपनी का समकित चिट्ठा तैयार करना. भारतीय लेखांकन मानक 14 के अनुसार कंपनियों का संविलियन। कंपनी के आंतरिक पुनर्निर्माण लेखे भारतीय लेखा मानक 14 के अनुसार.		
Part C – Suggested Readings			
S. No.	Author	Name of the Book	Publication
1.	Agrawal Mahesh	Corporate Accounting	Ramprasad & Sons Bhopal Himalaya Publishing House Mumbai
2	Dr. S.M. Shukla	Corporate Accounting	Sahitya Bhawan Publications
3.	Sharda Gawar	Corporate Accounting	Himalaya Publishing House Mumbai Universal Publication
4	Ramesh Mangal	Corporate Accounting	Himalaya Publishing House Mumbai Universal Publication
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE):40 Marks External Exam: 60 marks			
Internal Assessment: Attainment Methods	Unit 1- Written Test on Issue, Forfeiture, Re-issue of shares Redemption of Preference shares, Corporate Social Responsibility (CO1) Unit 2- Assignment/Presentation on Debenture Issue and Redemption of Debentures, Profit Loss Account, and Company Balance Sheet. (CO2) Unit 3- PowerPoint presentation on Profit and loss prior to and post incorporation, Accounting for liquidation of companies (CO3) Unit 4- Written test on Valuation of Goodwill and Valuation of shares (CO4) Unit 5- Case Study on Holding and Subsidiary Company, Presentation on Accounting for Merger as per AS 14, Internal Reconstruction of a company as per Indian accounting Standard 14 (CO5)		40 marks
External Assessment: University/ Autonomous College Exam	Section A: Five objective-type questions Section B: Five Short Answer Questions Section C: Five Long Answer Questions		60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma / डिप्लोमा
Class/ कक्षा:	B. Com III Semester/ बी. कॉम तृतीय सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2-COMB2T
Course Type/ पाठ्यक्रम का प्रकार:	MINOR
Course Title/पाठ्यक्रम का शीर्षक:	BUSINESS STATISTICS
Prerequisite/ पूर्वापेक्षा:	Not Required (open for all) सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	After completion of this course, it is expected that the student shall be able to: CO1- Describe the basic concept of statistics and apply it to business disciplines; CO2- Explain the process of data collection and compare primary and secondary data, Identify the data series; CO3- Solve the central tendency; CO4- Measure the coefficient of skewness CO5- Calculate and analyze the SD and variance to compare two companies' data; CO6- Demonstrate long-term trends with appropriate graphs.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: (internal) + (external)=60+40=100

Part B – Course Content

Unit 1	Statistics: Meaning, Definition, Significance, Scope, and Limitations of Statistical investigation, Process of data collection, primary and secondary data, preparation of statistical Series and its types
इकाई 1	सांख्यिकी: - अर्थ, परिभाषा, महत्व, क्षेत्र और सीमाएँ, सांख्यिकीय अनुसन्धान। समेक संकलन की प्रक्रिया, प्राथमिक और द्वितीयक समेक, सांख्यिकीय श्रेणियों की रचना एवं प्रकार.
Unit 2	Measurement of Central Tendency- Mean, Mode, Median, Geometric Mean, and Harmonic Mean.
इकाई 2	केंद्रीय प्रवृत्ति की माप- माध्य, भूयिष्ठिक, माध्यिका, गुणोत्तर माध्य एवं हरात्मक माध्य.
Unit 3	Partition Value, Dispersion Range, Lorenz Curve, Quartile Deviation, Mean Deviation, Standard Deviation. Coefficient of Variation, Variance.
इकाई 3	विभाजन मूल्य, एवं अपकृरण: विस्तार, लोरेन्ज वक्र, चतुर्थक विचलन, माध्य विचलन, प्रमाप विचलन, विचरण गुणांक, प्रसरण.
Unit 4	Skewness- meaning, types, and methods of determining skewness.
इकाई 4	विषमता – अर्थ, प्रकार, विषमता निकालने की विधियाँ.
Unit 5	Analysis of Time Series- Meaning, Importance, Components, Measurement of long-term trends. Measurement of cyclical and Irregular fluctuations.

इकाई 5	काल श्रेणी का विश्लेषण-अर्थ, महत्त्व, संघटक, दीर्घकालीन उपनति के माप, चक्रीय एवं अनियमित उच्चावचना के माप.		
Part C – Suggested Readings			
S. No.	Author	Name of the Book	Publication
1.	Dr. K.L. Gupta and Dr. S.M. Shukla	Statistical Analysis	Sahitya Bhawan Publications
2.	Dr. Alok Gupta	Principles of Statistics	SBPD Publication
3.	Pillai R.S.N. & Bagavathi	Practical Statistics	S. Chand and sons
4.	Dr. Mahesh Agrawal	Principles of Statistics	Ram Prasad & Sons
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 40 Marks External Exam: 60 marks			
Internal Assessment: Attainment Methods	Unit 1- Review of magazine and newspaper articles for primary and secondary data (CO1 and CO2) Unit 2- Unit tests for Measurement of Central Tendency (CO3) Unit 3- Data collection and calculation of Dispersion, Standard Deviation (CO5) Unit 4- Group Discussion and presentation on skewness (CO4) Unit 5- A case study of companies and graph making on Time Series and long-term trends (CO6)		40 marks
External Assessment: Time: 3:00 hours	Section A: Objective-type Questions Section B: Five Short Questions Section C: Five Long Questions		Total 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma / डिप्लोमा
Class/ कक्षा:	B. Com III Semester/ बी. कॉम तृतीय सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2COMD2T
Course Type/ पाठ्यक्रम का प्रकार:	Elective / ऐच्छिक
Course Title/ पाठ्यक्रम का शीर्षक:	Corporate Law/ निगमीय विधि
Pre – requisite/ पूर्वपेक्षा:	Not Required (open for all)/ सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	CO1- Explain the process of application and execution of corporate law; CO2- Classify among companies and their formation procedure; CO3- Explain and demonstrate the formats of MOA, AOA, and Prospectus; CO4- Compare and choose categories of directors and their responsibilities; CO 5- Compose a model of CSR for a business; CO6- Differentiate among various securities and financial investments.
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: 40 (internal) + 60 (external) Passing Marks: 35

Part B – Course Content

Unit 1	Preliminary to Companies Act 2013 : Company- Definition, Characteristics, Types of Company, Formation of Company: - Promotion, Incorporation, and Commencement of Business, Concept, and modes of Winding- up.
इकाई 1	कंपनी अधिनियम 2013 के लिए प्रारंभिक: कंपनी- परिभाषा, विशेषताएँ, कंपनी के प्रकार, कंपनी का निर्माण: - प्रवर्तन, सम्मेलन और व्यवसाय प्रारंभ, कंपनी के समापन की अवधारणा और प्रकार.
Unit 2	Memorandum of Association , Articles of Association, and Prospectus.
इकाई 2	मेमोरैंडम ऑफ एसोसिएशन, आर्टिकल्स ऑफ एसोसिएशन एंड प्रॉस्पेक्टस।
Unit 3	Directors- Board of Directors, Types of Directors, their qualifications, powers, duties, liabilities.
इकाई 3	संचालक- संचालक मंडल, संचालक के प्रकार, उनकी योग्यताएँ, शक्तियाँ, कर्तव्य, दायित्व।
Unit 4	Declaration and payment of dividends, maintenance and authentication of financial statements, and Corporate Social Responsibility (CSR) , Securities and Finance Market: Introduction and basic features.
इकाई 4	लाभांश की घोषणा और भुगतान, वित्तीय विवरणों का रखरखाव और प्रमाणीकरण, कॉर्पोरेट सामाजिक उत्तरदायित्व (सीएसआर)। प्रतिभूति और वित्त बाजार: परिचय और बुनियादी विशेषताएँ।

Part C – Suggested Readings			
S. No.	Author	Name of the Book	Publication
1.	Avtar Singh	Company law	ABC Publication
2.	Bloombury	Company Law Procedures	Corporate Law Adviser
3.	Brenda Hannigan	Company Law	Eastern Publishers
4.	M.C.Kuchhal	Company Law	Mahaveer Publications
5.	Paul Davies	Introduction to Company Law	Oxford University Press
Web Links: - www.sagepub.in www.sbpd.in			
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 40Marks External Exam: 60 marks			
Internal Assessment: Attainment Methods	Unit 1- Summary presentation on the company, its nature, and execution of Indian Corporate Law 2013 (CO1) Unit 1- Preparation of a graphical report on the comparison between private and public companies and their formation procedure (CO2) Unit 2- Diagrammatically preparation of a report on MOA and AOA prepared by companies (CO3) Unit 3- Preparation of question list for mock interview papers for the post of Directors in different companies (CO4) Unit 4- Construct article regarding the Business Model of CSR (CO5) Unit 4- Preparation of graphical report of declaration of dividends by different companies (CO6)		40 Marks
External Assessment: Time: 3:00 hours	Section A: Five Objective Questions Section B: Five Short Questions Section C: Five Long Questions		Total 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma / डिप्लोमा
Class/ कक्षा:	B. Com III Sem / बी. कॉम तृतीय सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2—COME2T
Course Type/ पाठ्यक्रम का प्रकार:	Elective / ऐच्छिक
Course Title/पाठ्यक्रम का शीर्षक:	Financial Market Operations / वित्तीय बाजार संचालन
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) / सभी क के लिए उपलब्ध है
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>On successful completion of the course students will be able to: -</p> <p>CO 1- Describe the role and importance of the Indian financial market and financial intermediaries.</p> <p>CO 2- Explain the Concepts relevant to Indian financial markets and financial institutions.</p> <p>CO 3- Visualise Merchant Banking, leasing, and hire purchase concepts.</p> <p>CO 4 Stimulates ideas about the fundamentals of Credit Rating and venture capital.</p> <p>CO 5-Evaluate and create strategies to promote financial products and services.</p> <p>CO 6 - Compare and analyze specific problems or issues related to financial markets and institutions</p> <p>CO 7- Appraise the challenges faced by the regulators in the financial service industry.</p>
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Maximum Marks: 100 (40 internal + 60 external) Minimum Passing Marks:35

Part B – Course Content

Unit 1	Historical background and Introduction of the financial system in India, formal and informal financial sectors. Financial system and economic growth. An overview of the Indian financial system from 1951 to 1990. Financial sectors reforms after liberalization in 1990 to 1991.
इकाई 1	ऐतिहासिक पृष्ठभूमि और भारत में वित्तीय प्रणाली का परिचय, औपचारिक और अनौपचारिक वित्तीय क्षेत्र, वित्तीय प्रणाली और आर्थिक विकास. 1951 से 1990 तक भारतीय वित्तीय प्रणाली का अवलोकन. 1990 से 1991 में उदारीकरण के बाद वित्तीय क्षेत्रों में सुधार।
Unit 2	Financial Services- Introduction of the Financial services industry in India. Merchant- Banking meaning and scope, Underwriting and regulatory framework of Merchant Banking in India. Consumers and Housing Finance.
इकाई 2	वित्तीय सेवाएं- भारत में वित्तीय सेवा उद्योग का परिचय, मर्चेन्ट- बैंकिंग अर्थ और कार्यक्षेत्र, अभिगोपन, भारत में मर्चेन्ट बैंकिंग का नियामक ढांचा। उपभोक्ता और आवास वित्त।
Unit 3	Leasing and hire purchase, Venture Capital finance, factoring services, Concept function, and types of Credit rating.

इकाई 3	पट्टा और किराया खरीद, उद्यम पूंजी वित्त, फैक्ट्रिंग सेवाएं, संकल्पना कार्य और क्रेडिट रेटिंग के प्रकार ।
Unit 4	Stock Exchange Board of India- SEBI as a capital market regulator. Objectives, functions, powers, and Organizational structure of SEBI. SEBI Guideline on the primary and secondary market. Listing procedure and legal requirements . Public issue pricing and marketing.
इकाई 4	स्टॉक एक्सचेंज बोर्ड ऑफ इंडिया- पूंजी बाजार नियामक के रूप में सेबी । सेबी के उद्देश्य, कार्य, शक्तियां और संगठनात्मक संरचना । प्राथमिक और द्वितीयक बाजार पर सेबी दिशानिर्देश । लिस्टिंग प्रक्रिया और कानूनी आवश्यकताएं। सार्वजनिक निर्गम मूल्य निर्धारण और विपणन ।

Part C – Suggested Readings

S.No	Author	Name of the Book	Publication
1.	E. Gordan, K. Natarajan	Financial Markets and Operation	Himalaya Publishing House, New Delhi.
2.	Alok Goyal, Mridula Goyal	Financial Markets Operation	V K Global Publications, Pvt. Ltd Faridabad.
3.	Dr. F.C Sharma	Financial Markets Operation	SBPD Publication, Agra.
4.	डॉ. एफ. सी. शर्मा	वित्तीय बाजार संचालन	एस .बी. पी. डी. प्रकाशन, आगरा
5.	ई. गोर्डन, के. नटराजन,ओ.पी. अग्रवाल	भारतीय वित्तीय बाजार और सेवाएं	हिमालय पब्लिशिंग हाउस, नई दिल्ली
6.	आलोक गोयल, मृदुला गोयल	वित्तीय बाजार प्रक्रियाएं	वी के ग्लोबल पब्लिकेशन, प्राइवेट लिमिटेड फरीदाबाद

Suggestive digital platforms and web links:

- <http://ncert.nic.in/textbook/pdf/lhb5202.pdf>
- <https://www.aisectfi.com/user/download/iibf/TTBF%20BOOK-2.pdf>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

Internal Assessment: Attainment Methods	Unit 1- Summarize the major events in financial sector reforms before and after liberalization (CO1) (CO2) Unit 2- Project-based learning on merchant banking and underwriting (CO3) Unit 3- Illustrative based assignment on Hire purchase, lease financing, and credit rating (CO4) Unit 4- Summarize the role of SEBI with Case Study (CO5) (CO6) (CO7)	40 Marks
External Assessment: University/ Autonomous College	Section A: Four Objective-Type Questions Section B: Four Short Questions Section C: Four Long Questions	60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A - Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma/ डिप्लोमा
Class/ कक्षा:	B. Com III semester / बी. कॉम तृतीय सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2-COMC 2T
Course Type/ पाठ्यक्रम का प्रकार:	Elective /एन्डिडक
Course Title/पाठ्यक्रम का शीर्षक:	Principles of Management (प्रबंध के सिद्धांत)
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	After successful completion of the course, a student will be able to- CO 1 – Restate the concept of Management and identify the utility of Vedic management in the present era. CO 2- Compare and analyze the various thoughts of management and generalize the process of planning. CO 3- Describes the concept of organizing, staffing, and decision-making. CO 4- Explain the principles and techniques of direction.
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: 40 (internal) + 60 (external)

Part B – Course Content

Unit 1	Management: Concept/meaning -Definition, Nature Functions, Process, Scope, and Importance of Management. Role of Vedic Values and Ethics in Management. Difference between Management and Administration, Importance of Values and Ethics in Management.
इकाई 1	प्रबंध की अवधारणा/अर्थ - परिभाषा, प्रकृति, प्रक्रिया, क्षेत्र और प्रबंधन का महत्व, प्रबंधन में वैदिक मूल्यों और नैतिकता की भूमिका, प्रबंधन और प्रशासन के बीच अंतर, प्रबंधन में मूल्यों और नैतिकता का महत्व।
Unit 2	Evolution of Management Thought Early contributions: Taylor and Scientific Management, Fayol's Administrative Management, Bureaucracy, Human Relations, and Modern Approach, Managerial Ethics, Qualities and Characteristics of Managers. Planning - Meaning, Nature, Scope, Objective, Functions, and Significance of Planning, Elements, and Steps of Planning, Strategies, and Policies,
इकाई 2	प्रबंधन का विकास विचार, टेलर और वैज्ञानिक प्रबंधन :प्रारंभिक योगदान, फेयोल का प्रशासनिक प्रबंधन, कर्मचारीतंत्र, मानवीय संबंध और आधुनिक दृष्टिकोण, प्रबंधकीय नैतिकता, प्रबंधकों के गुण और विशेषताएं, नियोजन - अर्थ, प्रकृति, क्षेत्र, उद्देश्य कार्य और नियोजन का महत्व, तत्व और नियोजन के चरण, रणनीतियाँ और नीतियाँ.
Unit 3	Organization - Meaning, Definition, Types, Scope, Principles, Line and Staff Relationship, Authority, Delegation, and Decentralization. Effective Organizing,

	Organizational Structures , and Staffing. Decision- Meaning, Definition, Types, Scope, Principles, decision making.		
इकाई 3	संगठन- अर्थ, परिभाषा, प्रकार, क्षेत्र, सिद्धांत, रखा और कर्मचारी संबंध, अधिकार, केंद्रीकरण और विकेंद्रीकरण प्रभावी संगठन, संगठनात्मक संरचना, स्टाफिंग निर्णयन- अर्थ, परिभाषा, प्रकार, क्षेत्र, सिद्धांत, निर्णयन		
Unit 4	Direction- Meaning and definition of direction, importance, and principles of direction, techniques of direction, meaning of supervision,		
इकाई 4	निर्देशन -निर्देशन का अर्थ और परिभाषा, निर्देशन का महत्व और सिद्धांत, निर्देशन की तकनीक, पर्यवेक्षण का अर्थ.		
Part C – Suggested Readings			
S. No.	Author	Name of the Book	Publication
1.	Koontz Harold & Weihrich	Essentials of management	Tata McGraw Hill New Delhi.
2.	Ramasamy, T.	Principles of Management	Himalaya Publishing House Pvt. Ltd. Nagpur
3.	Prasad, L.M	Principles and Practice of Management	S. Chand & Company Ltd New Delhi
4.	Gupta R.N.	Principles of Management	Vikash & S. Chand Company Ltd New Delhi
5.	आर.एल. नौलखा	प्रबंध के सिद्धांत	रमेश बुक डिपो
6.	राजीव जैन	व्यावसायिक प्रबंध	Himalaya Publishing House Pvt. Ltd.
7.	डॉ. एस. सी. सक्सेना	प्रबंध के सिद्धान्त	Sahitya Bhawan Publications
8.	आर सी अग्रवाल	प्रबंध के सिद्धांत	Sahitya Bhawan Publications
Suggestive digital platforms, and web links:			
https://ncert.nic.in/textbook/pdf/lhbs102.pdf https://www.tutorialspoint.com/management_principles/management_principles_tutorial.pdf https://d3bxy9euw4e147.cloudfront.net/media/documents/PrinciplesofManagement-OP.pdf https://www.lsracheta.org/wp-content/uploads/2019/09/FYBMS-Principles-of-malt-.pdf https://faculty.mercer.edu/jacksonr/Ownership/chap02.pdf https://www.freebookcentre.net/business-books-download/Introduction-to-Principles-of-Management.html https://margtheicas.bloespot.com/2018/07/class-12-business-study-chapter-2.html			
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method			
Maximum Marks: 100			
Continuous Comprehensive Evaluation (CCE):40Marks			
External Exam: 60 marks			
Internal Assessment: Attainment Methods	Unit 1- Summarise the role of Management, Vedic values, and managerial ethics. (CO1) Unit 2- Arguments on various management thoughts and preparation of a report on planning strategies of businesses. (CO2)		40 marks

	Unit 3- Interaction with people from various forms of Business Organizations for understanding their process of Staffing. (CO3) Unit 4- Outline the steps of directions incorporated by the corporates in the achievement of organizational goals. (CO4)	
External Assessment: University/ Autonomous College Time: 3:00 hours	Section A: Four Objective-type Questions Section B: Four Short Answer Type Questions Section C: Four Long Answer Type Questions	60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce /कॉमर्स
Programme/कार्यक्रम:	Diploma/डिप्लोमा
Class/कक्षा:	B. Com III SEMESTER/ बी. कॉम तृतीय सेमेस्टर
Course Code/ पाठ्यक्रमकोड:	C2-COMF2T
Course Type/ पाठ्यक्रमकाप्रकार:	Elective
Course Title/पाठ्यक्रमकाशीर्षक:	Applied Economics
Pre – requisite/ पूर्वापेक्षा:	Not required (Open for all)
Course Learning Outcome/ पाठ्यक्रमअध्ययनकीपरिलब्धियां:	Upon successful completion of the course, students will be able to- CO1- Define the core concepts and basic characteristics of Applied Economics. CO2- Describe the various components of National Income and explain the methods of calculating national income. CO3 – Demonstrate the circular flow of income CO4- To Interpret the relationship between Income and Consumption. CO5- Propose the solution for short-term and long-term consumption functions.
Credit Value/ क्रेडिटमान:	6 credits
Total Marks/ कुलअंक:	Maximum Marks: 40 Marks (Internal) + 60 Marks (External) Minimum Passing Marks: 35

Part B – Course Content

Unit 1	Historical Background of Applied Economics , Concept of Applied Economics, Scope, Nature and Importance, Its Limitations Difference between Micro and Macro Economics.
इकाई 1	व्यावहारिक अर्थशास्त्र की ऐतिहासिक पृष्ठभूमि, व्यावहारिक अर्थशास्त्र की अवधारणा, क्षेत्र, प्रकृति और महत्व, इसकी सीमाएं, सूक्ष्म और बृहद् अर्थशास्त्र के बीच अंतर।
Unit 2	National Income -Concept, Gross National Product, Net National Product & Gross Domestic Product Net Domestic Product, Methods of Measurement of National Income and Problem-related to that.
इकाई 2	राष्ट्रीय आय : अवधारणा, सकल राष्ट्रीय उत्पाद, शुद्ध राष्ट्रीय उत्पाद एवं सकल घरेलू उत्पाद, शुद्ध घरेलू उत्पाद, राष्ट्रीय आय के मापन की विधियाँ एवं तत्सम्बंधी समस्याएँ।
Unit 3	Income and Consumption Relationship-Principles of Determination of Income.
इकाई 3	आय और उपभोग संबंध-आय के निर्धारण के सिद्धांत, शास्त्रीय और कीन्स के सिद्धांत।
Unit 4	Classical and Keynes's Theory , Solution of short term and long-term consumption function, Consumption function in the Indian economy .
इकाई 4	अल्पकालिक और दीर्घकालिक उपभोग कार्य का समाधान, भारतीय अर्थव्यवस्था में उपभोग कार्य।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
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1.	Sinha V.C.	Applied Economics	Sahitya Bhavan Publication, Agra
2.	Jhigan ML	Applied Economics	Brinda Publications, New Delhi
3.	Sachdeva S.K	Principle of Micro Economics	Laxmi Narayan Publishers Agra
4.	Sethi T.T.	Applied Economics	Laxmi Narayan Publishers Agra
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 40 Marks External Exam: 60 marks			
Internal Assessment: Attainment Methods	Unit 1- Presentation on Comparison between Micro and Macro Economics. Discussion on the core concepts of Applied Economics (CO1) Unit 2- Quiz on Methods of Calculating National Income (CO2). Poster making on Circular flow of Income (CO3). Unit 3- Tutorial on Income and Consumption relationship. (CO 4) Unit 4- Assignment on Classical and Keynes's Theory. Group Discussion on Solution of Short-term and long-term consumption Function (CO 5)		Total 40 marks
External Assessment: University/ Autonomous College Exam	Section A: Four Objective-Type Questions Section B: Four Short Questions Section C: Four Long Questions		Total 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce/ वाणिज्य
Programme/ कार्यक्रम:	Diploma/ डिप्लोमा
Class/ कक्षा:	B. Com 4 th Semester/ बी. कॉम चतुर्थ सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2-COMA2T
Course Type/ पाठ्यक्रम का प्रकार:	Major/ मुख्य विषय
Course Title/पाठ्यक्रम का शीर्षक:	Cost Accounting/लागत लेखांकन
Pre – requisite/ पूर्वपिक्षा:	Not Required (open for all) सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After completion of this course, the students will be able to</p> <p>CO1- Identify the utility and application of Cost Accounting.</p> <p>CO2- Comparisons of costing and profit of products among industries.</p> <p>CO3-Estimation of Quotation Price or Tender Price</p> <p>CO4-Calculate profit under contract costing.</p> <p>CO5- Comparison of profit under financial and cost accounting.</p> <p>CO6- Analyze the managerial decisions based on marginal costing.</p>
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	<p>Maximum Marks: 30+70</p> <p>Minimum Passing Marks 35</p>

Part B – Course Content

Unit 1	Cost: Meaning, Concept and Classification, Element of Cost, Nature, and Importance, Material Costing: Methods of Valuation of material issued, Concept, and material control and Its Techniques. Labour Costing, Methods of Wages Payment.
इकाई 1	लागत :- अर्थ, अवधारणा एवं वर्गीकरण लागत के तत्व, प्रकृति एवं महत्व, सामग्री लागत लेखांकन, सामग्री निर्गमन के मूल्यांकन की विधियां, सामग्री नियंत्रण अवधारणा एवं इसकी तकनीक, श्रम लागत लेखांकन, मजदूरी भुगतान की पद्धतियां.

Unit 2	Unit Costing: Preparation of Cost Sheet and Statement of Cost (Including calculation of Tender Price), Overhead Costing: Overhead costing (including Calculation of machine hour rate)
इकाई 2	इकाई लागत लेखांकन, लागत पत्र एवं लागत विवरण का निर्माण (निविदा मूल्य की गणना सहित) उपरिव्यय लेखांकन (मशीन घंटा दर की गणना सहित)
Unit 3	Contract and Job Costing , Operating Costing (Transport Costing)
इकाई 3	ढेका एवं उपकार्य लागत लेखांकन, परिचालन लागत लेखांकन (परिवहन लागत)
Unit 4	Process Costing (Including Inter Process Profit and Reserve) Reconciliation of Cost and Financial Accounts.
इकाई 4	प्रक्रिया लेखांकन (अन्तर प्रक्रिया लाभ एवं संचय सहित)। लागत लेखों का वित्तीय लेखों से मिलान।
Unit 5	Marginal Costing-Profit-Volume Ratio, Break-even Point , Margin of Safety, Application of Break-even Analysis. Standard costing and Variance Analysis (Material and Labour only)
इकाई 5	सीमांत लागत लेखांकन - लाभ - मात्र अनुपात, समविच्छेद बिन्दु, सुरक्षा सीमा, समविच्छेद विश्लेषण के प्रयोग। प्रमाण लेख एवं विचरण विश्लेषण (केवल सामग्री एवं श्रम)

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Maheshwari S.N.	Advance Problem and Solution in Cost Accounting	S. Chand
2	Tulsian P.C.	Practical Costing	Vikas Publishers
3.	Arora, M.N.	Cost And Management Accounting	Himalya Pub.
4	Monash Dutta	Cost Accounting	Pearson Education Pvt. Ltd.
5	Agrawal Dr. Mahesh	Cost Accounting	Ramprasad & Sons
6	Dr. Sanjay Mehta / Pro. Mukesh Bramhabhdatta	Cost Accounting	Devi Ahilya Prakashan
7	Dr. S.P Gupta and Dr. K.L Gupta	Cost Accounting	Sahitya Bhawan Publications
8	Dr. R.N. Khandelwal	Cost Accounting	SBPD Publication Agra.

Suggestive digital platforms, and web links:

- <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-8-New.pdf>
- <https://drive.google.com/file/d/1zSNsq0AN5BfC-kvEfcMV0gxZCwso0QUC/view?showad=true>

- [http://www.universityofcalicut.info/SDE/BCom Core Cost Accounting on09 March 2016.pdf](http://www.universityofcalicut.info/SDE/BCom%20Core%20Cost%20Accounting%20on09%20March%202016.pdf)
- [http://cbseacademic.nic.in/web_material/Curriculum/Vocational/2018/Accounting%20and%20Taxati on/ Cost%20Accounting%20class%20XI.pdf](http://cbseacademic.nic.in/web_material/Curriculum/Vocational/2018/Accounting%20and%20Taxation/Cost%20Accounting%20class%20XI.pdf)
- <https://mdu.ac.in/UpFiles/UpPdfFiles/2020/Jan/Advanced%20Cost%20Accounting-Final.pdf>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

<p>Internal Assessment: Attainment Methods Continuous Comprehensive Evaluation (CCE): 40 Marks</p>	<p>1. Evaluation of the material and labor costing. (CO1, CO2) 2 Forecast the cost price of the tender price. (CO3) 3. Report on Industrial visits for Manufacturing of goods and cost analysis in small/big business houses. (CO4, CO6) 4. Case study based on verifying the profit under financial and cost accounts of companies. (CO5)</p>	<p>40 Marks</p>
<p>External Assessment: University/ Autonomous College Exam</p>	<p>Section A: Five Objective type questions Section B: Five Short Questions Section C: Five Long Questions</p>	<p>Total 60 marks</p>

St. Aloysius' College (Autonomous), Jabalpur	
Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma / डिप्लोमा
Class/ कक्षा:	B. Com IV Semester/ बी. कॉम चतुर्थ सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2-COMB2T
Course Type/ पाठ्यक्रम का प्रकार:	MINOR
Course Title/पाठ्यक्रम का शीर्षक:	BUSINESS STATISTICS
Prerequisite/ पूर्वापेक्षा:	Not Required (open for all) सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After completion of this course, it is expected that the student shall be able to</p> <p>CO1- Describe the sampling methods, classify and arrange the data;</p> <p>CO2- Calculate and interpret correlation coefficients;</p> <p>CO3- Use simple regression to analyze the underlying relationships between the variables and estimate the values of variables;</p> <p>CO4- Calculate and test various types of Index numbers;</p> <p>CO5- Explain and interpret the association of attributes for hypothesis testing in decision-making;</p> <p>CO6- Measure mode and median by the appropriate graphical presentation.</p>
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: (internal) + (external)=60+40=100
Part B – Course Content	
Unit 1	Methods of sampling , preparation of Questionnaire, Classification, and Tabulation of data.
इकाई 1	निर्देशन की रीतियाँ, प्रश्नावली की रचना, समूहों का वर्गीकरण एवं सारणीकरण.
Unit 2	Correlation- Meaning, Definition, Types, and Degree of Correlation, Coefficient of Correlation Methods.

इकाई 2	सहसंबंध -आशय, परिभाषा, प्रकार, सहसंबंध का परिमाण, सहसंबंध गुणांक की विधियां.
Unit 3	Regression Analysis—Meaning, Uses, Difference between Correlation and Regression, Regression Equations, calculation of Coefficient of Regression
इकाई 3	प्रतीपगमन विश्लेषण-आशय, उपयोग, सहसंबंध एवं प्रतीपगमन में अंतर, प्रतीपगमन समीकरण, प्रतीपगमन गुणांक का परिकलन.
Unit 4	Index Number- Meaning, Characteristics, Importance and uses, Construction of Index number, Cost of living Index, Fisher's ideal Index number.
इकाई 4	निर्देशांक – अर्थ, विशेषताएँ, महत्व एवं उपयोग। निर्देशकों की रचना - जीवन निर्वाह निर्देशांक, फिशर का आदर्श सूचकांक
Unit 5	Diagrammatic and Graphical presentation of data. Association of Attribute (only two variables), Meaning, Types, Characteristics, Methods of Determining Association of Attribute.
इकाई 5	समकों की चित्रमय एवं रेखीय प्रस्तुति, गुण संबंध (केवल दो चर), अर्थ, प्रकार, विशेषताएँ, गुण संबंध को मापने की पद्धति.

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Dr. K.L. Gupta and Dr. S.M. Shukla	Statistical Analysis	Sahitya Bhawan Publications
2.	Dr. Alok Gupta	Principles of Statistics	SBPD Publication
3.	Pillai R.S.N. & Bagavathi	Practical Statistics	S. Chand and sons
4.	Dr. Mahesh Agrawal	Principles of Statistics	Ram Prasad & Sons

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

Internal Assessment:	Unit 1- Students oriented Seminar for Methods of sampling, preparation of Questionnaire (CO1)	Total – 40 marks
Attainment Methods	Unit 2- Field survey for the data collection on Correlation (CO2)	
	Unit 3- Presentation on Regression Analysis, calculation of Coefficient of Regression Analysis (CO3)	
	Unit 4- Quiz on Index number (CO4)	

	Unit 5- Graphical presentation of data, formulation of hypothesis with use of Association of Attribute (CO5, CO6)	
External Assessment: Time: 3:00 hours	Section A: Objective-Type Questions Section B: Five Short Questions Section C: Five Long Questions	Total - 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma / डिप्लोमा
Class/ कक्षा:	B. Com IV Semester/ बी. कॉम चतुर्थ सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2COMD2T
Course Type/ पाठ्यक्रम का प्रकार:	Elective / ऐच्छिक
Course Title/पाठ्यक्रम का शीर्षक:	Corporate Law/ निगमीय विधि
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all)/ सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	CO1- Explain various categories of company meetings; CO2- Illustrate about auditor and its roles and responsibilities; CO 3- Preparation of Audit Report; CO4- Evaluate corporate problems; CO5-Describe the role of NCLT in the provisions of company law.
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: 40 (internal) + 60 (external) Passing Marks: 35

Part B – Course Content

Unit 1	Company Meetings- Types, Quorum, Voting, Resolution, and Minutes.
इकाई 1	कंपनी की बैठके- प्रकार, कार्यवाहक संख्या, मतदान, प्रस्ताव और कार्यवृत्त।
Unit 2	Auditor: Appointment, Qualification, Duties, Responsibilities, Audit Report.
इकाई 2	अंकेक्षक: नियुक्ति, योग्यता, कर्तव्य, जिम्मेदारियां, ऑडिट रिपोर्ट।

Unit 3	Oppression & Mismanagement- Restructuring & Winding up: Prevention of oppression & mismanagement provisions related to compromises & Amalgamation.
इकाई 3	उत्पीड़न और कुप्रबंधन- पुनर्गठन एवं समापन: उत्पीड़न एवं कुप्रबंधन की रोकथाम, समझौते एवं एकीकरण से संबंधित प्रावधान।
Unit 4	National Company Law Tribunal: Definitions, Constitution of NCLT, Constitution of Appellate Tribunal, Provisions regarding appeal and punishment. Emerging issues in company law.
इकाई 4	राष्ट्रीय कंपनी विधि अधिकरण: परिभाषाएँ, राष्ट्रीय कंपनी विधि अधिकरण (NCLT) का गठन, अपील अथवा अपील अथवा अपील का गठन, अपील और सजा के संबंध में प्रावधान। निगम विधान में उभरते मुद्दे।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Avtar Singh	Company law	ABC Publication
2.	Bloomsbury	Company Law Procedures	Corporate Law Adviser
3.	Brenda Hannigan	Company Law	Eastern Publishers
4.	M.C.Kuchhal	Company Law	Mahaveer Publications
5.	Paul Davies	Introduction to Company Law	Oxford University Press

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): Marks 40

External Exam: marks 60

Internal Assessment: Attainment Methods	Unit 1- Diagrammatically Presentation on Meetings and Types of Meetings (CO1) Unit 2- Speech on the roles and responsibilities of Auditors with real example (CO2) Unit 2- Diagrammatically presentation of Audit Report (CO3) Unit 3- Group discussion on Oppression & Mismanagement (CO4) Unit 4- Presentation on company law magazine article (NCLT) (CO5)	40 Marks
External Assessment: Time: 3:00 hours	Section A: Five Objective Questions Section B: Five Short Questions Section C: Five Long Questions	Total 60 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma / डिप्लोमा
Class/ कक्षा:	B. Com IV Sem / बी. कॉम चतुर्थ सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2—COME2T
Course Type/ पाठ्यक्रम का प्रकार:	Elective / ऐच्छिक
Course Title/पाठ्यक्रम का शीर्षक:	Financial Market Operations / वित्तीय बाजार संचालन
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) / सभी क के लिए उपलब्ध है
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	CO 1- Describe the Concepts relevant to Indian financial markets and financial institutions. CO 2- Understand and analyze the mechanics and regulations of financial instruments and determine how the value of stocks, bonds, and securities are calculated. CO 3 - Evaluate empirical evidence of the market performance and the role of regulatory authorities in developing the financial market. CO 4 - Research and analyze specific problems or issues related to financial markets and institutions.
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Maximum Marks: 100 (40 internal + 60 external) Minimum Passing Marks: 35

Part B – Course Content

Unit 1	Money Market- Definition, Functions, Significance, and Structure of Money Market. Acceptance house, Discount house, Call money market, new trends in the Indian money market. Role of RBI and Commercial Bank in the Indian Money Market.
इकाई 1	मनी मार्केट- मुद्रा बाजार की परिभाषा, कार्य, महत्व और संरचना। स्वीकृति घर, डिस्काउंट हाउस, कॉल मुद्रा बाजार, भारतीय मुद्रा बाजार में नए रुझान। भारतीय मुद्रा बाजार में भारतीय रिजर्व बैंक और वाणिज्यिक बैंक की भूमिका।
Unit 2	Capital Market- Meaning and Components of Capital market, Primary and Secondary market, Securities market , Cash Markets Equity and Debts, and Depositories. The function of the Stock market, Stockbrokers , Margin trading, and Forward trading

इकाई 2	पूँजी बाजार- पूँजी बाजार का अर्थ और घटक, प्राथमिक और द्वितीयक बाजार, प्रतिभूति बाजार , नकद बाजार इकिवटी और ऋण ,डिपॉजिटरी। शेयर बाजार का कार्य , शेयर दलालों , मार्जिन ट्रेडिंग , अगाऊ सौदे।
Unit 3	Stock Exchange: NSE, BSE, NIFTY, SENSEX, OTCEI, Functionaries on Stock Exchange- Brokers, Sub Brokers, Market makers, Jobbers, Portfolio consultants , Institutional investors.
इकाई 3	शेयर बाजार: एनएसई, बीएसई, निफ्टी, सेंसेक्स, ओटीसीआईआई , स्टॉक एक्सचेंज के पदाधिकारी - दलाल, उप दलाल, बाजार निर्माता, नौकरीपेशा, पोर्टफोलियो सलाहकार ,संस्थागत निवेशक।
Unit 4	Investor's protection - Grievances, Dealing and their removal, Grievance cells in Stock exchange, SEBI, Company law board, Press, Remedy through courts.
इकाई 4	निवेशक की सुरक्षा ,शिकायत, व्यवहार और उनका निराकरण , स्टॉक एक्सचेंज में शिकायत प्रकोष्ठ, सेबी, कंपनी लॉ बोर्ड, प्रेस, अदालतों के माध्यम से उपाय में शिकायत प्रकोष्ठ।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	E. Gordan, K. Natarajan	Financial Markets and Operation	Himalaya Publishing House, New Delhi.
2.	Alok Goyal, Mridula Goyal	Financial Markets Operation	V K Global Publications, Pvt. Ltd Faridabad.
3.	Dr. F.C Sharma	Financial Markets Operation	SBPD Publication, Agra.
4.	डॉ. एफ. सी .शर्मा	वित्तीय बाजार संचालन	एस .बी. पी. डी. प्रकाशन, आगरा
5.	ई. गोर्डन, के. नटाराजन, ओ.पी. अग्रवाल	भारतीय वित्तीय बाजार और सेवाएं	हिमालय पब्लिशिंग हाउस, नई दिल्ली
6.	आलोक गोयल, मृदुला गोयल	वित्तीय बाजार प्रक्रियाएं	वी के ग्लोबल पब्लिकेशन, प्राइवेट लिमिटेड फरीदाबाद.

Suggestive digital platforms and web links:

1. <http://ncert.nic.in/textbook/pdf/Ihb5202.pdf>
2. <https://www.airectfi.com/user/download/iibf/TTBF%20BOOK-2.pdf>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 marks

Internal Assessment: Attainment Methods	Unit 1& 2- Enlist the different Instruments of Indian Money Markets (CO1) Unit 2 Classify public issue pricing and marketing of any stock. (CO2) Unit 3- Survey based learning on Indian Stock indices. Unit 4- Graphical presentation of the Stock Market and its procedure. (CO4)	40 Marks
External Assessment: University/ Autonomous College	Section A: Four Objective-Type Questions Section B: Four Short Answer Questions Section C: Four Long Answer Questions	60 marks

St. Aloysius' College (Autonomous), Jabalpur	
Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Diploma/ डिप्लोमा
Class/ कक्षा:	B. Com IV semester/ / बी. कॉम चतुर्थ सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C2-COMC 2T
Course Type/ पाठ्यक्रम का प्रकार:	Elective /एन्डिज
Course Title/पाठ्यक्रम का शीर्षक:	Principles of Management (प्रबंध के सिद्धांत)
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>Upon successful completion of the course, a student will be able to-</p> <p>CO1- Explain the significance of Coordination in the organization.</p> <p>CO 2- Apply the various theories of leadership and motivation in a business organization.</p> <p>CO 3- Evaluate the methods and techniques of controlling businesses.</p> <p>CO4- Evaluate the emerging trends in Management.</p>
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: 40 (internal) + 60 (external)
Part B – Course Content	
Unit 1	Coordination - Meaning of coordination, elements, and features of coordination, importance of coordination, cooperation, and coordination. Steps for effective coordination, and management of conflicts.
इकाई 1	समन्वय - समन्वय का अर्थ, समन्वय के तत्व और विशेषताएँ, समन्वय का महत्व, सहयोग और समन्वय। प्रभावी समन्वय के लिए कदम, संघर्षों का प्रबंधन।

Unit 2	Motivation and Leadership - Motivation: Concept, Forms of employee motivation, Need for motivation. Theories of motivation. Meaning and Functions of a Leader, Characteristics of Effective Leadership, types, and Theories of Leadership and Leadership Styles.
इकाई 2	अभिप्रेरण और नेतृत्व -अभिप्रेरणअवधारणाः, कर्मचारी प्रेरणा के रूप अभिप्रेरण की आवश्यकता। अभिप्रेरण के सिद्धांत । नेतृत्व : एक नेता का अर्थ और कार्य, प्रभावी नेतृत्व के लक्षण, नेतृत्व के प्रकार और सिद्धांत और नेतृत्व शैली।
Unit 3	Controlling- Definition, meaning, elements, Importance, controlling procedure, Types of control, control techniques, and requirements of a good control system. Responsibility accounting. PERT and CPM, use of Computers and IT in Management control.
इकाई 3	नियंत्रण -परिभाषा, अर्थ, तत्व, महत्व, नियंत्रण प्रक्रिया, नियंत्रण के प्रकार, नियंत्रण तकनीक, अच्छे नियंत्रण प्रणाली की आवश्यकताएं। उत्तरदायित्व लेखांकन । PERT और CPM, प्रबंधन नियंत्रण में कंप्यूटर और IT का उपयोग ।
Unit 4	Emerging trends in Management — Basic concept of -Total Quality Management, Crisis Management, Global Practices, Change Management, and Logistic Management.
इकाई 4	प्रबंधन में उभरती प्रवृत्तियाँ- मूल अवधारणा - कुल गुणवत्ता प्रबंधन, संकट /आपदा प्रबंधन, वैश्विक व्यवहार, परिवर्तन प्रबंधन, संभार-तंत्र प्रबंधन,

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Koontz Harold & Wehrich	Essentials of management	Tata McGraw Hill New Delhi.
2.	Ramasamy, T.	Principles of Management	Himalaya Publishing House Pvt. Ltd. Nagpur
3.	Durai, P	Principles of Management, Text, and Cases	Pearson Education New Delhi
4.	Prasad, L.M	Principles and Practice of Management	S. Chand & Company Ltd New Delhi
5.	आर.एल. नौलखा	प्रबंध के सिद्धांत	रमेश बुक डिपो
6.	राजीव जैन	व्यावसायिक प्रबन्ध	Himalaya Publishing House Pvt. Ltd.
7.	डॉ. एस. सी. सक्सेना	प्रबन्ध के सिद्धान्त	Sahitya Bhawan Publications
8.	आर सी अग्रवाल	प्रबंध के सिद्धांत	Sahitya Bhawan Publications

Suggestive digital platforms, and web links:

<https://ncert.nic.in/textbook/pdf/Ihbs102.pdf>
https://www.tutorialspoint.com/management_principles/management_principles_tutorial.pdf
<https://d3bxy9euw4e147.cloudfront.net/media/documents/PrinciplesofManagement-OP.pdf>
<https://www.lsrheta.org/wp-content/uploads/2019/09/FYBMS-Principles-of-mgt-.pdf>
<https://faculty.mercer.edu/~jacksonr/Ownership/chap02.pdf>
<https://www.freebookcentre.net/business-books-download/Introduction-to-Principles-of-Management.html>
<https://margtheicas.blogspot.com/2018/07/class-12-business-study-chapter-2.html>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE):40 Marks

External Exam: 60 marks

<p>Internal Assessment: Attainment Methods</p>	<p>Unit 1-Model making on Conflict management and coordination. (CO1) Unit 2- Application of theories of motivation and leadership through Drama. (CO2) Unit 3- Comparison of controlling techniques applied in different forms of businesses. (CO3) Unit 4- Group Discussion on the emerging trends in Management. (CO4)</p>	<p>40 Marks</p>
<p>External Assessment: University/ Autonomous College Time: 3:00 hours</p>	<p>Section A: Four Objective-type Questions Section B: Four Short Answer Type Questions Section C: Four Long Answer Type Questions</p>	<p>60 Marks</p>

St. Aloysius' College (Autonomous), Jabalpur		
Part A – Introduction		
Session:	2023-24	
Subject/ विषय:	Commerce /कॉमर्स	
Programme/कार्यक्रम:	Diploma / डिप्लोमा	
Class/कक्षा:	B. Com IV SEMESTER / बी. कॉम चतुर्थ सेमेस्टर	
Course Code/ पाठ्यक्रमकोड:	C2-COMF2T	
Course Type/ पाठ्यक्रमकाप्रकार:	Elective	
Course Title/पाठ्यक्रमकाशीर्षक:	Applied Economics/व्यवहारिक अर्थशास्त्र	
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) सभी के लिए उपलब्ध	
Course Learning Outcome/ पाठ्यक्रमअध्ययनकीपरिलब्धियां:	<p>Upon successful completion of the course, students will be able to-</p> <p>CO 1- Define the concept and determinants of the value of money.</p> <p>CO 2- Explain the various theories of Money.</p> <p>CO 3- Identify economic and Non-Economic Factors affecting economic Growth.</p> <p>CO 4- Analyze the stages of Economic Development.</p> <p>CO 5- Illustrate the meaning of inflation, deflation, and stagflation, identify different kinds of inflation, causes and effects of inflation on different sectors of the economy, and describe different measures to control inflation.</p>	
Credit Value/ क्रेडिटमान:	Credits	
Total Marks/ कुलअंक:	Maximum Marks: Minimum Passing Marks	
Part B – Course Content		
Unit 1	Value of money-Concept and determinants of the value of money, the Quantity theory of money, Theory of Fisher and Cambridge , Theory of demand and supply	

	of money, Theory of value of money, Theory of liquidity of money, Keynes's Money income theory.
इकाई 1	मुद्रा का मूल्य- मुद्रा के मूल्य की अवधारणा और निर्धारक, मुद्रा का मात्रात्मक सिद्धांत, फिशर और कैम्ब्रिज का सिद्धांत, मुद्रा की मांग और आपूर्ति का सिद्धांत, मुद्रा के मूल्य का सिद्धांत, मुद्रा की तरलता का सिद्धांत, कीन्स का धन आय सिद्धांत।
Unit 2	Concept of Economic Development and Economic Growth, Economic Development and it's Determining Factors, Economic and non-Economic factors affecting economic growth.
इकाई 2	आर्थिक विकास एवं आर्थिक संवृद्धि की अवधारणा, आर्थिक विकास एवं उसके निर्धारक तत्व, आर्थिक संवृद्धि का प्रभावित करने वाले आर्थिक एवं गैर आर्थिक घटक।
Unit 3	classical and modern theories of economic development, stages of economic development of Keynes and Rostow , and strategy of balanced and unbalanced development.
इकाई 3	आर्थिक विकास के प्रतिष्ठित एवं आधुनिक सिद्धांत, कीन्स एवं रोस्टोव के आर्थिक विकास की अवस्थाएँ, सन्तुलित एवं असन्तुलित विकास की रणनीति।
Unit 4	Changes in the Value of Money- Money Inflation , Money deflation, inflation and narrative inflation, demand-driven inflation, cost growth inflation, stagflation, effects of Money Inflation & Money deflation in the Indian economy .
इकाई 4	मुद्रा के मूल्य में परिवर्तन- मुद्रा प्रसार, मुद्रा संकुचन, मुद्रा विस्फीति तथा मुद्रा संस्फीति, मांग प्रेरित स्फीति, लागत वृद्धि स्फीति, गतिहीन स्फीति, भारतीय अर्थव्यवस्था में मुद्रा प्रसार एवं संकुचन का प्रभाव।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Sinha V.C.	Applied Economics	Sahitya Bhavan Publication, Agra
2	Jhigan ML	Applied Economics	Brinda Publications, New Delhi
3.	Sachdeva S.K.	Principle of Micro Economics	Laxmi Narayan Publishers Agra
4	Sethi T.T.	Applied Economics	Laxmi Narayan Publishers Agra

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: marks

Internal Assessment: Attainment Methods	Unit 1- Presentation on the Value of money. Assignment on theories of money (CO1) Unit 2 is a case study on Economic Development and Growth (CO2). Assignment on Economic and non-Economic factors affecting economic growth. (CO3) Unit 3- Tutorials on stages of Economic Development, Discussion on classical and modern theories of economic development (CO4) Unit 4- Debate on Inflation and its solution, Discussion on Economic Situations and their consequences. (CO5)	40 marks
External Assessment: University/ Autonomous College Exam	Section A: Five Objective type questions Section B: Five Short Answer Questions Section C: Five Long Answer Questions	60 marks

Proposed Structure of Undergraduate Programme CBCS - B Com				
B. Com III Year Elective\Visa Structure				
Group	Major Subject		Minor Subject	Open Elective
	Major 1 (6 Credit)	Major 2 (6 Credit)	(6 Credit)	(Credit 4)
Group A	Income tax law and practice I	Goods and Service Tax & Custom Duty	Income tax for business	1. Business Ethics and Human Values 2. International Business 3. Investment Management 4. Environment and Sustainable Tourism 5. Internet and its Application
Group B	Marketing Management	Human Resource Management	Management Accounting	
Group C	Financial Management	Auditing	Public finance	

Major Group A

St. Aloysius' College (Autonomous), Jabalpur	
Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Degree
Class/ कक्षा:	B.COM III
Course Code/ पाठ्यक्रम कोड:	C3-COM AID
Course Type/ पाठ्यक्रम का प्रकार:	Discipline Specific Elective (DSE)
Course Title/पाठ्यक्रम का शीर्षक:	INCOME TAX LAW AND PRACTICES (Major Paper I)
Pre – requisite/ पूर्वापेक्षा:	No
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलिखियां:	After the successful completion of the course, the students shall be able to - CO1-Understand the basic concepts in the law of Income Tax and determine the Residential status of different persons CO2-Identify the five head in which income is categorized and compute income under the provisions various heads. CO3-Understand clubbing procedures, aggregate income after set-off and carry forward of losses and deduction allowed under the income tax act. and further to compute taxable income and tax liability of individuals. CO4-Develop the ability to file online returns.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Maximum Marks:30+70 Minimum Passing Marks 35
Part B – Course Content	
Unit 1	General Introduction of Indian Income Tax Act. 1961: Brief History, Basic Concepts, Income, Agriculture Income , Casual Income, Previous Year, Assessment Year, Gross Total Income, Total Income, Person, Assesses, Exempted Income. Residential Status and Tax Liability
इकाई 1	भारतीय आयकर अधिनियम 1961 का सामान्य परिचय: संक्षिप्त इतिहास, मूल अवधारणाएं, आय, कृषि आय, आकस्मिक आय, गत वर्ष, कर निर्धारण वर्ष, सकल कुल आय, कुल आय, व्यक्ति, करदाता, कर मुक्त आय, निवास स्थान एवं कर दायित्व।
Unit 2	Income from salary, Income from house property.
इकाई 2	वेतन से आय, मकान सम्पत्ति से आय।
Unit 3	Income from Business and Profession, Capital Gains, Income from other Sources.
इकाई 3	व्यापार एवं पेशे से आय, पूंजी लाभ, अन्य साधनों से आय
Unit 4	Set off and carry forward of Losses, Deduction from Gross total Income, Clubbing of Income, Computation of total Income and tax Liability of an Individual.
इकाई 4	हानियों की पूर्ति एवं उसे आगे ले जाना, सकल कुल आय में से की जाने वाली कटौतियों, आय का मिलान, व्यक्ति की कुल आय एवं कर दायित्व की गणना।

Unit 5	Assessment Procedure, Tax deduction & Collection Number (TAN), Permanent Account Number (PAN) Tax deduction at Source, (TDS) Advance Payment of Tax, Income Tax Authorities, Appeal, Revision and Penalties, e-Filing of return
इकाई 5	कर निर्धारण की कार्य विधि, कर कटौती एवं संग्रहण संख्या (TAN), स्थायी लेखा संख्या (PAN), उदगम स्थान पर कर कटौती, कर का अग्रिम भुगतान, आयकर पदाधिकारी, अपील, पुनर्विचार व अर्थदण्ड, ई- फाइलिंग ऑफ रिटर्न।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Ahuja Girish and Gupta Ravi	Systematic Approach to income tax	Bhart law House
2	Singhania Vinod k. and Singhania Monica	students guide to income tax	Tax man publication Pvt. Ltd
3.	श्रीपाल सकलेचा	आयकर	सतीश प्रिन्टर्स
4	डॉ. एच.सी. मेहरोत्रा	आयकर विधान एवं लेखे	साहित्य भवन

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): Marks:30

External Exam: marks:70

Internal Assessment: Attainment Methods	Unit 1- Assignment on Residential Status. (CO1) Unit 2- Case Study on a Salaried Person(CO2) Unit 3- Presentation on Business/Profession(CO3) Unit 4- Class Test on Total Income & Tax Liability. (CO4) Unit 5- Manually filling of ITR-1 (CO5)	Marks 30
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce वाणिज्य
Programme/ कार्यक्रम:	Degree
Class/ कक्षा:	B.COM III
Course Code/ पाठ्यक्रम कोड:	C3-COMA2D
Course Type/ पाठ्यक्रम का प्रकार:	Discipline Specific Elective (DSE)/ डिसिप्लिन स्पेसिफिक इलेक्टिव (डी.एस.ई.)
Course Title/पाठ्यक्रम का शीर्षक:	Goods and Service Tax & Custom Duty/ वस्तु और सेवाकर एवं सीमा शुल्क
Pre – requisite/ पूर्वापेक्षा:	(open for all)/ सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	After the successful completion of the course, the students shall be able to - CO1- Identify the various terminology of GST CO2- Apply the procedure of registration. CO3- Comparison of composition and normal tax system of GST. CO4-Calculate the Input Tax Credit. CO5- Evaluate the Custom Duty.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Maximum Marks: 30+70 Minimum Passing Marks -35

Part B – Course Content

Unit 1	Goods and service tax - Introduction, meaning, features and basic Elements. Important terms and Definition Regarding GST. Background and implementation of GST in India. Structure and Classification of GST.
इकाई 1	वस्तु एवं सेवा कर - परिचय, अर्थ, विशेषताएं, एवं आधारभूत तत्वा जीएसटी संबंधी महत्वपूर्ण परिभाषाएं एवं शब्दावली। भारत में जीएसटी की पृष्ठभूमि एवं क्रियान्वयन। माल एवं सेवा कर की संरचना एवं वर्गीकरण।
Unit 2	Meaning and scope of Supply, Tax Liability on composite and mixed supply, Levy and Collection of Tax, Registration under GST. List of exempt goods under GST. Time and place of supply of goods and services, Determination of value of Taxable supply. practical problems, Preparation of Tax invoice and rules and proforma.
इकाई 2	वस्तुओं एवं सेवाओं की प्रदाय का अर्थ एवं क्षेत्र, संयुक्त एवं मिश्रित प्रदायों पर कर दायित्व। कर उद्बहण एवं संग्रहण। माल एवं सेवाकर जीएसटी के अन्तर्गत पंजीयन। माल एवं सेवाकर के अन्तर्गत करमुक्त माल की सूची। माल एवं सेवाओं के प्रदाय का समय एवं स्थान, करयोग्य प्रदाय का मूल्य निर्धारण, व्यावहारिक समस्याएँ, कर बीजक तैयार करना - नियम एवं प्रारूप।
Unit 3	Meaning and scope of Supply, Tax Liability on composite and mixed supply, Levy and Collection of Tax, Registration under GST. List of exempt goods under GST. Time and place of supply of goods and services, Determination

	of value of Taxable supply, practical problems, Preparation of Tax invoice and rules and proforma.
इकाई 3	वस्तुओं एवं सेवाओं की प्रदाय का अर्थ एवं क्षेत्र, संयुक्त एवं मिश्रित प्रदायों पर कर दायित्व। कर उद्घरण एवं संग्रहण। माल एवं सेवाकर जीएसटी के अन्तर्गत पंजीयन। माल एवं सेवाकर के अन्तर्गत करमुक्त माल की सूची। माल एवं सेवाओं के प्रदाय का समय एवं स्थान, करयोग्य प्रदाय का मूल्य निर्धारण, व्यावहारिक समस्याएँ, कर बीजक तैयार करना - नियम एवं प्रारूप।
Unit 4	Rules Provisions and procedure for Input tax Credit, Provisions regarding job-work. Classification of taxable goods and Services at the basis of tax rates and Practical Problems.
इकाई 4	इनपुट टैक्स क्रेडिट सम्बन्धी प्रावधान, नियम एवं प्रक्रिया। जॉब वर्क सम्बन्धी प्रावधान। करयोग्य माल एवं सेवाओं पर कर की दरों का वर्गीकरण एवं व्यावहारिक समस्याएँ।
Unit 5	Introduction and brief background of customs duty, Important definitions - Goods, Dutiable goods, Person In-charge, Indian customs water, types of customs duty, Valuation for custom duty, items to be included and excluded in customs value, computation of Assessable value and custom duty (Practical).
इकाई 5	सीमा शुल्क - इतिहास, परिचय एवं प्रकृति, सीमा शुल्क के प्रकार। आयात एवं निर्यात पर निषेध। मूल्यांकन नियम, कर योग्य मूल्य एवं सीमा शुल्क की गणना।

Keywords/Tags: Goods and service tax, Tax Liability, Composition Levy, Input tax Credit, Customs duty.

S.N.	Author	Book Title	Publisher
1	Singhania V.K	GST & Customs Law	Taxmann Publication.
2	Sisodia Pushpendra	GST Law	Bharat Law House.
3	Bansal K.M.	GST & Customs Law	Taxmann Publication.
4	महरोत्रा एवं गोयल	वस्तु एवं सेवाकर	साहित्य भवन पब्लिकेशन
5	श्रीपाल सकलेचा	वस्तु एवं सेवाकर	सतीश प्रिन्टर्स
6	सीए अनूप मोदी, सीए महेश गुप्ता	वस्तु एवं सेवा कर तथा सीमा शुल्क	एस. बी. पी. डी.

Suggestive digital platforms/ web links

1. <https://www.cbic.gov.in/resources/htdocs/Concept%20and%20Status01072019n.pdf>

2. <https://www.bankbazaar.com/tax/custom-duty.html>

3. <https://cbic-gst.gov.in/pdf/ovw-short.pdf>

4. <https://www.recmindore.com/wp-content/uploads/2020/12/Goods-Service-Tax-Custom-duty-1.pdf>

5. <https://www.eshiksha.mp.gov.in>

Suggested equivalent online courses:

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks University Exam (UE): 70 Marks

<p>Internal Assessment: Attainment Methods Continuous Comprehensive Evaluation (CCE): 30 Marks</p>	<p>1. Assignments on evaluation the tax liability under composition and normal scheme under GST. (CO3) 2 Chart Making for Apply the procedure of Input Tax Credit. (CO 4) 3. Questions based on computation of tax liabilities of various dealers and service provider. (CO 1 / 2) 4. Assignments on apply of various custom duties.(CO 5)</p>	<p>Marks (30)</p>
<p>External Assessment: University/ Autonomous College Exam Section: 70 marks</p>	<p>Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)</p>	<p>Total 70 marks</p>

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Degree
Class/ कक्षा:	B Com. 3 year
Course Code/ पाठ्यक्रम कोड:	C3- COMA 2T
Course Type/ पाठ्यक्रम का प्रकार:	Minor
Course Title/पाठ्यक्रम का शीर्षक:	Income Tax For Business
Pre – requisite/ पूर्वापेक्षा:	Open For All
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>On Successful completion of this course, the students will be able</p> <ol style="list-style-type: none"> 1. To understand basic concepts and definitions of Income from business and profession. 2. To Access companies' provisions and rules. 3. To develop ability to calculate taxable income of firms, cooperative societies and charitable trust. 4. To acquire knowledge about the submission of Income Tax return, Advance Tax, Tax Deducted from source, Tax collection Authorities. 5. To prepare students Competent enough to up to employment in Tax planner.
Credit Value/ क्रेडिट मान:	6
Total Marks/ कुल अंक:	Maximum Marks: 100 Minimum Passing Marks 35
Part B – Course Content	
Unit 1	Concept of income from business and profession, computation of income on estimated basis of particular business. (U/S 44AD, 44AE and 44ADE.)
इकाई 1	व्यवसाय और पेशे से आय की अवधारणा, विशेष व्यवसाय के अनुमानित आधार पर आय की गणना। (यू/एस 44 एडी, 44 एई और 44 एडीई।)
Unit 2	Assessment of the firms: - provisions and rules, computation of total income and tax liability. Assessment of nonresident India.
इकाई 2	फर्मों का आकलन: - प्रावधान और नियम, कुल आय और कर देयता की गणना। अनिवासी भारत का आकलन।
Unit 3	Assessment of hindu undivided family: - provisions and rules, computation of total income and tax liability. Assessment of co-operative societies: - provisions and rules, computation of total income and tax liability.
इकाई 3	हिंदू अविभाजित परिवार का आकलन: - प्रावधान और नियम, कुल आय और कर देयता की गणना। सहकारी समितियों का आकलन: - प्रावधान और नियम, कुल आय और कर देयता की गणना।

Unit 4	Assessment of the companies: - provisions and rules, computation of total income and tax liability. Assessment of charitable and other trust.
इकाई 4	कंपनियों का आकलन: - प्रावधान और नियम, कुल आय और कर देयता की गणना। धर्मार्थ और अन्य ट्रस्ट का आकलन।
Unit 5	Procedure of Assessment, Tax Deduction and Collection Number (TAN) Permanent account number (PAN) e-filing of return , Deduction of tax from source.
इकाई 5	आकलन, कर कटौती और संग्रह संख्या (टीएन) स्थायी खाता संख्या (पैन) रिटर्न की ई-फाइलिंग, स्रोत से कर की कटौती।
Unit 6	Advance Payment of tax, Recovery and Refund of tax, Penalties and prosecutions, Appeal and revisions and Tax Administration.
इकाई 6	कर का अग्रिम भुगतान, कर की वसूली और वापसी, दंड और अभियोजन, अपील और संशोधन और कर प्रशासन।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Ahuja Girish and Gupta Ravi	Systematic approach to income tax	Bharat law House, Delhi
2	Singhania Vinod K. and Singhania Monica	Students guide to income tax	Taxman Publication Pvt Ltd New Delhi
3.	Shri pal Sakelcha	Income Tax	Satish Printers Indore
4	Dr. H. C. Mehrotra	Income Tax Law and Practice	Sahitya Bhawan

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): Marks

External Exam: marks

Internal Assessment: Attainment Methods	Unit 1- Assignment on computation of total income of individual (CO1) Unit 2- To assess tax liability of HUF (CO2) Unit 3- Presentation of assessment of FIRM(CO3) Unit 4- Class Test on Total Income & Tax Liability of company. (CO4) Unit 5- Assignment on computation of total income of cooperative society (CO5)	30 marks
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Six Short Questions (200 words each) Section C: Six Long Questions (500 words each)	Total 70 marks

Group B

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2022-23
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com III year / बी. कॉम
Course Code/ पाठ्यक्रम कोड:	C3-COMBID
Course Type/ पाठ्यक्रम का प्रकार:	DSE (Discipline Specific Elective)
Course Title/पाठ्यक्रम का शीर्षक:	Marketing Management / विपणन प्रबंधन (Major Paper I)
Pre – requisite/ पूर्वपिक्षा:	Not Required (open for all) सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>Upon successful completion of the course, a student will be able to</p> <p>CO 1- Explain the role of marketing within society and within an economic year.</p> <p>CO 2- Describe the vital role of marketing within a firm and the necessary relationships between marketing and the other functional areas of business.</p> <p>CO 3- Analyze the various decision areas within marketing and the tools and methods used by marketing managers for making decisions.</p> <p>CO 4- summarizes key marketing principles and terminology.</p> <p>Because this is a survey course, there is an emphasis on basic terminology and concept.</p> <p>CO 5- Recommend how a marketing perspective is important in your own personal and professional development.</p>
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: 30 (internal) + 70 (external) Passing Marks: 35

Part B – Course Content

UNIT	TOPIC
Unit 1	Introduction: Market and marketing- definitions; Nature, scope and importance of marketing, Evolution of marketing concepts, A Vedic Perspective of Marketing, Marketing Environment, Recent Trends in Marketing in India. Holistic Marketing Orientation & Customer Value.

इकाई 1	परिचय: बाजार और विपणन- परिभाषा; विपणन की प्रकृति, कार्यक्षेत्र और महत्व, विपणन अवधारणाओं का विकास, विपणन का एक वैदिक परिप्रेक्ष्य, विपणन पर्यावरण, भारत में विपणन में हालिया रुझान। समग्र विपणन अभिविन्यास और ग्राहक मूल्य।
Unit 2	Product Management- Types of Consumer and Industrial Products, Product Related Decisions, Product Line, Product-mix, Product Life Cycle and New Product Development, Branding labeling, and Packaging Decisions. New Product Strategies, concept of Marketing-mix, Market Segmentation- concept, Importance and bases, Consumer Behaviour- An Overview: Consumer buying process; Factors influencing consumer buying decisions.
इकाई 2	उत्पाद प्रबंधन उपभोक्ता और औद्योगिक उत्पादों के प्रकार, उत्पाद संबंधी निर्णय, उत्पाद लाइन, उत्पाद-मिश्रण, उत्पाद जीवन चक्र और नए उत्पाद विकास, ब्रांडिंग लेबलिंग और पैकेजिंग निर्णय। नई उत्पाद रणनीतियाँ, मार्केटिंग-मिश्रण की अवधारणा, बाजार विभाजन- अवधारणा, महत्व और आधार, उपभोक्ता व्यवहार- एक अवलोकन: उपभोक्ता खरीद प्रक्रिया; उपभोक्ता खरीद निर्णयों को प्रभावित करने वाले कारक।
Unit 3	Pricing- Price, Importance of Price, Objectives of pricing, Factors affecting pricing decisions, Approaches of pricing, Various pricing methods; Pricing policies and strategies, price-sensitivity; Ethical issues concerning products and pricing decisions. Channels of distribution.
इकाई 3	मूल्य निर्धारण- मूल्य, मूल्य का महत्व, मूल्य निर्धारण के उद्देश्य, मूल्य निर्धारण निर्णयों को प्रभावित करने वाले कारक, मूल्य निर्धारण के दृष्टिकोण, विभिन्न मूल्य निर्धारण विधियाँ; मूल्य निर्धारण नीतियाँ और रणनीतियाँ, मूल्य-संवेदनशीलता; उत्पादों और मूल्य निर्धारण निर्णयों से संबंधित नैतिक मुद्दे, वितरण के माध्यम।
Unit 4	Sales Promotion: Nature and Importance of Promotion, Promotion Tools, advertising, personal selling, public relation, Promotion mix, Factors affecting promotion mix decisions, The Marketing Communication, Integrated marketing communications Process, Advertising- Definition, Features, Importance, Functions of advertising.
इकाई 4	बिक्री संवर्धन प्रचार की प्रकृति और महत्व, प्रचार उपकरण: विज्ञापन, व्यक्तिगत बिक्री, जनसंपर्क, प्रचार मिश्रण, पदोन्नति मिश्रण निर्णयों को प्रभावित करने वाले कारक, विपणन संचार, एकीकृत विपणन संचार प्रक्रिया विज्ञापन- परिभाषा, विशेषताएं, महत्व, विज्ञापन के कार्य।
Unit 5	Trends in Marketing- Consumer protection and consumerism, Recent Concepts: Green Marketing, Viral marketing, Customer Relationship Management (CRM), digital marketing global markets Cause relating marketing; Social marketing; Other emerging trends.
इकाई 5	विपणन में प्रवृत्तियाँ- उपभोक्ता संरक्षण और उपभोक्तावाद। हाल की अवधारणाएँ: ग्रीन मार्केटिंग, वायरल मार्केटिंग, कस्टमर रिलेशनशिप मैनेजमेंट (CRM), डिजिटल मार्केटिंग वैश्विक बाजार कारण संबंधित मार्केटिंग; सामाजिक बाजारीकरण; विपणन में अन्य उभरती प्रवृत्तियाँ।
Keywords/ Tags:	Market, Marketing, Product, Pricing, Sales Promotion, Trends in Marketing

Part : C- RECOMMENDED STUDY RESOURCES

S. No.	Author	Subject	Publication
1	Kotler, Philip; Keller, Kevin	Marketing Management: A South Asian	Pearson Education, New Delhi

	Lane, Koshy, and Jha	Perspective	
2	Bose, B.S.	Marketing Management	Himalaya Publishing House Pvt. Ltd. Nagpur
3.	Saxena, Rajan	Marketing Management	Tata McGraw Hill, New Delhi
4	Pillai R.S.N. & Bagavathi	Marketing Management	Chand & Company Ltd New Delhi
5	Chhabra, T.N.	Principles of Marketing	Un India Publication
6	M.B. Shukla	Entrepreneurship & Small Business Management	Kitab Mahal Publishers, New Delhi
7	Ramaswamy and Namakumari	Marketing Management	Macmillan India
8	Dr. J.K. Jain, Kaustubh	विपणन के सिद्धांत	.P Hindi Granth Acad. Bhopal
9	Dr. Amit Kumar, Dr. B. Jagdish Rao	Marketing Management	Sahitya Bhawan Publications Agra
10	Dr. S.C. Jain	विपणन के सिद्धांत	Sahitya Bhawan Publications Agra

Note: All these books are available in Hindi and English Versions.

Digital Platform	1. https://ipsedu.in/downloads/MBABooks/principles-of-marketing-philip-kotler.pdf
	2. http://www.ddegjust.ac.in/studymaterial/pgdapr/pgdapr-105.pdf
	3. https://hi.wikipedia.org/wiki/%E0%A4%B5%E0%A4%BF%E0%A4%AA%E0%A4%A3%E0%A4%A8
	4. https://www.slideshare.net/ali.jibran/principles-of-marketing!
	5. https://www.researchgate.net/publication/311810037
	6. https://www.eshiksha.mp.gov.in

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks

External Exam: 70 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE):30 Marks	UNIT I- Diagram on Functions of Marketing. (CO1) Speech on Recent Trends in Marketing in India. (CO1) UNIT II- Case Study on Product Life Cycles of Various Companies. (CO2) Role Play on Consumer Buying Process. (CO2) UNIT III- Survey on the Pricing Strategies and Channels of Distribution. (CO3) UNIT IV- Compare and think-Pair-Share on Advertising Budget and Media. (CO4) Outline the Field Survey based Report on varied Sales Promotion Techniques adopted by Competitors. (CO4) UNIT V- Group Discussion on Consumer protection and consumerism. (CO5) Discussion on Emerging Trends in Marketing. Survey of Companies Opting for Green Marketing. (CO6)	Total 30 Marks
External Assessment: University/	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

Autonomous College Exam Section: 70 marks		
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St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2022-23
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Degree
Class/ कक्षा:	B. Com IIIrd year / बी कॉम तृतीय वर्ष
Course Code/ पाठ्यक्रम कोड:	C3-COMB2D
Course Type/ पाठ्यक्रम का प्रकार:	DSE (Discipline Specific Elective)
Course Title/पाठ्यक्रम का शीर्षक:	Human Resource Management / मानव संसाधन प्रबंधन (Major Paper II)
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) /सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>Upon successful completion of the course, a student will be able to</p> <ol style="list-style-type: none"> 1. CO 1- Explain the basic concepts, functions and processes of human resource management. 2. CO 2- Classify the role, functions and challenges of human resource department of the organizations. 3. CO 3- Explain the concept of manpower planning regarding recruitment and selection. 4. CO 4- Design and formulate various techniques of training and development programme. 5. CO 5- Differentiate between Performance appraisals, Reward Systems, Compensation Plans and Ethical Behavior of different level of employees. 6. CO 6- Illustrate and compare various wages and salary structure and benefits of employees in different designations
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: 30 (internal) + 70 (external) Passing Marks: 35

Part B – Course Content

UNIT	TOPIC
Unit 1	Introduction- Human Resource Management: Concept and Functions, Role, Status and competencies of HR Manager, HR Policies, Evolution of HRM, HRM vs HRD, Emerging Challenges of Human Resource Management, Work diversity, Empowerment, Downsizing, Human Resource Information System, Role of Indian Value system in HRM.

इकाई 1	परिचय- मानव संसाधन प्रबंधन: संकल्पना और कार्य, मानव संसाधन प्रबंधक की भूमिका, स्थिति और दक्षताएं, मानव संसाधन नीतियां, मानव संसाधन प्रबंधन का विकास, मानव संसाधन प्रबंधन बनाम मानव संसाधन विकास मानव संसाधन प्रबंधन की उभरती चुनौतियाँ कार्यबल विविधता अधिकारिता; डाउनसाइजिंग: मानव संसाधन सूचना प्रणाली एचआरएम में भारतीय मूल्य प्रणाली की भूमिका।
Unit 2	Manpower Planning- Meaning & concept, need for manpower planning, types of manpower planning, meaning and concept of job analysis, job description & job specification, uses of job analysis information, recruitment, selection- meaning and steps of selection process, meaning of induction, staffing, career planning.
इकाई 2	जनशक्ति नियोजन- अर्थ और अवधारणा, जनशक्ति नियोजन की आवश्यकता, जनशक्ति नियोजन के प्रकार, नौकरी विश्लेषण का अर्थ और अवधारणा, नौकरी का विवरण और नौकरी विनिर्देश, नौकरी विश्लेषण जानकारी का उपयोग, भर्ती, चयन- अर्थ और चयन प्रक्रिया के चरण, प्रेरण का अर्थ स्टॉफिंग भविष्य की योजना
Unit 3	Training and Development- Meaning, need & importance for training, Method of training, development- meaning of development, method of development, employee counselling, executive development programmes, evaluation of training and development programmes, career development, promotion, transfer and demotion.
इकाई 3	प्रशिक्षण एवं विकास- प्रशिक्षण का अर्थ, आवश्यकता एवं महत्व, प्रशिक्षण की विधि, विकास- विकास का अर्थ, विकास की विधि। कर्मचारी परामर्श, कार्यकारी विकास कार्यक्रम, प्रशिक्षण और विकास कार्यक्रमों का मूल्यांकन, कैरियर विकास: पदोन्नति, स्थानांतरण और पदावनति।
Unit 4	Performance Appraisal- Nature, objectives and importance, modern techniques of performance appraisal, potential appraisal and employee counseling, job changes- transfers and promotions, compensation- concept and policies, job evaluation, methods of wage payments and incentives plans, fringe benefits, performance linked compensation.
इकाई 4	निष्पादन मूल्यांकन- प्रकृति, उद्देश्य और महत्व: निष्पादन मूल्यांकन की आधुनिक तकनीकें, संभावित मूल्यांकन और कर्मचारी परामर्श, नौकरी में परिवर्तन- स्थानान्तरण और पदोन्नति, मुआवजा: अवधारणा और नीतियां, कार्य मूल्यांकन: वेतन भुगतान और प्रोत्साहन योजनाओं के तरीके, अनुषंगी लाभ: निष्पादन से जुड़ा मुआवजा
Unit 5	Wage and Salary Administration- Meaning, purpose & principle of Wage and Salary Administration, methods of wage payment- time rate & piece rate, incentive, health, safety and welfare facilities, social security. Industrial Disputes- causes and settlement machinery.
इकाई 5	मजदूरी एवं वेतन प्रशासन -मजदूरी एवं वेतन प्रशासन का अर्थ, उद्देश्य एवं सिद्धांत, मजदूरी भुगतान की विधियाँ- समय दर एवं टुकड़ा दर, प्रोत्साहन, स्वास्थ्य, सुरक्षा एवं कल्याण सुविधाएँ सामाजिक सुरक्षा, औद्योगिक विवाद: कारण और निपटान मशीनरी।
Keywords/	Human Resource Management, Manpower planning, Training and development, Performance

Tags:	Appraisal, Wages and salary.
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Part : C- RECOMMENDED STUDY RESOURCES

S. No.	Author	Book Title	Publisher
1	C.B. Mamoria & V.S.P. Rao	Personnel Management	Himalaya Publishing House Pvt. Ltd., Nagpur
2	P.C.Tripathi	Personnel Management & Industrial Relations	Schand & Company Ltd., New Delhi
3	G.P.Sinha & PRN Sinha	Industrial relation, Trade Union & Labour Relation	Pearson Education, New Delhi
4	R.L.Naulakha		Ramesh Book Depot, Jaipur
5	P.Subba Rao	Personnel and H.R. Management	PHI, New Delhi
6	Dr. Chaturbhuj Mamoria, Dr. Kameshwar Pandit		Sahitya Bhawan, Agra

Note: All these books are available in Hindi and English Versions.

Digital Platform	1. http://14.139.206.50:8080/jspui/bitstream/1/3317/1/INDUSTRIAL_RELATIONS.pdf
	2. file:///C:/Users/Admin/Downloads/srshrm.pdf
	3. http://www.opentextbooks.org.hk/system/files/export/32/32088/pdf/Human Resource Mana nt 32088.
	4. https://backup.pondiuni.edu.in/sites/default/files/IRMt200813.pdf
	5. https://www.freebookcentre.net/business-books-download/Management-of-Industrial- Relations.html
	6. http://www.kaavpublications.org/abstract/SAMPLE_0412.pdf (IN HINDI)
	7. औद्योगिक संबंध - विकिपीडिया https://hi.wikipedia.org/wiki, औद्य...
	8. https://hi.wikipedia.org> wiki

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks

External Exam: 70 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE):30 Marks	UNIT I- Summary writing on introduction, functions and process of Human Resource Management (CO1); UNIT I- Graphical Presentation of report regarding roles and challenges of HR Department (CO2); UNIT II- Summary on Recruitment & Selection criteria of any two different Companies (CO3); UNIT III- Report presentation on methods of Training(CO4);	Total 30 Marks
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	UNIT IV- Preparation of report survey graph on compensation plans and reward system of private and public companies (CO5); UNIT V- Debate on Wage and Salary Administration. (CO6).	
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

St. Aloysius' College (Autonomous), Jabalpur	
Part A – Introduction	
Session:	2023-24
Subject/ विषय :	Commerce /कॉमर्स
Programme/कार्यक्रम:	B. Com / बीकॉम .
Class/कक्षा:	Third / तृतीय वर्ष
Course Code/ पाठ्यक्रम कोड:	C3-COM B 2T
Course Type/ पाठ्यक्रम का प्रकार:	Minor
Course Title/पाठ्यक्रम का शीर्षक:	Management Accounting / प्रबंधकीय लेखांकन
Pre – requisite/ पूर्वापेक्षा:	Open for all
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	After successful completion, students will have the knowledge and proficient :- CO 1- To recognize the knowledge of management accounting techniques in business decision making. CO 2- To Analysis the Financial Statements of Companies, CO 3- To apply the cash flow technique for use of cash in the organization. CO 4 – To demonstrate the marginal cost technique for managerial decision. CO 5 - To apply the budgetary concepts for preparation of managerial report of the company
Credit Value/ क्रेडिट मान:	6 Credits
Total Marks/ कुल अंक:	Maximum Marks: 100 Minimum Passing Marks: 35
Part B – Content of Course Content	
Unit 1	Management Accounting: Meaning, Nature, Scope and Functions. Role of Management Accounting in decision making, Management Accounting vs. Financial Accounting and Cost Accounting. Advantages and Limitations of Management Accounting.
इकाई 1	प्रबंधकीय लेखांकन: अर्थ, प्रकृति, क्षेत्र व कार्य, निर्णयन में प्रबंधकीय लेखांकन की भूमिका, प्रबंधकीय लेखांकन बनाम वित्तीय लेखांकन एवं लागत लेखांकन, प्रबंधकीय लेखांकन की तकनीके एवं विधियाँ, प्रबंधकीय लेखांकन के लाभ एवं सीमाएँ।
Unit 2	Financial Statements: Meaning, Nature, Scope, Importance and Limitations. Characteristics of an ideal Financial Statement. Analysis of Financial Statements: Meaning, objects, Nature, Methods, Techniques and Limitations. Ratio Analysis: Meaning, Importance and Limitations. Precautions in using Ratios, Classification of Ratios, Profitability Ratios, Turnover Ratios, Financial Ratios. Interpretation of Ratios.

इकाई 2	वित्तीय विवरण पत्र: अर्थ, प्रकृति, महत्व व सीमाएं, एक आदर्श वित्तीय विवरण की विशेषताएं। वित्तीय विवरणों का विश्लेषण: आशय, उद्देश्य, प्रकृति, विधियाँ, तकनीकें एवं सीमाएं। अनुपात विश्लेषण: अर्थ, महत्व एवं सीमाएं। अनुपातों के उपयोग में सावधानियाँ, अनुपातों का वर्गीकरण, लाभदायकता अनुपात, आवर्त्य अनुपात एवं वित्तीय अनुपात, अनुपातों का निर्वचन
Unit 3	Cash Flow Statement (As per Indian AS 3): Meaning, Importance and Limitations. Provisions of Cash Flow Statement in India: Familiarity with Accounting Standard 3 . Classifications of Cash Flows. Concept of Management Audit, Responsibility Accounting
इकाई 3	रोकड़ प्रवाह विवरण (भारतीय लेखांकन मानक ३ के अनुसार): आशय, महत्व व सीमाएं लेखांकन मानक 3 के अनुसार रोकड़ प्रवाह विवरण के प्रावधान, रोकड़ प्रवाहों का वर्गीकरण। प्रबंधकीय अंकेक्षण की अवधारणा। उत्तरदायित्व लेखांकन।
Unit 4	Absorption Cost Accounting and Marginal Cost Accounting: Meaning, Marginal Costing and Differential Costing, Usage, Advantages and Limitations of Marginal Costing, Marginal cost vs. Differential Cost, Meaning and Process of Decision making, Types of Decision- Make or Buy decision , Change of Product mix, Pricing, Exploring new markets, Shutdown decision Break Even Analysis.
इकाई 4	अवशोषण लागत लेखांकन एवं सीमांत लागत लेखांकन : आशय, सीमांत लागत एवं विभेदात्मक लागत, सीमांत लागत लेखांकन का उपयोग, लाभ एवं सीमाएं, सीमांत लागत लेखांकन बनाम अवशोषण लागत लेखांकन, निर्णयन का आशय निर्णयन की प्रक्रिया, निर्णयों के प्रकार -बनाओ या खरीदो निर्णय, उत्पाद मिश्रण में परिवर्तन, मूल्य निर्धारण, नवीन बाजारों की खोज, उत्पादन बंदी, खंड सम विश्लेषण।
Unit 5	Budgetary Control: Meaning of Budget, Meaning, Characteristics, Objectives, Merits and Limitations of Budgetary Control, Organization of Budgetary Control system, Types of Budget: Cash Budget, Flexible Budget, Zero Base Budgeting, Performance Budgeting. Management Reports: Meaning, Need, Characteristics, Limitations and kind. Procedure for drafting reports.
इकाई 5	बजटरी नियंत्रण: बजट का आशय बजटरी नियंत्रण का आशय, विशेषताएं, उद्देश्य, गुण व सीमाएं, बजटरी नियंत्रणपद्धति का संगठन, बजट के प्रकार : रोकड़ बजट, लोचदार बजट, शून्य आधार बजटन, निष्पादन बजटन प्रबंध प्रतिवेदन: आशय, आवश्यकता, विशेषताएं, सीमाएं एवं प्रकार, प्रतिवेदन रचना

Keywords/Tags: management accounting, ratio analysis, cash flow statement, marginal costing, budgetary control.

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	K.L.Gupta,	Management Accounting,	Sahitya Bhawan, Agra
2	M.N.Arora and Bhagwati,	Management Accounting (Theory, Problems & Solutions)	Himalaya Publication Nagpur.
3.	R.S.N. Pillai and Bhagwati,	Management Accounting,	S.Chand, Agra
4	I.M. Pandey.	Management Accounting,	Vikas Publications, New delhi

(B) Suggestive digital platforms web links:

<https://mdu.ac.in/UpFiles/UpPdfFiles/2020/Jan/Management%20Accounting%20&%20Financial%20Management.pdf>
https://www.academia.edu/27871831/MANAGEMENT_ACCOUNTING_STUDY_NOTES
<https://www.fao.org/3/w4343e/w4343e05.htm>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE):Marks - 30 External Exam: marks- 70		
Internal Assessment: Attainment Methods	Unit 1- Presentations on the roles and functions of management accounting as . (CO 1, CO 4) Unit 2- Case Study on Financial Statement Analysis and Ratio Analysis (CO-2) Unit 3- Tutorial/ Presentations on Cash Flow Statement (CO 3) Unit 4- Assignment on Break Even Analysis (CO 4) Unit 5- Assignments on specific questions of preparation Cash Budget, Flexible Budget for problem solving skills (CO 5)	Marks 30 marks
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

Group C

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2022-23
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com IIIrd year / बी. कॉम
Course Code/ पाठ्यक्रम कोड:	C3-COMCID
Course Type/ पाठ्यक्रम का प्रकार:	DSE (Discipline Specific Elective)
Course Title/पाठ्यक्रम का शीर्षक:	Financial Management / वित्तीय प्रबंधन (Major Paper I)
Pre – requisite/ पूर्वापेक्षा:	Open for all /सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	Upon successful completion of the course, a student will be able: CO 1-To Learners can access the appropriate sources of financing for the firm with a stronger grasp of the goals of financial management. CO 2- To Analyse the complexities associated with management of cost of funds in the capital structure and to acquaint a deeper knowledge in leverages in order to arrive a better financial decision. CO 3-To evaluate the capital budgets through capital budgeting techniques. CO 4- To evaluate the finance plans on the basis of cost of capital . CO 5- To understanding in working capital management to avail the adequate working capital for business functions.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: 30 (internal) + 70 (external) Passing Marks: 35

Part B – Course Content

UNIT	TOPIC
Unit 1	Financial Management: Concepts, scope, function and importance financial goal, profit vs. Wealth maximization; financial functions-Investment, financing and dividend decision, financial planning.
इकाई 1	वित्तीय प्रबंध अवधारणा, क्षेत्र, कार्य एवं महत्व वित्तीय लक्ष्य, लाभ बनाम सम्पत्तिया अधिकतमीकरण, वित्तीय कार्य-विनियोग, वित्तीय व लाभांश निर्णयन, वित्तीय नियोजन।
Unit 2	Capital structure: meaning and determinants, operating and financial Leverage, Their measured, Effect on profit, analyzing alternate, financial plans, Operating financial and, combined leverage.

इकाई 2	पूँजी संरचना अर्थ एवं निर्धारक तत्व, परिचालन व वित्तीय उत्तोलक उनकी माप, लाभ पर प्रभाव, वैकल्पिक वित्तीय योजनाओं का विश्लेषण, परिचालन वित्तीय एवं संयुक्त उत्तोलक।
Unit 3	Decisions on Investment Proposals: Nature of investment decisions, investment evaluation criteria, payback period, net present value, internal rate of return, profitability index, NPV and IRR comparison.
इकाई 3	विनियोग प्रस्तावों पर निर्णय-विनियोग निर्णयों की प्रकृति, विनियोग मूल्यांकन मानदण्ड, पे-बैक पीरियड, शुद्ध वर्तमान मूल्य, आंतरिक प्रत्याय दर लाभदायकता निर्देशांक, शुद्ध वर्तमान मूल्य व आंतरिक प्रत्याय दर की तुलना।
Unit 4	Cost of capital: significance of cost, cost of capital, Calculation cost of debt, Preference shares, equity capital, retained earnings, Weighted Average. cost of capital. Dividend Policies, forms of dividends, stability in dividends, determinants of dividends, issues in dividend Policies, Waltor's Model, Gordan's Model, M.M. Hypothesis.
इकाई 4	पूँजी की लागत पूँजी की लागत का महत्व, ऋण लागत की गणना, पूर्वाधिकार अंश, समता पूँजी, प्रति अर्जन, भारित औसत पूँजी की लागत, लाभांश नीतियाँ, लाभांश के प्रकार, लाभांश में स्थायित्व एवं लाभांश के निर्धारक तत्व, लाभांश नीतियाँ निर्गमन में वाल्टर मॉडल, गार्डन मॉडल, एम. एम. परिकल्पना।
Unit 5	Management of working capital: Nature, types and importance of working capital. Operating cycle and factors, determining working capital requirement, Management of working capital, Management of Cash Management of receivables, Management of Inventory.
इकाई 5	कार्यशील पूँजी का प्रबंध कार्यशील पूँजी की प्रकृति, प्रकार एवं महत्व, परिचालन चक्र व कार्यशील पूँजी की आवश्यकताओं को प्रभावित करने वाले तत्व, कार्यशील पूँजी का प्रबंध, रोकड का प्रबंध, प्राप्तियों का प्रबंध, स्कध का प्रबंध।
Keywords/ Tags:	Financial Management, Capital structure, Investment Proposals, Cost of capital, working capital.

Part : C- RECOMMENDED STUDY RESOURCES

S. No.	Author	Subject	Publication
1	Reddy, G.S.	Financial Management Principles and Practice	Himalya Publication's Nagpur
2	Khan M.Y & Jain P.K.	Financial Management	McGraw Hill New Delhi
3.	Pandey I.M	Financial Management	ikas Publishing house, New Delhi
4	Prasanna Chandra	Financial Management, Theory and Practice	McGraw Hill New Delhi

5	Eugene F. Brigham/Joel F. Houston	Fundamentals of Financial Management	Cengage India Private Limited
6	Dr. S.P. Gupta	Financial Management	Sahitya Bhawan Publications
7	कुल श्रेष्ठ उपाध्याय	वित्तीय प्रबंध	साहित्य भवन आगरा
8	भारल, शैलेन्द्र	वित्तीय प्रबंध	रामप्रसाद एंड संस भापाल
9	जैन एवं जैन	वित्तीय प्रबंध	हिन्दी ग्रन्थ अकादमी भापाल

Note: All these books are available in Hindi and English Versions.

Digital Platform	1. https://www.eshiksha.mp.gov.in
	2. https://www.iare.ac.in/sites/default/files/lecture_notes/IARE_FM_Lecture
	3. https://mdu.ac.in/UpFiles/UpPdfFiles/2020/Jan/Financial Management.pdf
	4. http://sdeuoc.ac.in/sites/default/files/sde_videos/Study material financial mgmnt.pdf
	5. https://www.icsi.edu/media/webmodules/Financial and Strategic Management.pdf

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks

External Exam: 70 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE):30 Marks	UNIT I- Report on different sources of finance and viva based on the report. UNIT II- Case study on decision making regarding capital structure. UNIT III- Assignment on Budgeting Techniques. UNIT IV- Presentation on the topic Cost of Capital and discussion on Dividend policies and issues in making dividend decisions. UNIT V- Class test on Working capital management.	Total 30 Marks
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Degree
Class/ कक्षा:	B.com III year
Course Code/ पाठ्यक्रम कोड:	C3-COMC2D
Course Type/ पाठ्यक्रम का प्रकार:	DSE (DISCIPLINE SPECIFIC ELECTIVE)
Course Title/पाठ्यक्रम का शीर्षक:	Auditing / अंकेक्षण (Major Paper II)
Pre – requisite/ पूर्वापेक्षा:	Open for All
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>ON SUCCESSFUL COMPLETION OF THIS COURSE, THE STUDENTS WILL BE ABLE:</p> <ol style="list-style-type: none"> 1. To Understand the basic objective of Auditing, the concepts of errors and fraud, the principles of audit, and different types of audits. 2. To construct the factors involved in the preparation of the Audit plan and Audit program. 3. To evaluate the importance of the assessment of internal control and internal checks. 4. To restate the objectives and basic principles of establishing an internal audit and its usefulness 5. To learn about Test checks and Audit sampling as audit techniques 6. To understand auditors" legal liabilities, 7 To understand to describe the various levels of the persuasiveness of different types of audit evidence. 8. To describe the quality control procedures 9. To explain the internal and external audit process including the professional standards applicable to the internal audit profession.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Maximum Marks: 30+70 Minimum Passing Marks - 35

Part B – Course Content

Unit 1	Introduction- Meaning and Nature of Auditing, Objectives, Limitations, Classification of Audit, Errors & Frauds, Code of conduct & Value system for auditors. Audit plan & program
इकाई 1	परिचय- अंकेक्षण का अर्थ एवं प्रकृति, उद्देश्य सीमाएं लेखा परीक्षा का वर्गीकरण त्रुटियां और धोखाधड़ी आचार संहिता और लेखा परीक्षकों के लिए मूल्य प्रणाली। लेखा परीक्षा योजना और कार्यक्रम।
Unit 2	Internal control and Internal check- Meaning and objectives, Features of a good internal control system. Internal Control Questionnaire, Checklist, Tests. Internal Audit, Test-checking, Audit Sampling.

इकाई 2	आंतरिक नियंत्रण और आंतरिक जांच- अर्थ और उद्देश्य, एक अच्छी आंतरिक नियंत्रण प्रणाली की विशेषताएं आंतरिक नियंत्रण प्रभावशी, चेकलिस्ट, टेस्ट आंतरिक लेखापरीक्षा, नमूना जांच, लेखापरीक्षा नमूनाकरण।
Unit 3	Vouching and Verification - Vouching - Meaning & objectives, Procedure. Verification- Assets and Liabilities
इकाई 3	प्रमाणन और सत्यापन- प्रमाणन-अर्थ और उद्देश्य प्रक्रियाएं सत्यापन- संपत्ति और दायित्व।
Unit 4	Audit of Companies- Audit of company under Company Act 2013 , Appointment, Removal, Rotation, Remuneration of Auditor, Rights & Duties of Auditor, Auditors Report.
इकाई 4	कंपनियों का ऑडिट- कंपनी अधिनियम 2013 के तहत कंपनी का ऑडिट, नियुक्ति, निष्कासन, रोटेशन, अंकेक्षक का पारिश्रमिक, अंकेक्षक के अधिकार और कर्तव्य, अंकेक्षण प्रतिवेदन।
Unit 5	Special Areas of Audit- Cost Audit. Tax Audit, Management Audit, Performance Audit , Social Audit , Environmental Audit , Audit of Banking & Insurance Company, Audit of Educational Institute, Club & Charitable organization.
इकाई 5	अंकेक्षण के विशेष क्षेत्र- लागत अंकेक्षण, कर अंकेक्षण, प्रबंधन अंकेक्षण, निष्पादन अंकेक्षण, सामाजिक अंकेक्षण पर्यावरण अंकेक्षण, बैंकिंग और बीमा कंपनी की अंकेक्षण, शैक्षिक संस्थान का अंकेक्षण, क्लब और धर्मार्थ संगठन।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Basu	Fundamentals of Auditing	Pearson
2	Francis, R.	Principles of Auditing	Himalaya Publications Nagpur
3.	Porwal/TH Bhat/ Lone	Auditing	Kitab Mahal Agra
4	Anil kumar, Lovleen Gupta Jyotsna Rajan Arora	Auditing and Corporate Governance	Taxman
5	Dinkar Pagare	Principles and Practice	S.Chand and Comp.
6	Dr. T.R. Sharma	AUDITING	Sahitya Bhavan Agra
7	M.P.Hindi Granth Academy Books		
Digital Platform	1. https://www.acecollege.in/CITS_Upload/Downloads/Books/1068 File.pdf 2. https://www.msuniv.ac.in/Download/Pdf/f7c1594f97a24f3 3. https://archive.mu.ac.in/myweb_test/study TYBCom Accountancy Auditing-II.pdf 4. https://oms.bdu.ac.in/ec/admin/contents-n/148 20220207121144975.pdf 5. https://www.distanceeducationju.in/pdf/B Com Sem V Sub Auditing Course BCG 603.pdf 6. https://www.eshiksha.mp.gov.in		

Part D: Assessment & Evaluation		
Suggested Continuous Evaluation Method Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 30 Marks External Exam: 70 Marks		
Internal Assessment: Attainment Methods	Unit 1- Assignment on the Audit Plan and Programme of the company. (CO1) (CO2) Unit 2- Class Test on Internal Check and Internal Control system. (CO3, CO4, CO5) Unit 3- Presentation on Verification of different types of assets and liabilities. (CO6, CO7) Unit 4- Case Study on Audit of Companies. CO8 Unit 5- Group Discussion on special areas of audit. (CO9)	30 Marks
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce /कॉमर्स
Programme/कार्यक्रम:	Degree
Class/कक्षा:	B.COM III
Course Code/ पाठ्यक्रमकोड:	C3-COM C2T
Course Type/ पाठ्यक्रमकाप्रकार:	MINOR
Course Title/पाठ्यक्रमकाशीर्षक:	Public Finance/ सार्वजनिक वित्त
Pre – requisite/ पूर्वापेक्षा:	No
Course Learning Outcome/ पाठ्यक्रमअध्ययनकीपरिलब्धियां:	CO1- To explain students the basic concepts of public and private finance. CO2- To analyze the Indian Tax Structure and identify different types of tax. CO3- To interpret public expenditure and its theories. CO4: To interrelate Public Budget and economic growth and stability. CO5- To prepare a sketch on the Public Finance system of India. CO6- To analyze the working of Fiscal and Monetary policies.
Credit Value/ क्रेडिटमान:	6 credits
Total Marks/ कुलअंक:	Maximum Marks:30+70Minimum Passing Marks 35
Part B – Course Content	
Unit 1	Public Finance -Historical background, Meaning, Nature, Scope and Importance. Role of Public Finance in Economic Development. Difference between Private and Public Finance, Public goods and Private goods. Principles of maximum social advantage, Market failure and role of Government.
इकाई 1	सार्वजनिक वित्त -ऐतिहासिक पृष्ठभूमि अर्थ प्रकृति क्षेत्र एवम् महत्व, सार्वजनिक वित्त की आर्थिक विकास में भूमिका, निजी एवम् सार्वजनिक वित्त में अंतर, निजी एवम् सार्वजनिक वस्तुएं, अधिकतम सामाजिक लाभदायकता का सिद्धांत, बाजार विफलता एवम् शासन की भूमिका।
Unit 2	Public Revenue - Main sources of revenue, Meaning and types of Taxes, Loans, Grant and Aid. Characteristics of Indian Tax structure. Tax reforms in India. Canons of Taxation, Problem of Justice in Taxation, Incidence of Taxation. Taxable Capacity
इकाई 2	सार्वजनिक राजस्व -राजस्व के मुख्य स्रोत, कर, ऋण, अनुदान, एवम् सहायता का अर्थ एवम् प्रकार, भारतीय कर ढाँचे की विशेषताएँ भारत में करसुधार, कराधान के सिद्धांत कराधान में न्याय की घटना, करदेय क्षमता, कराधान का प्रभाव एवम् कर चोरी।
Unit 3	Public Expenditure - Meaning and Classification of Public Expenditure. Effects of Public Expenditure on production, Employment, Distribution and Economic Growth. Role of Public Expenditure in Developing Economy. Theories of Public Expenditure
इकाई 3	सार्वजनिक व्यय - सार्वजनिक व्यय का अर्थ एवम् वर्गीकरण, सार्वजनिक व्यय का उत्पादन, बेरोजगारी, वितरण एवम् आर्थिक वृद्धि पर प्रभाव, विकासशील अर्थव्यवस्था में सार्वजनिक व्यय की भूमिका, सार्वजनिक के सिद्धांत।

Unit 4	Public Budget - Kinds of Public Budget, Economic and Functional Classification of the Budget, Budget as an instrument of economic policy. Need, Sources and repayment of Public Debt. Effects of Public debt on money supply, Economic growth and Economic Stability.
इकाई 4	सार्वजनिक बजट - सार्वजनिक बजट के प्रकार, बजट का आर्थिक एवम् क्रियात्मक वर्गीकरण, आर्थिक नीति के प्रमुख उपकरण के रूप में बजट, सार्वजनिक ऋण की आवश्यकता, सार्वजनिक ऋण के स्रोत एवम् ऋणों का भुगतान, मुद्रा पूर्ति, आर्थिक वृद्धि एवम् आर्थिक स्थिरता में लोक ऋण का प्रभाव।
Unit 5	Public Finance system in India- Major Financial issues in a Federal setup. Principles of efficient division of financial resources between Central and States, Major Problem of Financial imbalances and measures for adjustments. Local bodies and their financial responsibilities Sources of local Finance.
इकाई 5	भारत में लोक वित्त - पद्धति संघीय ढांचे में मुख्य वित्तीय मुद्दे, केंद्र एवम् राज्य के मध्य वित्तीय स्रोतों के प्रवाही वर्गीकरण के सिद्धांत वित्तीय असंतुलन की मुख्य समस्याएँ एवम् इनके समायोजन के उपाय स्थानीय निकाय एवम् उनके वित्तीय दायित्व, स्थानीय वित्त के स्रोत
Unit 6	Monetary policy – Meaning, objectives and importance Pre and Post liberalization Monetary policies of India. Fiscal Policy- meaning, objectives and components. Drawbacks of the fiscal policy in India. Measures for removing drawbacks of fiscal policy
इकाई 6	मौद्रिक नीति - अर्थ, उद्देश्य एवम् महत्व, भारत में उदारकरण के पूर्व एवम् पश्चात् की मौद्रिक नीतियाँ, राजकोषीय नीति- अर्थ, उद्देश्य एवम् अवयव, भारत की राजकोषीय नीति की कमियाँ, राजकोषीय नीतियों की कमियाँ दूर करने के उपाय।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
	H.L Bhatia	Public Finance	Vikas Publication New Delhi
	Amar Ghosh Chandana Ghosh	Public Finance	Prentice Hall India learning Private Ltd
	Dr. D. Bose	An Introduction to Public Finance	S. Chand Publication, New Delhi
	R.K Lekhi	Public Finance	Kalyani Publishers New Delhi
	के एल गुप्ता	राजस्व	साहित्य पब्लिकेशन
	एच एल भाटिया,	लोक वित्त	विकास पब्लिकेशन हाउस नई दिल्ली
	आर के लेखी	लोक वित्त	कल्याणी पब्लिशर्स नई दिल्ली
	डा सत्यपाल सिंह.	लोक वित्त और रोजगार सिद्धांत	नई दिल्ली

Suggested equivalent online courses:

1. <http://www.rjspm.com/PDF/Public-Finance-Notes-PDF.pdf>
2. <http://www.jiwaji.edu/pdf/ecourse/commerce/UNIT-1%20PUBLIC%20FINANCE.pdf>
3. <https://old.mu.ac.in/wp-content/uploads/2021/11/Economics-Paper-IV-Public-Finance-English-Version.pdf>
4. https://ebooks.lpude.in/arts/ma_economics/year_1/DECO404_PUBLIC_FINANCE_ENGLISH.pdf
5. <https://www.eshiksha.mp.gov.in>

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE):30Marks

External Exam: 70 Marks		
Internal Assessment: Attainment Methods	Unit 1- Draw an outline on the role and key differences of public and private finance. (CO1) Unit 2- Prepare a report on the current developments in the Indian Tax System. (CO2) Unit 3- Draw a causal relationship between Public expenditure and economy. (CO3) Unit 4- Write a summary on 'How budget affects Economic growth and stability.' (C04) Unit5. –Make a mind-map on Indian public finance system. (CO5) Unit6- Prepare a report on Fiscal and Monetary policies of India and how government uses them to regulate the economy. (C06)	Marks 30
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Six Short Questions (200 words each) Section C: Six Long Questions (500 words each)	Total 70 marks

Open Elective

St. Aloysius' College (Autonomous), Jabalpur	
Part A – Introduction	
Session:	2023-24
Subject/ विषय:	Commerce /कॉमर्स
Programme/कार्यक्रम:	Degree
Class/कक्षा:	B.COM III
Course Code/ पाठ्यक्रमकोड:	C3-COME2T
Course Type/ पाठ्यक्रमकाप्रकार:	Elective for commerce faculty/वैकल्पिक (वाणिज्य संकाय के लिए)
Course Title/पाठ्यक्रमकाशीर्षक:	Business Ethics and Human Values /व्यावसायिक नैतिकता और मानवीय मूल्य
Pre – requisite/ पूर्वापेक्षा:	No/नहीं
Course Learning Outcome/ पाठ्यक्रमअध्ययनकीपरिलब्धियां:	CO1- To educate students with the knowledge of business ethics and process of ethical decision making. CO2- To explain the role of various agencies in ensuring ethics in corporation. CO3- To impart knowledge of values and its types and concept of knowledge management and wisdom management. CO4- To enhance knowledge about various moral issues faced by the business. CO5- To Understand CSR theoretical framework and its ethical foundation.
Credit Value/ क्रेडिटमान:	6 credits
Total Marks/ कुलअंक:	Maximum Marks:30+70Minimum Passing Marks 35
Part B – Course Content	
Unit 1	Introduction -Business Ethics: Meaning, Importance, Business Ethics- An Indian Perspective Sustainability: A Goal for Business Ethics, Approaches and Practices of Business Ethics, Ethical Decision Making and Decision- Making Process, Relevance of Ethics and Values in Business; Codes of Ethics; Ethical Behavior of Manager. Ethical theories: Normative and descriptive ethical theories.
इकाई 1	व्यावसायिक नैतिकता: अर्थ महत्व; भारतीय परिप्रेक्ष्य में व्यवसायिक नैतिकता व्यवसाय में निरंतरता। व्यवसायिक सदाचारा तरीके एवं अभ्यास, नैतिकतापूर्ण व्यवसायिक निर्णय सदाचार संहिता व्यवसाय में नैतिकता एवं मूल्यों की सार्थकता सदाचारी व्यवहार प्रबंधको का सदाचारी सिद्धांत नियामक एवं वर्णनात्मक।
Unit 2	Business Ethics Management -Management process and ethics, Ethos of Vedanta in management, Hierarchism as an organizational value, Business Ethics & Cultural Ethos; role of various agencies in ensuring ethics in corporation; Setting standards of ethical Behavior, managing stakeholder relations; Assessing ethical performance.
इकाई 2	व्यवसाय नैतिकता प्रबंधन-प्रबंधन प्रक्रिया और नैतिकता, प्रबंधन में वेदांत का लोकाचार, संगठनात्मक मूल्य के रूप में पदानुक्रम, व्यावसायिक नैतिकता और सांस्कृतिक लोकाचार; निगम में नैतिकता सुनिश्चित करने में विभिन्न एजेंसियों की भूमिका; नैतिक व्यवहार के मानक स्थापित करना, हितधारक संबंधों का प्रबंधन करना; नैतिक प्रदर्शन का आकलन।
Unit 3	Human Values & Business -Meaning of Human Values; Formation of Values:

	Socialization; Types of Values: Societal Values, Aesthetic Values, Organizational Values, Spiritual Values; Value Crisis in Management; concept of knowledge management and wisdom management, wisdom-based management. Concept of Karma and its kinds: Karma Yoga, Nishkam Karma, and Sakam Karma.
इकाई 3	मानवीय मूल्य और व्यवसाय-मानवीय मूल्यों का अर्थ; मूल्यों का निर्माण; समाजीकरण; मूल्यों के प्रकार: सामाजिक मूल्य, सौन्दर्यात्मक मूल्य, संगठनात्मक मूल्य, आध्यात्मिक मूल्य; प्रबंधन में मूल्य संकट; ज्ञान प्रबंधन और ज्ञान आधारित प्रबंधन, ज्ञान आधारित प्रबंधन की अवधारणा। कर्म की अवधारणा और उसके प्रकार: कर्म योग, निष्काम कर्म और सकाम कर्म।
Unit 4	Moral Issues in Business -Implications of moral issues in different functional areas of business (finance, HR, and marketing). Whistle blowing, Marketing truth and advertising: Manipulation and coercion, Trade secrets, Insider trading: Equal employment opportunity, Affirmative action, Consumerism: Environmental protection
इकाई 4	व्यवसाय में नैतिक मुद्दे- व्यवसाय के विभिन्न कार्यात्मक क्षेत्रों (वित्त, मानव संसाधन और विपणन) में नैतिक मुद्दों के प्रभाव। ध्यानाकर्षण विपणन सच्चाई और बिज्ञापन हेरफेर और जबरदस्ती, व्यापार रहस्य, अंदरूनी व्यापार समान रोजगार अवसरमा उपभोक्तावाद पर्यावरण संरक्षण।
Unit 5	Corporate Social Responsibility (CSR) -Concept of CSR, Corporate Philanthropy, Strategic Planning and Corporate Social Responsibility, Relationship of CSR with Corporate Sustainability. CSR and Business Ethics, CSR and Corporate Governance; CSR provisions under the Companies Act 2013; CSR Committee: CSR Models, Codes, and adherence to Standards. Scope, Principles and certification of Social Responsibility.
इकाई 5	व्यवसाय का सामाजिक उत्तरदायित्व: सामाजिक उत्तरदायित्व अवधारणा, सामाजिक संबंध, चरणबद्ध योजना, लोकोपकार व्यवसाय की निरंतरता के साथ समाज कल्याण, सामाजिक उत्तरदायित्व एवं सदाचार, सामाजिक उत्तरदायित्व एवं व्यवसाय संचालन, कम्पनी अधिनियम 2013 के सामाजिक उत्तरदायित्व संबंधी प्रावधान: समिति, मॉडल, संहिता एवं मापदण्डों का पालना सामाजिक उत्तरदायित्व का क्षेत्र, सिद्धान्त एवं प्रमाणीकरण।

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	De George	Business Ethics	Pearson
2	Aswathappa & Rani	Business Ethics	Himalaya Publications Nagpur
3.	Senthil & Senthil	Business Ethics & Values	Himalaya Publications Nagpur
4	Roy C K	Business Ethics	Vikas Publications House pvt. ltd

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE):Marks

External Exam: marks

Internal Assessment: Attainment Methods	Unit 1- Case study and Decision making. (CO1) Unit 2- Assignment on structure and role of agencies ensuring ethics in corporation.(CO2) Unit 3- Presentation on Types of Values / Debate on knowledge management and wisdom management. (CO3) Unit 4- Written class test (C04) Unit5- Report on Corporate social responsibility and viva	Marks 30
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	based on the report. (C05)	
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Degree
Class/ कक्षा:	B.COM III Year
Course Code/ पाठ्यक्रम कोड:	C3-COMD2T
Course Type/ पाठ्यक्रम का प्रकार:	Elective for Commerce Faculty
Course Title/पाठ्यक्रम का शीर्षक:	INTERNATIONAL BUSINESS
Pre – requisite/ पूर्वापेक्षा:	Open for all
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	<p>After the successful completion of the course, the students shall be able :-</p> <p>CO 1. To Understand the most widely used international business terms and concepts.</p> <p>CO 2. To Identify the role and impact of political, economic social and cultural variables in international business.</p> <p>CO 3. To Analyze international business from a multi-centric perspective, avoiding ethnocentrism.</p> <p>CO 4. To understand the process of globalization, its impact on the evolution and growth of international business.</p> <p>CO 5. To understand the significance of different forms of regional economic integration and to appreciate the role played by various international economies organization such as the WTO, UNCTAD, IMF and World Bank.</p> <p>CO 6. Familiarize students with the international financial environment, and get them acquainted with the basic features of the foreign exchange market- its characteristics and determinants.</p>
Credit Value/ क्रेडिट मान:	Credits: 6
Total Marks/ कुल अंक:	Maximum Marks: 30+70 Minimum Passing Marks: 35
Part B – Course Content	
Unit 1	Introduction to International Business: Concept, Need, and Importance of International Business, Globalization and its importance in world economy international business vs. domestic business, Complexities of international business. Modes of entry into international business. International Business Environment: National and foreign environments and their components. Economic, cultural, political and legal environments.
इकाई 1	अंतरराष्ट्रीय व्यवसाय का परिचय: अवधारणा, आवश्यकता एवं महत्वा वैश्वीकरण एवं इसका विश्व की अर्थव्यवस्था में महत्वा अंतरराष्ट्रीय व्यवसाय बनाम घरेलू व्यवसाय अंतरराष्ट्रीय व्यवसाय की जटिलताएं अंतरराष्ट्रीय व्यवसाय में प्रवेश के तरीके अंतरराष्ट्रीय व्यवसाय पर्यावरण, राष्ट्रीय और विदेशी वातावरण और उनके घटक, आर्थिक सांस्कृतिक, राजनैतिक और कानूनी वातावरण।

Unit 2	Theories of international trade: Absolute advantage theory, Comparative advantage theory, Factor proportion theory and Leontief paradox, Product life cycle theory, National competitive advantage theory. Tariff and Non-Tariff Barriers. Balance of payment account and its components.
इकाई 2	अंतरराष्ट्रीय व्यापार के सिद्धांत: निरपेक्ष लाभ सिद्धांत, तुलनात्मक लाभ सिद्धांत, कारक अनुपात सिद्धांत और लियोनटैफ विरोधाभास, उत्पाद जीवन चक्र सिद्धांत, राष्ट्रीय प्रतिस्पर्धात्मक लाभ सिद्धांत। प्रशुल्क और गैर प्रशुल्क बाधाएं। भुगतान संतुलन खाता और उसके घटक।
Unit 3	International Financial Environment: Foreign exchange market, Spot market, spot rate quotations, bid-ask spreads, trading in spot markets, cross exchange rates, forward markets, forward rate, long and short forward positions, forwards premium and discount. Arbitrage, Hedging and Speculation. Types of exchange rate systems- fixed and floating, soft peg, crawling peg, free float, managed float. Foreign exchange risk and exposure. Exchange rate Determinations: Types of Exchange rates, factors affecting exchange rate relative inflation rates, interest rates, relative interest rates, relative income levels. Government controls and expectations.
इकाई 3	अंतरराष्ट्रीय वित्तीय वातावरण: विदेशी विनिमय बाजार, स्पॉट मार्केट, स्पॉट रेट कोटेशन, विड आस्क स्पेड, स्पॉट मार्केट में व्यापार, क्रॉस एक्सचेंज रेट, वायदा बाजार, वायदा दर दीर्घ एवं अल्पकालीन वायदा स्थिति, वायदा प्रीमियम और बड़ा आरबीट्रेज, हेजिंग और स्पेक्यूलेशन विनिमय दर प्रणाली के प्रकार स्थाई एवं चल, सॉफ्ट पेग, क्राउलिंग पेग, फ्री फ्लोट, मैनेज्ड फ्लोट विदेशी विनिमय जोखिम एवं एक्सपोजर विनिमय दरों का निर्धारण विनिमय दरों के प्रकार, विनिमय दरों को प्रभावित करने वाले कारक, सापेक्ष मुद्रास्फीति दर व्याज दर, सापेक्ष व्याज दर, सापेक्ष आय स्तर, सरकारी नियंत्रण एवं अपेक्षाएं।
Unit 4	Foreign Trade promotion measures and organization in India: Special Economic Zones (SEZs) and export-oriented units (with 100% export-oriented units), foreign investment- concept, type and flow. Foreign investment in Indian perspective. Financing of foreign trade and payment terms- sources of trade finance (Banks, factoring, forfeiting Banker's Acceptance and Corporate Guarantee) and forms of payment (Cash in advance, Letter of Credit, Documentary Collection, Open Account).
इकाई 4	भारत में विदेशी व्यापार: संबन्धन उपाय और संगठन विशेष आर्थिक क्षेत्र और निर्यात उन्मुख इकाइयां (100 प्रतिशत निर्यात उन्मुख इकाइयों सहित) विदेशी विनियोग अवधारणा, प्रकार एवं प्रभाव, भारतीय परिवेश में विदेशी विनियोग। विदेशी व्यापार में अर्थ प्रबंधन एवं भुगतान की शर्तें व्यापार बिन के साधन (बैंक, फैक्टोरिंग, फोरफिटिंग बैंकर्स स्वीकृति और कारपोरेट गारंटी) और भुगतान के तरीके (अग्रिम में रोकड, साख पत्र, अभिलेख संग्रह खुले खाते)
Unit 5	Regional Economic Integration Forms of regional integration: Integration efforts amongst countries in Europe, North America and Asia. EU, NAFTA, SAARC and ASEAN International Economic Organisations: WTO, UNCTAD, World Bank and IMF
इकाई 5	क्षेत्रीय आर्थिक एकीकरण: क्षेत्रीय एकीकरण के रूप से यूरोप, उत्तरी अमेरिका और एशिया के देशों के बीच एकीकरण के प्रयास यूरोपीय संघ, नाफ्टा, सार्क और आसियान। अंतरराष्ट्रीय आर्थिक संगठन विश्व व्यापार संगठन, अंकटाड, विश्व बैंक और अंतरराष्ट्रीय मुद्रा कोष।
Part C – Suggested Readings	

S. No.	Author	Name of the Book	Publication
1.	Bennett Roger	International Business	Pearson New Delhi
2	Charles, W L Hill, Jain	International Business	Tata Mc Graw Hill New Delhi
3.	Sinha V.C.	International Business	SBPD Agra
4.	Gupta C.B.	International Business	S. Chand Publishing Delhi
5.	Bhalla V.K.	International Business	S. Chand Publishing Delhi
6.	Rao P. Subba	International Business	Himalaya publishing House New Delhi
7.	Jaiswal Bimal	International Business	Himalaya publishing House New Delhi
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 30 Marks University Exam (External Exam): 70 marks			
Internal Assessment: Continuous Comprehensive Evaluation (CCE): 30 Marks	Unit I – Presentation on Concept and need of International Business, Modes of entry into international business (CO1) International Business Environment (CO2) Unit II – Assignment on Theories of international trade, Tariff and Non-Tariff Barriers, Balance of payment (CO3) Unit III – Field survey based report on Foreign exchange market, Spot market, Hedging and Speculation. Exchange rate Determinations, Government controls and expectations.(CO3 and CO6) Unit IV – Case study on Foreign Trade promotion measures, SEZs, foreign investment (CO4) Unit V - Case study on SAARC and ASEAN, WTO, UNCTAD, World Bank and IMF etc. (CO5)		Total: 30 marks
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)		Total 70 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Degree
Class/ कक्षा:	B. Com IIIrd year / बी कॉम तृतीय वर्ष
Course Code/ पाठ्यक्रम कोड:	C3-COM H2T
Course Type/ पाठ्यक्रम का प्रकार:	DSE (Discipline Specific Elective)
Course Title/पाठ्यक्रम का शीर्षक:	INVESTMENT MANAGEMENT / निवेश प्रबंधन
Pre – requisite/ पूर्वपेक्षा:	Not Required (open for all) /सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	Upon successful completion of the course, a student will be able to CO 1- Examine the characteristic of different financial assets such as money market instruments, bonds, and stocks, and how to buy and sell these assets in financial markets. CO 2- Explain the benefits of diversification of holding a portfolio of assets, and the importance played by the market portfolio. CO 3- Illustrate different valuation model to evaluate fixed income securities, stocks and how to use different derivative securities to manage their investment risks. CO 4 - Apply ethical standards in the investment profession.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: 30 (internal) + 70 (external) Passing Marks: 35

Part B – Course Content

UNIT	TOPIC
Unit 1	Investment – Meaning, definition, objectives, factors affecting investment. Types of investors, investment process, investment Vs gambling, investment Vs speculation, investment avenues, element of risk. Changing investment pattern in India.

इकाई 1	विनियोग - अर्थ, परिभाषा, उद्देश्य, विनियोग को प्रभावित करने वाले कारक - निवेशकों के प्रकार - निवेश प्रक्रिया, निवेश बनाम जुआ, विनियोग बनाम अटकलें, विनियोग के रास्ते, जोखिम के तत्व। भारत में निवेश का बदलता स्वरूप।
Unit 2	Capital Market - Meaning, structure, functions. Money market Vs Capital Market, capital market instruments -shares -debentures -bonds. Stock exchanges -role -functions - stock exchanges in India BSE, NSE, OTCEI , trading mechanism, online trading -types of investors, types of speculators.
इकाई 2	पूंजी बाजार- अर्थ, संरचना, कार्य। मुद्रा बाजार बनाम पूंजी बाजार, पूंजी बाजार के उपकरण -शेयर -डिबेंचर - बांड। स्टॉक एक्सचेंज - भूमिका - कार्य। भारत में स्टॉक एक्सचेंज बीएसई, एनएसई, ओटीसीआई, व्यापार तंत्र, ऑनलाइन ट्रेडिंग, प्रकार निवेशकों की, सट्टेबाजों के प्रकार।
Unit 3	Derivatives – Meaning, features, classification, financial derivatives – forwards, futures options, swaps, Indian derivative markets -structure trading regulatory frame work.
इकाई 3	व्युत्पन्न - अर्थ, विशेषताएं, वर्गीकरण, वित्तीय डेरीवाटिव - आगे, वायदा विकल्प, स्वैप, भारतीय व्युत्पन्न बाजार, संरचना व्यापार नियामक ढांचा।
Unit 4	Regulation of Capital Market in India -SEBI -constitution, powers, functions, roles, investors protection.
इकाई 4	भारत में पूंजी बाजार का विनियमन- सेवा-संविधान, शक्तियां, कार्य, भूमिकाएं, निवेशक संरक्षण।
Unit 5	Portfolio Management - Meaning, importance, phases, security analysis, fundamental analysis, EIC frame work, technical analysis Dow, Theory, Elliot Wave Theory .
इकाई 5	पोर्टफोलियो प्रबंधन - अर्थ, महत्व, चरण, सुरक्षा विश्लेषण, मौलिक विश्लेषण, ईआईसी ढांचा, तकनीकी विश्लेषण, डॉव थ्योरी, इलियट वेव थ्योरी।
Keywords/ Tags:	Investment, Capital Market, Derivatives, SEBI, Portfolio Management.

Part : C- RECOMMENDED STUDY RESOURCES

S. No	Author	Book Title	Publisher
1	Prasanna Chandra	Investment Analysis and Portfolio Management	McGraw Hill Education
2	Singh, Preeti	Investment Management	Himalaya Publication's Nagpur
3	Sumi KV	Investment Management	Abhijeet Publications
4	Vandana Dangi	Investment Management	VK Global Publications Pvt

			Ltd
5	V.K Bhalla	Investment Management	S Chand & Company

Note: All these books are available in Hindi and English Versions.

Digital Platform	1. https://kanchiuniv.ac.in/coursematerials/IM%20UNIT-%201%20(2).pdf
	2. https://www.distanceeducationju.in/pdf/M.Com%20311pdf.pdf
	3. http://www.himpub.com/document/Chapter1893.pdf
	4. http://sdeuoc.ac.in/sites/default/files/sde_video/MCME3F01%20%28190614%29.pdf
	5. https://www.iare.ac.in/sites/default/files/lecture_notes/IARE_SAPM_Lecture_Notes.pdf
	6. http://www.eshiksha.mp.gov.in

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks

External Exam: 70 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE):30 Marks	UNIT I- Group Activity on Investment Planning and Investment process. UNIT II- Diagrammatic presentation on Capital Market, Money Market and their instrument. UNIT III- Comparative study of online trading among different derivatives. UNIT IV- Indian Stock Market Case Study and role of SEBI. UNIT V- Model based learning on Portfolio Construction and Security Analysis.	Total 30 Marks
External Assessment: University/ Autonomous College Exam Section: 70 marks	Section A: Five Very Short Questions (50 words each) Section B: Five Short Questions (200 words each) Section C: Five Long Questions (500 words each)	Total 70 marks

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2022-23
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate सर्टिफिकेट
Class/ कक्षा:	B. Com IIIrd year / बी कॉम तृतीय वर्ष
Course Code/ पाठ्यक्रम कोड:	M3-TNTC2T
Course Type/ पाठ्यक्रम का प्रकार:	DSE (Discipline Specific Elective)
Course Title/पाठ्यक्रम का शीर्षक:	Environment & Sustainable Tourism / पर्यावरण और सतत पर्यटन
Pre – requisite/ पूर्वापेक्षा:	Not Required (open for all) /सभी के लिए उपलब्ध
Course Learning Outcome/ पाठ्यक्रम अध्ययन की परिलब्धियां:	Upon successful completion of the course, a student will be able to CO 1- Interrelate the environment awareness programs and tourism planner for successful tourism development. CO 2- Identify eco- tourism destinations and apply Environmental code of conduct during visit to these places. CO 3- Construct the ideology for tourism planning and investment in tourism in the protected areas.
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: 30 (internal) + 70 (external) Passing Marks: 35

Part B – Course Content

UNIT	TOPIC
Unit 1	Introduction: Introduction to sustainable Tourism: Definition, concept, growth and Principles. Tourism and Environment Relevance, Man and environmental relationship, Environment and resources, Approaches to the study of ecology -Ecological concept and principles, the environmental Impact of Tourism – Advocating sustainable tourism – Resistance to sustainable tourism-Principles of sustainable tourism - Concept of Carrying Capacity, Tourism Activities and their linkages to Ecology and Environment – Problems and prospects for sustainability Issues and challenges, Sustainable & Responsible Tourism Practices in India . Naturalist and its role . Case Study: Kerala, Karnataka
इकाई 1	सतत पर्यटन का परिचय: परिभाषा, अवधारणा, विकास और सिद्धांत। पर्यटन और पर्यावरण प्रासंगिकता, मनुष्य और पर्यावरण संबंध, पर्यावरण और संसाधन, पारिस्थितिकी के अध्ययन के दृष्टिकोण - पारिस्थितिक अवधारणा और सिद्धांत, पर्यटन का पर्यावरणीय प्रभाव - टिकाऊ पर्यटन की वकालत - टिकाऊ पर्यटन का प्रतिरोध - टिकाऊ पर्यटन के सिद्धांत - वहन क्षमता की अवधारणा , पर्यटन गतिविधियां और पारिस्थितिकी और पर्यावरण से उनका जुड़ाव - स्थिरता के लिए समस्याएं और संभावनाएं मुद्दे और चुनौतियां, भारत में टिकाऊ और जिम्मेदार पर्यटन प्रथाएं। प्रकृतिवादी और उसकी भूमिका. केस स्टडी: केरल, कर्नाटक

Unit 2	<p>Sustainability and Eco Tourism</p> <p>Eco – tourism as a worldwide phenomenon – Concept and planning of eco – tourism destinations – Developing and implanting Eco tourism guidelines for wild lands and neighboring communities – Eco -Tourism and community development -conference, convention & declaration related to environments – WECD Commission -Rio – declaration (Agenda 21), Quebec declaration – Environment Code of Conduct. Role of regulatory and international bodies in sustainability – Challenges and concerns.Case Study on Wetlands inn India and Chilika Lake</p>
इकाई 2	<p>स्थिरता और इको पर्यटन</p> <p>इको-पर्यटन एक विश्वव्यापी घटना के रूप में - इको-पर्यटन स्थलों की अवधारणा और योजना - जंगली भूमि और पड़ोसी समुदायों के लिए इको पर्यटन दिशानिर्देशों का विकास और कार्यान्वयन - इको-पर्यटन और सामुदायिक विकास - पर्यावरण से संबंधित सम्मेलन, सम्मेलन और घोषणा - डब्ल्यूईसीडी आयोग - रियो – घोषणा (एजेंडा 21), क्यूबेक घोषणा - पर्यावरण आचार संहिता। स्थिरता में नियामक और अंतर्राष्ट्रीय निकायों की भूमिका - चुनौतियाँ और चिंताएँ</p> <p>वेटलैंड्स इन इंडिया और चिल्का झील पर केस स्टडी</p>
Unit 3	<p>Global Concerns and Impact Mitigation measures</p> <p>Tourism and global concerns, The impact of global concern on tourism, Prevention of Hazards, Environmental Impact Assessment (EIA), UN initiatives on Ecology and Environment. Tourism Development and Economic Planning – Tourism investment strategy and role of host government. Tourism in protected areas: trends affecting the planning of tourism and protected areas – Growth and diversification of market niches -Potential benefits and risks of tourism in protected areas – Tourism in protected areas which are not publicly owned or managed – Future prospects and policy alternatives.</p> <p>Case Study on Biodiversity Hotspots in India: Eastern Himalayas & Western Ghats</p>
इकाई 3	<p>वैश्विक चिंताएँ और प्रभाव शमन उपाय</p> <p>पर्यटन और वैश्विक चिंताएँ, पर्यटन पर वैश्विक चिंता का प्रभाव, खतरों की रोकथाम। पर्यावरण प्रभाव आकलन (ईआईए), पारिस्थितिकी और पर्यावरण पर संयुक्त राष्ट्र की पहला पर्यटन विकास और आर्थिक योजना पर्यटन और संरक्षित क्षेत्रों : पर्यटन निवेश रणनीति और मेजबान सरकार की भूमिका। संरक्षित क्षेत्रों में पर्यटन - सं - बाजार के निशानों का विकास और विविधीकरण - की योजना को प्रभावित करने वाले रक्षित क्षेत्रों में पर्यटन के संभावित लाभ और जोखिम संरक्षित - भविष्य की संभावनाएँ और नीति विकल्प) - क्षेत्रों में पर्यटन जो सार्वजनिक रूप से स्वामित्व या प्रबंधित नहीं हैं</p> <p>भारत में जैव विविधता हॉटस्पॉट पर केस स्टडीपूर्वी हिमालय और पश्चिमी घाट :</p>
Unit 4	<p>Service Learning and Sustainable Tourism</p> <p>Contemporary approaches in sustainable Tourism, Sustainability and community involvement, Community participation through tourism business, Tourism entrepreneurship and host community , Role of SME's (Small and Medium Enterprises) in travel Industry and destination development ,Preserving Heritage and Community based Cultural Tourism , Sustainability and destination branding ,Prospective measures and Strategy Formulation .</p> <p>Case Study Mawlynong , “ the cleanest village “ Meghalaya Dakshin Vrindavan .</p>
इकाई 4	<p>सेवा शिक्षण और सतत पर्यटन</p> <p>टिकाऊ पर्यटन, स्थिरता और सामुदायिक भागीदारी में समकालीन दृष्टिकोण, पर्यटन व्यवसाय के माध्यम से सामुदायिक भागीदारी, पर्यटन उद्यमिता और मेजबान समुदाय, यात्रा उद्योग और गंतव्य विकास में एसएमई (लघु और मध्यम उद्यम) की भूमिका, विरासत और समुदाय आधारित सांस्कृतिक पर्यटन, स्थिरता और गंतव्य का संरक्षण ब्रांडिंग, संभावित उपाय और रणनीति तैयार करना।</p> <p>केस स्टडी मावल्यॉंग, "सबसे स्वच्छ गांव" मेघालय दक्षिण वृन्दावन</p>
Unit 5	<p>Trends and issues in global sustainability</p> <p>Challenges in retaining absolute sustainability, Global indicators and sustainable energy future.</p>

	<p>Sustainability and innovation, Climate policy agenda – Carbon management in tourism – Background: The interrelationship between tourism and climate change.</p> <p>Carbon Management: Principles and Strategies</p> <p>Carbon management: Case Studies. The Future of Sustainable Tourism and Drivers of change over the Next Decade.</p> <p>Case Study: Responsible Tourism, kerala .</p>
इकाई 5	<p>वैश्विक स्थिरता में रुझान और मुद्दे</p> <p>पूर्ण स्थिरता, वैश्विक संकेतक और टिकाऊ ऊर्जा भविष्य को बनाए रखने में चुनौतियाँ। स्थिरता और नवाचार, जलवायु नीति एजेंडा - पर्यटन में कार्बन प्रबंधन - पृष्ठभूमि: पर्यटन और जलवायु परिवर्तन के बीच अंतर्संबंध, कार्बन प्रबंधन: सिद्धांत और रणनीतियाँ</p> <p>कार्बन प्रबंधन: केस स्टडीज। सतत पर्यटन का भविष्य और अगले दशक में परिवर्तन के संचालक। केस स्टडी: जिम्मेदार पर्यटन, केरल।</p>
Keywords/Tags :	Sustainability, Tourism, Environment Protection.

Part : C- RECOMMENDED STUDY RESOURCES

S. No.	Author	Book Title	Publisher
1	C. Michael Hall, Stephen J. Page	The Geography of Tourism and Recreation – Environment Place and space. London Routledge	Routledge
2	Ritchie ,J.B , & Crouch ,G.I	The competitive destination: A sustainable tourism perspective.	Cabi
3	Inskeep .E	Tourism planning: An integrated and sustainable development approach. John Wiley & Sons	Pearson Education, New Delhi

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks

External Exam: 70 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE):30 Marks	<p>UNIT I Model of sustainable tourism programs based on tourism planner.</p> <p>UNIT II Questionnaire based on environment code of conduct and do's and don'ts during visit of eco-tourism destinations.</p> <p>UNIT III Project on investment planning in hazardous and protected tourism destinations.</p>	Total 30 Marks
External Assessment:	<p>Section A: Five Very Short Questions (50 words each)</p> <p>Section B: Five Short Questions (200 words each)</p>	Total 70 marks

University/ Autonomous College Exam Section: 70 marks	Section C: Five Long Questions (500 words each)	
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ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

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SYLLABUS

UG

ZOOLOGY

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. I Semester
(Session 2023-24)

Theory Syllabus			
Part A Introduction			
Programme - Certificate Course	Class: B.Sc.	Year: I Semester	Session: 2023-24
Subject: Zoology			
1.	Course Code	S1-ZOOL1T	
2.	Course Title	Animal Diversity: Non-Chordata	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational.)	Core Course -Major	
4.	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
5.	Course Learning outcomes (CLO)	Upon completion of the course students should be able to 1. Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla. 2. Understand the various morphological, anatomical structures and functions of animals of different phyla. 3. Get the knowledge about economic, ecological and medical significance of various animals in human welfare. 4. Understand the important parasites and their control measures.	
6.	Credit Value	4	
7.	Total Marks	Max. Marks: 60+40	Min. Passing Marks:35

Part B Content of the course		
Total No. of Lectures – Tutorials- Practical (in hours per week): 2hours per week L-T-P:		
Unit I	Topics	No. of Lectures
I	<p>Taxonomy, Phylogeny and Protozoa</p> <p>1. Taxonomy</p> <p>1.1 Elementary Knowledge of Zoological Nomenclature and International Code</p> <p>1.2 Outline Classification of Animal Kingdom upto Phylum of acoelomate and coelomate non-chordates according to Parker and Haswell 7th edition</p> <p>2. Phylogeny</p> <p>2.1 Definition and Examples</p> <p>3. Protozoa</p> <p>3.1 Phylum Protozoa: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>3.2 Structure, life history and pathogenicity of malarial Parasite (Plasmodium vivax)</p> <p>3.3 Protozoa and disease - Amoebiasis, Trypanosomiasis, Leishmaniasis & Trichomoniasis</p> <p>Keywords/Tags: ICZN, Classification, Protozoa, Plasmodium,</p>	11
II	<p>Porifera, Coelenterata</p> <p>1. Porifera</p> <p>1.1 Phylum Porifera: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 Type study of Sycon Morphology, Reproduction & Development</p> <p>1.3 Canal system of Sponges</p> <p>2. Coelenterata</p> <p>2.1 Phylum Coelenterata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples.</p> <p>2.2 Type Study of Obelia -Morphology, Life cycle</p> <p>2.3 Corals and Coral reef formation</p> <p>Keywords/Tags: Classification, Porifera, Sycon, Coelenterata, Obelia, Coral reefs</p>	11
III	<p>Platyhelminthes, Nematelminthes, Annelida</p> <p>1. Platyhelminthes</p> <p>1.1 Phylum Platyhelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 External morphology, larval forms and life history Fasciola hepatica (Liver fluke)</p> <p>2. Nematelminthes</p>	

	<p>2.1 Phylum Nematelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>2.2 Pathogenic symptoms of Nematodes and diseases – Ascariasis, Trichuriasis, Enterobiasis, Filariasis & Trichinosis (Trichinellosis)</p> <p>3. Annelida</p> <p>3.1 Phylum Annelida: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>3.2 Type study of Earthworm (<i>Pheretima</i>)</p> <p>3.3 Structure and significance of Trochophore larva</p> <p>Keywords/Tags: Classification, Platyhelminthes, Liver fluke, Nematode disease, Annelida, <i>Pheretima</i>, Trochophore</p>	14
IV	<p>Arthropoda, Mollusca</p> <p>1. Arthropoda</p> <p>1.1 Phylum Arthropoda: General Characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 Type study of Prawn</p> <p>1.3 Larval forms of crustacea - Nauplius, Zoea, Megalopa & Mysis larva.</p> <p>1.4 Insects as a vector of human disease - Culex, Aedes, Tsetse fly & Housefly.</p> <p>2. Mollusca</p> <p>2.1 Phylum Mollusca: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>2.2 Type study of <i>Pila</i></p> <p>2.3 Structure & Significance of Glochidium larva</p> <p>Keywords/Tags: Classification, Arthropoda, Prawn, Crustacea larva, Insects, Mollusca, <i>Pila</i>, Glochidium</p>	12
V	<p>Echinodermata, Hemichordata</p> <p>1. Echinodermata</p> <p>1.1 Phylum Echinodermata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 External features and water vascular system of Starfish (<i>Asterias</i>)</p> <p>1.3 Larval forms of Echinodermata</p> <p>2. Hemichordata</p> <p>2.1 Phylum Hemichordata: General characters of the phylum Hemichordate and relationship with non-chordates and chordates</p> <p>2.2. Balanoglossus - External morphology</p> <p>2.3 Structure and significance of tornaria larva</p> <p>Keywords/Tags: Classification, Echinodermata, <i>Asterias</i>, Echinodermata larvae, Hemichordata, Balanoglossus, Tornaria</p>	12

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested readings

1. Parker, J, Haswell, WA, "A Text Book of Zoology". VII edition, Vol. 1 & II, Low Price Publications, Delhi, 1990.
2. Barnes, RD, "Invertebrate Zoology", VII Edition, Cengage Learning, India, 2006.
3. Pechenik, JA, "Biology of the Invertebrates" McGraw-Hill Educations, VII Edition, 2015.
4. Sedgwick, A, "A Students Text Book of Zoology", Vol.I. II & Vol. III., Low Price Publications, Delhi, 1990.
5. Dhami and Dhami, "Invertebrate Zoology" R., Chand & Co., India, 2009.
6. Jordan and Verma, "Invertebrate Zoology," S. Chand & Company. New Delhi, 2013.
7. Agarwal, VK, "Zoology for Degree Students: Non-Chordata", S Chand & Company,2017.
8. Kotpal, R, "Modern Text Book of Invertebrates", Rastogi Publications, Meerut, 2017
9. Kotpal, R. "Protozoa to Echinodermata (Phylum Series)", Rastogi Publications, Meerut, 2017.
10. <https://zoologylearningpoint.wordpress.com>
11. <https://zoologyresources.com>

Suggested equivalent online courses:

1. Swayam Online Courses
<https://storage.googleapis.com/uniquecourses/online.html>
2. National Digital Library
<https://ndl.iitkgp.ac.in/>
3. e-PG Pathshala (MHRD) Portal(<https://epgp.in/libnet.ac.in/>)
4. Animal diversity <https://swayam.gov.in/courses/5686/animal-diversity>
Advances in Animal Diversity, Systemics and Evolution
(<https://swayam.gov.in/courses/5686-zoology>)
5. Science Direct Open Access Content
(<https://www.sciencedirect.com/book/9781843342038/open-access>)

Practical Syllabus			
Part A Introduction			
Programme: Certificate Course		Class: B.Sc	Year: I Semester
Session: 2023-24			
Subject: Zoology			
1.	Course Code	S1-ZOOL1P	
2.	Course Title	Invertebrate	
3.	Course Type	Core Course	
4.	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
5.	Course Learning outcomes (CLO)	Upon completion of the course students should be able to 1. Identify invertebrate animals of different phyla and their histology through study of museum specimens and slides. 2. Learn their different systems through dissections. 3. Enhance collaborative learning and communication skills through practical sessions, team work, group discussions, assignments and projects.	
6.	Credit Value	2	
7.	Total Marks	Max. Marks: 60+40	Min. Passing Marks:35

Part B- Content of the Course		
Total No. of Lectures - Tutorials-Practical (in hours per week): 02 hours per week		
L-T-P:		
Unit	Topics	No. of lectures
1.	Study of museum specimens and slides relevant to the invertebrates.	25
2.	Dissection (Demonstration Only -Through YouTube Video or Models or Charts) a. Earthworm- Digestive system, Nervous system, Reproductive system b. Prawn-Nervous system and appendages c. Pila-Nervous System d. Cockroach-Digestive System, Nervous System (Easily available animal in residential areas which can be used for dissection and mounting)	12
3.	Mounting a. Locally available small non-chordates, their larvae b. Mouth Parts of Insects – Cockroach/Mosquitoes	5

4.	Examination of pond water for study of different kinds of microscopic non-chordate organisms	8
5.	Economic Importance of any two invertebrates/ two Insects	5
6.	Parasitic Adaptation of any one parasite – Fasciola hepatica/Taenia solium	5
Keywords/Tags: Museum specimens, Slides, Dissection, Mounting, Benefited insects, parasitic adaptation.		

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Arumam, N. Nair, NC, Leelavathy, S. Pandian, NS, Murugan, T, Jayasurya, "Practical Zoology - Invertebrata", Volume-I. Saras Publication, 2013.
2. Lal, SS. "A Text book of Practical Zoology - Invertebrates", Rastogi Publication, 2016
3. Prakash, M, and Arora, CK. "Laboratory Animals". Anmol Publications, New Delhi, 1998
4. Verma, PS, "A Manual of Practical Zoology - Invertebrates". S. Chand & Co., 2013.
5. Virtual Labs (<https://www.vlab.co.in>)

Part D Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment Marks	Marks
Class/Interaction/Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model/Seminar/Rural Service/Technology Dissemination/Report of Excursion/lab visits/Survey/Industrial visit)	20	Table work/ Experiments a. Spotting b. Dissection c. Mounting d. Examination of pond water e. Economic Importance of Insects f. Parasitic Adaptations	50 16 08 04 10 06 06
Total	40		60
Any remarks/suggestions:			

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. I Semester
(Session 2023-24)

Theory Syllabus			
Part A Introduction			
Programme - Certificate Course	Class: B.Sc.	Year: I Semester	Session: 2023-24
Subject: Zoology			
1.	Course Code	S1-ZOOL1T	
2.	Course Title	Animal Diversity: Non-Chordata	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational.)	Core Course -Minor	
4.	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
5.	Course Learning outcomes (CLO)	Upon completion of the course students should be able to 1. Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla. 2. Understand the various morphological, anatomical structures and functions of animals of different phyla. 3. Get the knowledge about economic, ecological and medical significance of various animals in human welfare. 4. Understand the important parasites and their control measures.	
6.	Credit Value	4	
7.	Total Marks	Max. Marks: 60+40	Min. Passing Marks:35

Part B Content of the course		
Total No. of Lectures – Tutorials- Practical (in hours per week): 2hours per week L-T-P:		
Unit I	Topics	No. of Lectures
I	<p>Taxonomy, Phylogeny and Protozoa</p> <p>1. Taxonomy</p> <p>1.1 Elementary Knowledge of Zoological Nomenclature and International Code</p> <p>1.2 Outline Classification of Animal Kingdom upto Phylum of acoelomate and coelomate non-chordates according to Parker and Haswell 7th edition</p> <p>2. Phylogeny</p> <p>2.1 Definition and Examples</p> <p>3. Protozoa</p> <p>3.1 Phylum Protozoa: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>3.2 Structure, life history and pathogenicity of malarial Parasite (Plasmodium vivax)</p> <p>3.3 Protozoa and disease - Amoebiasis, Trypanosomiasis, Leishmaniasis & Trichomoniasis</p> <p>Keywords/Tags: ICZN, Classification, Protozoa, Plasmodium,</p>	11
II	<p>Porifera, Coelenterata</p> <p>1. Porifera</p> <p>1.1 Phylum Porifera: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 Type study of Sycon Morphology, Reproduction & Development</p> <p>1.3 Canal system of Sponges</p> <p>2. Coelenterata</p> <p>2.1 Phylum Coelenterata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples.</p> <p>2.2 Type Study of Obelia -Morphology, Life cycle</p> <p>2.3 Corals and Coral reef formation</p> <p>Keywords/Tags: Classification, Porifera, Sycon, Coelenterata, Obelia, Coral reefs</p>	11
III	<p>Platyhelminthes, Nematelminthes, Annelida</p> <p>1. Platyhelminthes</p> <p>1.1 Phylum Platyhelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 External morphology, larval forms and life history Fasciola hepatica (Liver fluke)</p> <p>2. Nematelminthes</p>	

	<p>2.1 Phylum Nematelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>2.2 Pathogenic symptoms of Nematodes and diseases – Ascariasis, Trichuriasis, Enterobiasis, Filariasis & Trichinosis (Trichinellosis)</p> <p>3. Annelida</p> <p>3.1 Phylum Annelida: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>3.2 Type study of Earthworm (<i>Pheretima</i>)</p> <p>3.3 Structure and significance of Trochophore larva</p> <p>Keywords/Tags: Classification, Platyhelminthes, Liver fluke, Nematode disease, Annelida, <i>Pheretima</i>, Trochophore</p>	14
IV	<p>Arthropoda, Mollusca</p> <p>1. Arthropoda</p> <p>1.1 Phylum Arthropoda: General Characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 Type study of Prawn</p> <p>1.3 Larval forms of crustacea - Nauplius, Zoea, Megalopa & Mysis larva.</p> <p>1.4 Insects as a vector of human disease - Culex, Aedes, Tsetse fly & Housefly.</p> <p>2. Mollusca</p> <p>2.1 Phylum Mollusca: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>2.2 Type study of <i>Pila</i></p> <p>2.3 Structure & Significance of Glochidium larva</p> <p>Keywords/Tags: Classification, Arthropoda, Prawn, Crustacea larva, Insects, Mollusca, <i>Pila</i>, Glochidium</p>	12
V	<p>Echinodermata, Hemichordata</p> <p>1. Echinodermata</p> <p>1.1 Phylum Echinodermata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 External features and water vascular system of Starfish (<i>Asterias</i>)</p> <p>1.3 Larval forms of Echinodermata</p> <p>2. Hemichordata</p> <p>2.1 Phylum Hemichordata: General characters of the phylum Hemichordate and relationship with non-chordates and chordates</p> <p>2.2. Balanoglossus - External morphology</p> <p>2.3 Structure and significance of tornaria larva</p> <p>Keywords/Tags: Classification, Echinodermata, <i>Asterias</i>, Echinodermata larvae, Hemichordata, Balanoglossus, Tornaria</p>	12

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested readings

1. Parker, J, Haswell, WA, "A Text Book of Zoology". VII edition, Vol. 1 & II, Low Price Publications, Delhi, 1990.
2. Barnes, RD, "Invertebrate Zoology", VII Edition, Cengage Learning, India, 2006.
3. Pechenik, JA, "Biology of the Invertebrates" McGraw-Hill Educations, VII Edition, 2015.
4. Sedgwick, A, "A Students Text Book of Zoology", Vol.I. II & Vol. III., Low Price Publications, Delhi, 1990.
5. Dhami and Dhami, "Invertebrate Zoology" R., Chand & Co., India, 2009.
6. Jordan and Verma, "Invertebrate Zoology," S. Chand & Company. New Delhi, 2013.
7. Agarwal, VK, "Zoology for Degree Students: Non-Chordata", S Chand & Company,2017.
8. Kotpal, R, "Modern Text Book of Invertebrates", Rastogi Publications, Meerut, 2017
9. Kotpal, R. "Protozoa to Echinodermata (Phylum Series)", Rastogi Publications, Meerut, 2017.
10. <https://zoologylearningpoint.wordpress.com>
11. <https://zoologyresources.com>

Suggested equivalent online courses:

1. Swayam Online Courses
<https://storage.googleapis.com/uniquecourses/online.html>
2. National Digital Library
<https://ndl.iitkgp.ac.in/>
3. e-PG Pathshala (MHRD) Portal(<https://epgp.in/libnet.ac.in/>)
4. Animal diversity <https://swayam.gov.in/courses/5686/animal-diversity>
Advances in Animal Diversity, Systemics and Evolution
(<https://swayam.gov.in/courses/5686-zoology>)
5. Science Direct Open Access Content
(<https://www.sciencedirect.com/book/9781843342038/open-access>)

Practical Syllabus			
Part A Introduction			
Programme: Certificate Course		Class: B.Sc	Year: I Semester
Session: 2023-24			
Subject: Zoology			
1.	Course Code	S1-ZOOL1P	
2.	Course Title	Invertebrate	
3.	Course Type	Core Course	
4.	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
5.	Course Learning outcomes (CLO)	Upon completion of the course students should be able to 1. Identify invertebrate animals of different phyla and their histology through study of museum specimens and slides. 2. Learn their different systems through dissections. 3. Enhance collaborative learning and communication skills through practical sessions, team work, group discussions, assignments and projects.	
6.	Credit Value	2	
7.	Total Marks	Max. Marks: 60+40	Min. Passing Marks:35

Part B- Content of the Course		
Total No. of Lectures - Tutorials-Practical (in hours per week): 02 hours per week		
L-T-P:		
Unit	Topics	No. of lectures
1.	Study of museum specimens and slides relevant to the invertebrates.	25
2.	Dissection (Demonstration Only -Through You Tube Video or Models or Charts) a. Earthworm- Digestive system, Nervous system, Reproductive system b. Prawn-Nervous system and appendages c. Pila-Nervous System d. Cockroach-Digestive System, Nervous System (Easily available animal in residential areas which can be used for dissection and mounting)	12
3.	Mounting a. Locally available small non-chordates, their larvae b. Mouth Parts of Insects – Cockroach/Mosquitoes	5

4.	Examination of pond water for study of different kinds of microscopic non-chordate organisms	8
5.	Economic Importance of any two invertebrates/ two Insects	5
6.	Parasitic Adaptation of any one parasite – Fasciola hepatica/Taenia solium	5
Keywords/Tags: Museum specimens, Slides, Dissection, Mounting, Benefited insects, parasitic adaptation.		

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Arumam, N. Nair, NC, Leelavathy, S. Pandian, NS, Murugan, T, Jayasurya, "Practical Zoology - Invertebrata", Volume-I. Saras Publication, 2013.
2. Lal, SS. "A Text book of Practical Zoology - Invertebrates", Rastogi Publication, 2016
3. Prakash, M, and Arora, CK. "Laboratory Animals". Anmol Publications, New Delhi, 1998
4. Verma, PS, "A Manual of Practical Zoology - Invertebrates". S. Chand & Co., 2013.
5. Virtual Labs (<https://www.vlab.co.in>)

Part D Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment Marks	Marks
Class/Interaction/Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model/Seminar/Rural Service/Technology Dissemination/Report of Excursion/lab visits/Survey/Industrial visit)	20	Table work/ Experiments a. Spotting b. Dissection c. Mounting d. Examination of pond water e. Economic Importance of Insects f. Parasitic Adaptations	50 16 08 04 10 06 06
Total	40		60
Any remarks/suggestions:			

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central Board of Studies in Zoology
Class - B.Sc. I Semester
(Session 2023-24)

Theory Syllabus			
Part A Introduction			
Programme - Certificate Course	Class: B.Sc.	Year: I Semester	Session: 2023-24
Subject: Zoology			
1.	Course Code	S1-ZOOL1T	
2.	Course Title	Animal Diversity: Non-Chordata	
3.	Course Type	Generic Elective	
4.	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
5.	Course Learning outcomes (CLO)	Upon completion of the course students should be able to 1. Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla. 2. Understand the various morphological, anatomical structures and functions of animals of different phyla. 3. Get the knowledge about economic, ecological and medical significance of various animals in human welfare. 4. Understand the important parasites and their control measures.	
6.	Credit Value	3	
7.	Total Marks	Max. Marks: 60+40	Min. Passing Marks:35

Part B Content of the course		
Total No. of Lectures – Tutorials- Practical (in hours per week): 2hours per week		
L-T-P:		
Unit I	Topics	No. of Lectures
I	<p>Taxonomy, Phylogeny and Protozoa</p> <p>1. Taxonomy</p> <p>1.1 Elementary Knowledge of Zoological Nomenclature and International Code</p> <p>1.2 Outline Classification of Animal Kingdom up to Phylum of acoelomate and coelomate non-chordates according to Parker and Haswell 7th edition</p> <p>2. Phylogeny</p> <p>2.1 Definition and Examples</p> <p>3. Protozoa</p> <p>3.1 Phylum Protozoa: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>3.2 Structure, life history and pathogenicity of malarial Parasite (<i>Plasmodium vivax</i>)</p> <p>3.3 Protozoa and disease - Amoebiasis, Trypanosomiasis, Leishmaniasis & Trichomoniasis</p> <p>Keywords/Tags: ICZN, Classification, Protozoa, Plasmodium,</p>	11
II	<p>Porifera, Coelenterata</p> <p>1. Porifera</p> <p>1.1 Phylum Porifera: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 Type study of <i>Sycon</i> Morphology, Reproduction & Development</p> <p>1.3 Canal system of Sponges</p> <p>2. Coelenterata</p> <p>2.1 Phylum Coelenterata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples.</p> <p>2.2 Type Study of <i>Obelia</i> -Morphology, Life cycle</p> <p>2.3 Corals and Coral reef formation</p> <p>Keywords/Tags: Classification, Porifera, <i>Sycon</i>, Coelenterata, <i>Obelia</i>, Coral reefs</p>	11
III	<p>Platyhelminthes, Nematelminthes, Annelida</p> <p>1. Platyhelminthes</p> <p>1.1 Phylum Platyhelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 External morphology, larval forms and life history <i>Fasciola hepatica</i> (Liver fluke)</p> <p>2. Nematelminthes</p> <p>2.1 Phylum Nematelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p>	10

	<p>2.2 Pathogenic symptoms of Nematodes and diseases – Ascariasis, Trichuriasis, Enterobiasis, Filariasis & Trichinosis (Trichinellosis)</p> <p>3. Annelida</p> <p>3.1 Phylum Annelida: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>3.2 Type study of Earthworm (<i>Pheretima</i>)</p> <p>3.3 Structure and significance of Trochophore larva</p> <p>Keywords/Tags: Classification, Platyhelminthes, Liver fluke, Nematode disease, Annelida, <i>Pheretima</i>, Trochophore</p>	
IV	<p>Arthropoda, Mollusca, Echinodermata, Hemichordata</p> <p>1. Arthropoda</p> <p>1.1 Phylum Arthropoda: General Characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 Type study of Prawn</p> <p>1.3 Insects as a vector of human disease - Culex, Aedes, Tsetse fly & Housefly.</p> <p>2. Mollusca</p> <p>2.1 Phylum Mollusca: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>2.2 Type study of <i>Pila</i></p> <p>3. Echinodermata</p> <p>3.1 Phylum Echinodermata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>4. Hemichordata</p> <p>4.1 Phylum Hemichordata: General characters of the phylum hemichordate and relationship with non-chordates and chordates</p> <p>Keywords/Tags: Classification, Arthropoda, Prawn, Crustacea larva, Insects, Mollusca, <i>Pila</i>, Glochidium, Classification of Echinodermata, and Hemichordata,</p>	<p>13</p> <p>10</p>

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested readings

1. Parker, J, Haswell, WA, "A Text Book of Zoology". VII edition, Vol. 1 & II, Low Price Publications, Delhi, 1990.
2. Barnes, RD, "Invertebrate Zoology", VII Edition, Cengage Learning, India, 2006.
3. Pechenik, JA, "Biology of the Invertebrates" McGraw-Hill Educations, VII Edition, 2015.
4. Sedgwick, A, "A Students Text Book of Zoology", Vol.II & Vol. III., Low Price Publications, Delhi, 1990.
5. Dhami and Dhami, "Invertebrate Zoology" R., Chand & Co., India, 2009.
6. Jordan and Verma, "Invertebrate Zoology," S. Chand & Company. New Delhi, 2013.
7. Agarwal, VK, "Zoology for Degree Students: Non-Chordata", S Chand & Company, 2017.
8. Kotpal, R, "Modern Text Book of Invertebrates", Rastogi Publications, Meerut, 2017
9. Kotpal, R. "Protozoa to Echinodermata (Phylum Series)", Rastogi Publications, Meerut, 2017.
10. <https://zoologylearningpoint.wordpress.com>
11. <https://zoologyresources.com>

Suggested equivalent online courses:

1. Swayam Online Courses
<https://storage.googleapis.com/uniquecourses/online.html>
2. National Digital Library
<https://ndl.iitkgp.ac.in/>
3. e-PG Pathshala (MHRD) Portal(<https://epgp.in/libnet.ac.in/>)
4. Animal diversity <https://swayam.gov.in/courses/5686/animal-diversity>
Advances in Animal Diversity, Systemics and Evolution
(<https://swayam.gov.in/courses/5686-zoology>)
5. Science Direct Open Access Content
(<https://www.sciencedirect.com/book/9781843342038/open-access>)

Practical Syllabus			
Part A Introduction			
Programme: Certificate Course		Class: B.Sc	Year: I Semester
Session: 2023-24			
Subject: Zoology			
1.	Course Code	S1-ZOOL1P	
2.	Course Title	Invertebrate	
3.	Course Type	Generic Elective	
4.	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
5.	Course Learning outcomes (CLO)	Upon completion of the course students should be able to 1. Identify invertebrate animals of different phyla and their histology through study of museum specimens and slides. 2. Learn their different systems through dissections. 3. Enhance collaborative learning and communication skills through practical sessions, team work, group discussions, assignments and projects.	
6.	Credit Value	1	
7.	Total Marks	Max. Marks: 60+40	Min. Passing Marks:35

Part B- Content of the Course		
Total No. of Lectures - Tutorials-Practical (in hours per week): 02 hours per week		
L-T-P:		
Unit	Topics	No. of lectures
1.	Study of museum specimens and slides relevant to the invertebrates.	15
2.	Dissection (Demonstration Only -Through You Tube Video or Models or Charts) a. Earthworm- Digestive system. Nervous system, Reproductive system b. Prawn-Nervous system and appendages	
3.	Mouth Parts of Insects – Cockroach/Mosquitoes	
4.	Examination of pond water for study of different kinds of microscopic non-chordate organisms	
5.	Economic Importance of any two invertebrates/ two insects	
6.	Parasitic adaptation of any one parasite – <i>Fasciola hepatica</i> / <i>Taenia solium</i>	
Keywords/Tags: Museum specimens, Slides, Dissection, Benefited insects, parasitic adaptation.		

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Arumuan, N. Nair, NC, Leelavathy, S. Pandian, NS, Murugan, T, Jayasurya, "Practical Zoology - Invertebrata", Volume-I. Saras Publication, 2013.
2. Lal, SS. "A Text book of Practical Zoology - Invertebrates", Rastogi Publication, 2016
3. Prakash, M, and Arora, CK. "Laboratory Animals". Anmol Publications, New Delhi, 1998
4. Verma, PS, "A Manual of Practical Zoology - Invertebrates". S. Chand & Co., 2013.
5. Virtual Labs (<https://www.vlab.co.in>)

Part D Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment Marks	Marks
Class/Interaction/Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model/Seminar/Rural Service/Technology Dissemination/Report of Excursion/lab visits/Survey/Industrial visit)	20	Table work/ Experiments a. Spotting b. Dissection c. Examination of pond water d. Economic Importance of Insects e. Parasitic Adaptations	50 16 08 10 08 08
Total	40		60
Any remarks/suggestions:			

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. II Semester
(Session 2023-24)

Theory Syllabus			
Part A Introduction			
Programme- Certificate Course	Class: B.Sc	Sem -II Semester	Session: 2023- 2024
Subject: Zoology			
1.	Course Code	S1-ZOOL2T	
	Course Title	Cell Biology, Reproductive Biology and Developmental Biology	
	Course Type (Core Course/Elective/Generic Elective/Vocational..)	Core Course – Elective (Zoology)	
	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
	Course Learning outcomes (CLO)	<p>Upon completion of the course students should be able to</p> <ol style="list-style-type: none"> 1. Develop deeper understanding of what life is and how it functions at cellular level 2. Understand the nature and basic concepts of Cellbiology, Reproductive and Developmental biology. 3. Understand structure and functions of cell membrane and cellular organelles 4. Understand the importance of latest reproductive trends, reproductive techniques to be applied for human welfare. 5. Understand the general patterns and sequential developmental stages during embryogenesis; and understand how the developmental processes lead to establishment of body plan of multi-cellular organisms. 6. Understand about the evolutionary development of various animals. 	
6	Credit Value	4	
7	Total Marks	MM 60+40	Min Passing Marks 35

Part B Content of the course

Total No. of Lectures – Tutorials- Practical (in hours per week): 2hours per week

L-T-P:

Unit I	Topics	No. of Lectures
I	<p>Cell Biology</p> <p>1.1 Concept of Prokaryotic and Eukaryotic Cells, difference between Prokaryotic and Eukaryotic Cells</p> <p>1.2 Structure and functions of Plasma membrane</p> <p>1.3 Structure and functions of Golgi body, Mitochondria, Endoplasmic reticulum, Ribosome and Lysosome</p> <p>1.4 Structure and functions of Nucleus</p> <p>1.5 Structure and functions of Chromosome and special type of chromosomes-Lamp brush and Polytene chromosome</p> <p>1.6 Cell cycle, Mitotic and Meiotic cell division and their significance</p> <p>Keywords/Tags: Prokaryote, Eukaryote, Cell organelles, Chromosomes, Cell Cycle</p>	13
II	<p>Reproductive Biology</p> <p>1.1 Structure of Male reproductive system of Lepus</p> <p>1.2 Structure of Female reproductive system of Lepus</p> <p>1.3 Histology of Testis, and Ovary of Lepus</p> <p>1.4 Gametogenesis - Spermatogenesis and oogenesis, difference between spermatogenesis and oogenesis</p> <p>1.5 Types of Eggs-based on amount and distribution of yolk with examples</p> <p>Keywords/Tags: Reproductive system, Gametogenesis, Sperms, Eggs</p>	12
III	<p>Recent Assisted Reproductive Techniques (ART)</p> <p>1.1 Stem Cell-Types and their uses</p> <p>1.2 Gene bank, Sperm bank, Superovulation, Cryopreservation</p> <p>1.3 In Vitro Fertilization (IVF) and Embryo Transfer (ET), Zygote Intra Fallopian Transfer (ZIFT), Intracytoplasmic Sperm Injection (ICSI), MOET (Multiple ovulation embryo transfer)</p> <p>1.4 Placentation -Types, examples and functions</p> <p>1.5 Placenta Banking-Placenta preservation benefits</p> <p>Keywords/Tags: Gene bank, Sperm bank, Superovulation, IVF, ET, ZIFT, ICSI, Placenta banking</p>	10
IV	<p>Developmental Biology</p> <p>1.1 Fertilization: Process of fertilization</p> <p>1.2 Embryonic development of frog up to the formation of three germinal layers</p> <p>1.3 Fate map construction in frog.</p> <p>1.4 Metamorphosis of Tadpole Larva</p> <p>1.5 Parthenogenesis</p> <p>1.6 Extra embryonic membranes of Chick: Formation and functions.</p>	10

Keywords/Tags: Fertilization, Frog embryology, Tadpole metamorphosis, Parthenogenesis	
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Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested readings

1. Suggested readings:

1. Armugam, "A Text Book of Embryology", Saras Publication, 2005.
2. Balinsky, BI, "An Introduction to Embryology", Cengage Learning, 2012.
3. De Robertis, EDP, De Robertis, EMF, "Cell and Molecular Biology", Eighth edition, Lippincott, Williams & Wilkins, Philadelphia, 2006.
4. Gupta, PK, "Cell Biology, Genetics and Evolution", Rastogi
5. Haffner, L, "Human reproduction at a glance", BWL Publication, "Human Embryology", Publications, 2013.
- Churchill Livingstone, 2001.
7. Powar, CB, "Cell Biology", Himalaya Publishing House, 2010.
6. Larsen, 8. Rastogi, VB, "Introduction to Cytology", KNRN Publication, 1988.
9. Rastogi, VB, "Animal Distribution and Developmental Biology", KNE2001. Publication, 2020.
10. Sastry, KV, Publications, 2018. "Endocrinology and Reproductive Biology",
11. Verma and Agarwal, "A Text Book of Cytology", S. Chand & Co., 1999.
12. Verma, PS, Agarwal, V, K. "Chordate Embryology", S. Chand & Co., 2000
13. Pardesi, K and Dubey, A., "Cell and Developmental Biology", Akhandpubli house, New Delhi, India edition, 2020.

Part B- Content of the Course		
Total No. of Lectures - Tutorials-Practical (in hours per week): 02 hours per week		
L-T-P:		
Unit	Topics	No. of lectures
1.	Spotting related to the cytology a. Prokaryote and Eukaryote Cell b. Stages of Mitotic cell division c. Stages of Meiotic cell division. d. Lamp brush Chromosome and Polytene Chromosome under Phase Contrast Microscope.	15
2.	Spotting related to Reproductive Biology and Embryology a. T.S. Testis of Mammal b. T.S. Ovary of Mammal c. Developmental stages of Frog embryology d. Developmental stages of Chick embryology	
3.	Squash preparation of onion root tip to understand the stages of Mitosis	
4.	Squash preparation of Grasshopper testis to understand the stages of Meiosis	
Keywords/Tags: Stages of cell division, Stages of Embryonic development, Squash Preparation		

Part - Assessment and Evaluation

Suggested continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
	20	Table Work/Experiments	40
Assignments (Charts/Model/ Seminar/Rural Service/Technology Dissemination/ Report of Excursion/lab Visits/Survey/Industrial visit		1. Spotting of Cytology	10
		2. Spotting of Reproductive Biology & Embryology	10
		3. Squash Preparation of onion root tip	10
		4. Squash preparation of Grasshopper testis	10
TOTAL	40		60

Credit 1

Any Remarks/Suggestion:

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. II Semester
(Session 2023-24)

Theory Syllabus			
Part A Introduction			
Programme- Certificate Course	Class: B.Sc	Sem -II Semester	Session: 2023- 2024
Subject: Zoology			
1.	Course Code	S1-ZOOL2T	
	Course Title	Cell Biology, Reproductive Biology and Developmental Biology	
	Course Type (Core Course/Elective/Generic Elective/Vocational..)	Core Course – Minor (Zoology)	
	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
	Course Learning outcomes (CLO)	<p>Upon completion of the course students should be able to</p> <ol style="list-style-type: none"> 1. Develop deeper understanding of what life is and how it functions at cellular level 2. Understand the nature and basic concepts of Cellbiology, Reproductive and Developmental biology. 3. Understand structure and functions of cell membrane and cellular organelles 4. Understand the importance of latest reproductive trends, reproductive techniques to be applied for human welfare. 5. Understand the general patterns and sequential developmental stages during embryogenesis; and understand how the developmental processes lead to establishment of body plan of multi- cellular organisms. 6. Understand about the evolutionary development of various animals. 	
6	Credit Value	4	
7	Total Marks	MM 60+40	Min Passing Marks 35

Part B Content of the course

Total No. of Lectures – Tutorials- Practical (in hours per week): 2hours per week
L-T-P:

Unit	Topics	No. of Lectures
I	<p>Cell Biology</p> <p>1.1 Concept of Prokaryotic and Eukaryotic Cells, difference between Prokaryotic and Eukaryotic Cells 1.2 Structure and functions of Plasma membrane 1.3 Structure and functions of Golgi body, Mitochondria, Endoplasmic reticulum, Ribosome and Lysosome 1.4 Structure and functions of Nucleus 1.5 Structure and functions of Chromosome and special type of chromosomes-Lamp brush and Polytene chromosome 1.6 Cell cycle, Mitotic and Meiotic cell division and their significance</p> <p>Keywords/Tags: Prokaryote, Eukaryote, Cell organelles, Chromosomes, Cell Cycle</p>	13
II	<p>Reproductive Biology</p> <p>1.1 Structure of Male reproductive system of Lepus 1.2 Structure of Female reproductive system of Lepus 1.3 Histology of Testis, and Ovary of Lepus 1.4 Gametogenesis - Spermatogenesis and oogenesis, difference between spermatogenesis and oogenesis 1.5 Types of Eggs-based on amount and distribution of yolk with examples</p> <p>Keywords/Tags: Reproductive system, Gametogenesis, Sperms, Eggs</p>	13
III	<p>Recent Assisted Reproductive Techniques (ART)</p> <p>1.1 Stem Cell-Types and their uses 1.2 Gene bank, Sperm bank, Superovulation, Cryopreservation 1.3 In Vitro Fertilization (IVF) and Embryo Transfer (ET)), Zygote Intra Fallopian Transfer (ZIFT), Intracytoplasmic Sperm Injection (ICSI), MOET (Multiple ovulation embryo transfer) 1.4 Placentation -Types, examples and functions 1.5 Placenta Banking-Placenta preservation benefits</p> <p>Keywords/Tags: Gene bank, Sperm bank, Superovulation, IVF, ET, ZIFT, ICSI, Placenta banking</p>	12

IV	<p>Developmental Biology</p> <p>1.1 Fertilization: Process of fertilization 1.2 Embryonic development of frog up to the formation of three germinal layers 1.3 Fate map construction in frog. 1.4 Metamorphosis of Tadpole Larva 1.5 Parthenogenesis</p> <p>Keywords/Tags: Fertilization, Frog embryology, Tadpole metamorphosis, Parthenogenesis</p>	11
V	<p>Embryonic Development of Chick</p> <p>1.1 Structure of hen's egg. 1.2 Embryonic Development of chick embryo upto the formation of primitive streaks 1.3 Fate map construction in chick 1.4 Extra embryonic membranes of Chick: Formation and functions.</p> <p>Keywords/Tags: Hen's egg, Chick embryology, Fate map, Chick Embryo membranes</p>	11

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested readings

1. Suggested readings:

1. Armugam, "A Text Book of Embryology", Saras Publication, 2005.
2. Balinsky, BI, "An Introduction to Embryology", Cengage Learning, 2012.
3. De Robertis, EDP, De Robertis, EMF, "Cell and Molecular Biology", Eighth edition, Lippincott, Williams & Wilkins, Philadelphia, 2006.
4. Gupta, PK, "Cell Biology, Genetics and Evolution", Rastogi
5. Haffner, L, "Human reproduction at a glance", BWL Publication, "Human Embryology", Publications, 2013.
6. Churchill Livingstone, 2001.
7. Powar, CB, "Cell Biology", Himalaya Publishing House, 2010.
8. Larsen, 8. Rastogi, VB, "Introduction to Cytology", KNRN Publication, 1988.
9. Rastogi, VB, "Animal Distribution and Developmental Biology", KNE2001 Publication, 2020.
10. Sastry, KV, Publications, 2018. "Endocrinology and Reproductive Biology",
11. Verma and Agarwal, "A Text Book of Cytology", S. Chand & Co., 1999.
12. Verma, PS, Agarwal, V, K. "Chordate Embryology", S. Chand & Co., 2000
13. Pardesi, K and Dubey, A., "Cell and Developmental Biology", Akhandpubli house, New Delhi, India edition, 2020.

Part B- Content of the Course		
Total No. of Lectures - Tutorials-Practical (in hours per week): 02 hours per week		
L-T-P:		
Unit	Topics	No. of lectures
1.	Spotting related to the cytology a. Prokaryote and Eukaryote Cell b. Stages of Mitotic cell division c. Stages of Meiotic cell division. d. Lamp brush Chromosome e. Study of Polytene Chromosome under Phase Contrast Microscope.	13
2.	Spotting related to Reproductive Biology and Embryology a. T.S. Testis of Mammal b. T.S. Ovary of Mammal c. Developmental stages of Frog embryology d. Developmental stages of Chick embryology e. Malaria Antibody Test using ELISA Reader f. Calculation of phase percentage of stages of meiotic cell division under Phase Contrast Microscope g. Study of Sperm Morphology under Phase Contrast Microscope	13
3.	Squash preparation of onion root tip to understand the stages of Mitosis	8
4.	Squash preparation of Grasshopper testis to understand the stages of Meiosis	9
5.	Trypan Blue exclusion test of cell viability	8
6.	Squash preparation of salivary gland chromosome from Chironomus larva / Drosophila	9
Keywords/Tags: Stages of cell division, Stages of Embryonic development, Squash Preparation		
Part C-Learning Resources		
Text Books, Reference Books, Other resources		
Suggested Readings:		
1. Arumam, N. Nair, NC, Leelavathy, S. Pandian, NS, Murugan, T, Jayasurya, "Practical Zoology - Invertebrata", Volume-I. Saras Publication, 2013.		
2. Lal, SS. "A Text book of Practical Zoology - Invertebrates", Rastogi Publication, 2016		
3. Prakash, M, and Arora, CK. "Laboratory Animals". Anmol Publications, New Delhi, 1998		
4. Verma, PS, "A Manual of Practical Zoology - Invertebrates". S. Chand & Co., 2013.		
5. Virtual Labs (https://www.vlab.co.in)		

Part D- Assessment and Evaluation

Suggested continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/Model/ Seminar/Rural Service/Technology Dissemination/ Report of Excursion/lab Visits/Survey/Industrial visit	20	Table Work/Experiments	40
		1. Spotting of Cytology	08
		2. Spotting of Reproductive Biology & Embryology	08
		3. Squash Preparation of onion root tip	06
		4. Squash preparation of Grasshopper testis	06
		5. Cell Viability Test	06
		6. Salivary gland chromosome preparation	06
TOTAL	40		60

Any Remarks/Suggestion:

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. II Semester
(Session 2023-24)

Theory Syllabus			
Part A Introduction			
Programme- Certificate Course	Class: B.Sc	Sem -II Semester	Session: 2023- 2024
Subject: Zoology			
1.	Course Code	S1-ZOOL2T	
	Course Title	Cell Biology, Reproductive Biology and Developmental Biology	
	Course Type (Core Course/Elective/Generic Elective/Vocational..)	Core Course – Major (Zoology)	
	Pre-requisite (if any)	To study this course a student must have had the subject Biology in 12 th Class	
	Course Learning outcomes (CLO)	<p>Upon completion of the course students should be able to</p> <ol style="list-style-type: none"> 1. Develop deeper understanding of what life is and how it functions at cellular level 2. Understand the nature and basic concepts of Cellbiology, Reproductive and Developmental biology. 3. Understand structure and functions of cell membrane and cellular organelles 4. Understand the importance of latest reproductive trends, reproductive techniques to be applied for human welfare. 5. Understand the general patterns and sequential developmental stages during embryogenesis; and understand how the developmental processes lead to establishment of body plan of multi- cellular organisms. 6. Understand about the evolutionary development of various animals. 	
6	Credit Value	4	
7	Total Marks	MM 60+40	Min Passing Marks 35

Part B Content of the course

**Total No. of Lectures – Tutorials- Practical (in hours per week): 2hours per week
L-T-P:**

Unit	Topics	No. of Lectures
I	<p>Cell Biology</p> <p>1.1 Concept of Prokaryotic and Eukaryotic Cells, difference between Prokaryotic and Eukaryotic Cells 1.2 Structure and functions of Plasma membrane 1.3 Structure and functions of Golgi body, Mitochondria, Endoplasmic reticulum, Ribosome and Lysosome 1.4 Structure and functions of Nucleus 1.5 Structure and functions of Chromosome and special type of chromosomes-Lamp brush and Polytene chromosome 1.6 Cell cycle, Mitotic and Meiotic cell division and their significance</p> <p>Keywords/Tags: Prokaryote, Eukaryote, Cell organelles, Chromosomes, Cell Cycle</p>	13
II	<p>Reproductive Biology</p> <p>1.1 Structure of Male reproductive system of Lepus 1.2 Structure of Female reproductive system of Lepus 1.3 Histology of Testis, and Ovary of Lepus 1.4 Gametogenesis - Spermatogenesis and oogenesis, difference between spermatogenesis and oogenesis 1.5 Types of Eggs-based on amount and distribution of yolk with examples</p> <p>Keywords/Tags: Reproductive system, Gametogenesis, Sperms, Eggs</p>	13
III	<p>Recent Assisted Reproductive Techniques (ART)</p> <p>1.1 Stem Cell-Types and their uses 1.2 Gene bank, Sperm bank, Superovulation, Cryopreservation 1.3 In Vitro Fertilization (IVF) and Embryo Transfer (ET)), Zygote Intra Fallopian Transfer (ZIFT), Intracytoplasmic Sperm Injection (ICSI), MOET (Multiple ovulation embryo transfer) 1.4 Placentation -Types, examples and functions 1.5 Placenta Banking-Placenta preservation benefits</p> <p>Keywords/Tags: Gene bank, Sperm bank, Superovulation, IVF, ET, ZIFT, ICSI, Placenta banking</p>	12

IV	<p>Developmental Biology</p> <p>1.1 Fertilization: Process of fertilization 1.2 Embryonic development of frog up to the formation of three germinal layers 1.3 Fate map construction in frog. 1.4 Metamorphosis of Tadpole Larva 1.5 Parthenogenesis</p> <p>Keywords/Tags: Fertilization, Frog embryology, Tadpole metamorphosis, Parthenogenesis</p>	11
V	<p>Embryonic Development of Chick</p> <p>1.1 Structure of hen's egg. 1.2 Embryonic Development of chick embryo upto the formation of primitive streaks 1.3 Fate map construction in chick 1.4 Extra embryonic membranes of Chick: Formation and functions.</p> <p>Keywords/Tags: Hen's egg, Chick embryology, Fate map, Chick Embryo membranes</p>	11

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested readings

1. Suggested readings:

1. Armugam, "A Text Book of Embryology", Saras Publication, 2005.
2. Balinsky, BI, "An Introduction to Embryology", Cengage Learning, 2012.
3. De Robertis, EDP, De Robertis, EMF, "Cell and Molecular Biology", Eighth edition, Lippincott, Williams & Wilkins, Philadelphia, 2006.
4. Gupta, PK, "Cell Biology, Genetics and Evolution", Rastogi
5. Haffner, L, "Human reproduction at a glance", BWL Publication, "Human Embryology", Publications, 2013.
6. Churchill Livingstone, 2001.
7. Powar, CB, "Cell Biology", Himalaya Publishing House, 2010.
8. Larsen, 8. Rastogi, VB, "Introduction to Cytology", KNRN Publication, 1988.
9. Rastogi, VB, "Animal Distribution and Developmental Biology", KNE2001 Publication, 2020.
10. Sastry, KV, Publications, 2018. "Endocrinology and Reproductive Biology",
11. Verma and Agarwal, "A Text Book of Cytology", S. Chand & Co., 1999.
12. Verma, PS, Agarwal, V, K. "Chordate Embryology", S. Chand & Co., 2000
13. Pardesi, K and Dubey, A., "Cell and Developmental Biology", Akhandpubli house, New Delhi, India edition, 2020.

Suggested equivalent online courses:

13. <https://academic.oup.com>
14. <https://medineplus.gov>
15. <https://ncni.nlm.nih.gov>
16. <https://zoologylearningpoint.wordpress.com> zoologyresources.com
17. Swayam Online Courses <https://storage.googleapis.com/uniquecourses/online.html>
18. National Digital Library <https://ndl.iitkgp.ac.in/>

Part B- Content of the Course**Total No. of Lectures - Tutorials-Practical (in hours per week): 02 hours per week****L-T-P:**

Unit	Topics	No. of lectures
1.	Spotting related to the cytology a. Prokaryote and Eukaryote Cell b. Stages of Mitotic cell division c. Stages of Meiotic cell division. d. Lamp brush Chromosome e. Study of Polytene Chromosome under Phase Contrast Microscope.	13
2.	Spotting related to Reproductive Biology and Embryology a. T.S. Testis of Mammal b. T.S. Ovary of Mammal c. Developmental stages of Frog embryology d. Developmental stages of Chick embryology e. Malaria Antibody Test using ELISA Reader f. Calculation of phase percentage of stages of meiotic cell division under Phase Contrast Microscope g. Study of Sperm Morphology under Phase Contrast Microscope	13
3.	Squash preparation of onion root tip to understand the stages of Mitosis	8
4.	Squash preparation of Grasshopper testis to understand the stages of Meiosis	9
5.	Trypan Blue exclusion test of cell viability	8

6.	Squash preparation of salivary gland chromosome from Chironomus larva / Drosophila	9
Keywords/Tags: Stages of cell division, Stages of Embryonic development, Squash Preparation		
Part C-Learning Resources		
Text Books, Reference Books, Other resources		
Suggested Readings:		
1. Arumuam, N. Nair, NC, Leelavathy, S. Pandian, NS, Murugan, T, Jayasurya, "Practical Zoology - Invertebrata", Volume-I. Saras Publication, 2013.		
2. Lal, SS. "A Text book of Practical Zoology - Invertebrates", Rastogi Publication, 2016		
3. Prakash, M, and Arora, CK. "Laboratory Animals". Anmol Publications, New Delhi, 1998		
4. Verma, PS, "A Manual of Practical Zoology - Invertebrates". S. Chand & Co., 2013.		
5. Virtual Labs (https://www.vlab.co.in)		

Part D- Assessment and Evaluation

Suggested continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/Model/ Seminar/Rural Service/Technology Dissemination/ Report of Excursion/lab Visits/Survey/Industrial visit	20	Table Work/Experiments	40
		1. Spotting of Cytology	08
		2. Spotting of Reproductive Biology & Embryology	08
		3. Squash Preparation of onion root tip	06
		4. Squash preparation of Grasshopper testis	06
		5. Cell Viability Test	06
6. Salivary gland chromosome preparation	06		

TOTAL	40		60
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Any Remarks/Suggestion:

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. III Semester
(Session 2023-24)

Theory Syllabus

Part A- Introduction			
Program: Diploma		Class: B.Sc.	Year: III Sem
Session: 2023-24			
Subject: Zoology			
1	Course Code	S2-ZOOL1T	
2	Course Title	Diversity of Chordates and Comparative Anatomy	
3	Course Type	Core Course- Elective	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Zoology in class B.Sc. III Sem .	
5	Course Learning outcomes (CLO)	After completion of the course the students will able to: 1. Understand chordate diversity of animals and their taxonomic positions. 2. Identify the morphological and anatomical features and basis of chordate classification. 3. Know economic importance and present status that will develop positive attitude towards conservation of biodiversity. 4. Differentiate the organism belonging to different taxa, by studying comparative anatomy. 5. The project, assignment will give them a flavor of research in studying biodiversity, taxonomy besides improving their writing skills and lay foundation of career in Zoology.	
6	Credit Value	3	
7	Total Marks:	Max. Marks: 60+40	Min. Passing Marks:35
Part B – Content of the course			
Total No of lectures-Tutorials-Practical: 02 hours per week			
LTP-			
No. of Lectures = 60			
Unit	Topics		No. of Lectures
I	1. Introduction to Chordates 1.1 Traditional Knowledge on Animal Science in ancient Indian Civilization 1.2 Origin of Chordates, General characteristics and outline classification of Phylum Chordata up to orders according to Parker and Haswell, Seventh Edition 2. Protochordata 2.1 General characteristics and classification of Sub- Phylum Urochordata and Cephalochordata. 2.2 Type study of Herdmania and retrogressive metamorphosis in ascidian tadpole.		12

	<p>2.3 Type study of Amphioxus and its Affinities.</p> <p>3. Agnatha</p> <p>3.1 Comparison of Petromyzon and Myxine.</p> <p>Keywords/Tags: Chordata, Herdmania, Amphioxus, Cephalochordata, Petromyzon.</p>	
II	<p>1. Pisces</p> <p>1.1. General characteristics and classification of Pisces.</p> <p>1.2. Accessory respiratory organs, Parental care in fishes.</p> <p>2. Amphibia</p> <p>2.1 General characteristics and classification of Amphibia.</p> <p>2.2 Parental Care in Amphibia and Paedomorphosis</p> <p>3. Reptilia</p> <p>3.1. General Characteristics and classification of Reptilia.</p> <p>3.2. Difference between Poisonous and Non-Poisonous snakes, Venom and Antivenom</p> <p>3.3. Poison apparatus and biting mechanism in snake.</p> <p>Keywords/Tags: Pisces, Parental care, Amphibia, Reptiles, Poison apparatus.</p>	10
III	<p>1. Aves</p> <p>1.1 Brief Introduction of "Birdman" of India - Dr. Salim Ali</p> <p>1.2 General characteristics and classification of Aves.</p> <p>1.3 Migration of birds, principles and aerodynamics of flight.</p> <p>1.4 Flight adaptation in birds.</p> <p>2. Mammalia</p> <p>2.1 General characteristics and classification of mammals.</p> <p>2.2 Adaptive radiation in mammals with reference to locomotory appendages.</p> <p>2.3 Introduction of ZSI (Zoological Survey of India)</p> <p>Keywords/Tags: Aves, Aerodynamics, Flight Adaptation, Mammalia, Adaptive Radiation, Locomotory Appendages.</p>	10
IV	<p>Comparative Anatomy of Vertebrates.</p> <p>1. Comparative study of integument and its derivatives of Vertebrates.</p> <p>2. Comparative study of appendicular skeleton (Limb and girdles) of Vertebrates.</p> <p>3. Comparative study of digestive system of Vertebrates.</p> <p>4. Comparative study of respiratory system of Vertebrates</p> <p>5. Comparative study of aortic arches and heart of Vertebrates.</p> <p>6. Comparative study of Brain of Vertebrates.</p> <p>Keywords/Tags: Integument, Derivatives, Girdles, Digestive System, Respiratory System, Heart, Brain</p>	13

Practical Syllabus

Part A- Introduction			
Program: Diploma	Class : B.Sc.	Year: III Sem	Session: 2023-24
Subject: Zoology			
1	Course Code	S2-ZOOL1P	
2	Course Title	Chordate Zoology	
3	Course Type (Core)	Core Course-Elective	
4	Pre-requisite (if any)	To study this course, a student must have had studied the subject Zoology in class B.Sc. III Sem.	
5	Course Learning outcomes (CLO)	On completion of this course, learners Will be able 1. Identify diversity of chordates, basics of systematics and hierarchy of different categories. 2. Learn characteristics of different classes of vertebrates through studying examples (preserved specimens) 3. Gain training experience in anatomy by learning dissection and mounting. 4. Get knowledge how vertebrate organs differ from class to class by comparative study of Osteology and histology. 5. Develop flow of research and skills of writing by submitting project report and assignment.	
6	Credit Value	1	
7	Total Marks	Max. Marks: 60+40 . Min. Passing Marks:35	
Part B – Content of the course			
Total No. of Lectures-Tutorials-Practical: 2 hour per week No. of Lectures = 30			L-T-P:
Unit	Topics	No. of Lectures	
I	Study of museum specimens 1. Protochordata: Herdmania, Amphioxus 2. Fishes: Scoliodon, Stegostoma, Torpedo, Heteropneustes, Labeo, Exocoetus, Hippocampus, Anabas, Eel, Flat fish. 3. Amphibia : Necturus, Bufo , Rana, Salamander, Hyla, Axolotl larva, Mid Wife Toad, Ichthyophis 4. Reptilia : Chelone, Trionyx, Hemidactylus, Varanus, Chameleon, Draco, Viper, Raja, Hydrophis. 5. Aves : Local Birds, Vulture, Great Indian Bustard, Lesser Florican 6. Mammalia : Bat, Funambulus, Platypus, Rat,	15	

II	Study of Histological slides - T.S. of Duodenum, Stomach, Small Intestine, Liver, Pancreas, Testis, Ovary, V.S. of skin, L.S. of Kidney of vertebrates	
III	Osteology - Study of Limb Bones and Girdles of Vertebrates (Amphibia, Reptilia, Aves, Mammalia).	
IV	Study of different types of feathers/ beaks of birds at local level.	
V	Mounting of scales of fishes Locally available Major/Minor Carp	
VI	Comparative study of heart and brain of vertebrates	
VII	Study of local bird fauna of surrounding area (College campus/ Village/ Garden/ Ward)	
VIII	Collection of local fauna	
Keywords/Tags: Protochordates, Duodenum, Girdles, Feathers, Brain, Birds		
Part C – Learning Resources		
Text Books, Reference Books, Other resources		
Suggested Readings:		
1. Lal, S.S., "Vertebrate Practical Zoology", 11 Revised edition, Rastogi publications, Meerut (2009).		
2. Sharma, Vijay Laxmi., "Practical Zoology", Paragon industrial publication (2004)		
3. Verma P.S., "Manual of Practical Zoology — Chordates", S. Chand Co. Ltd. 11 th Edition (2010).		
4. Prakash, M., & Arora, C.K., "Laboratory animals", Anmol Publications, New Delhi (1998).		
5. Yadav & Varshney, " Practical Zoology", Kedarnath Ramnath (2015).		
6. लाल, एस. एस., "प्रयोगात्मक प्राणी विज्ञान – कशेरुकी" रस्तोगी प्रकाशन, मेरठ		
7. अंसारी एस. एस., डॉक्टर कोहली, के, जैन, नरेंद्र, भाटिया, ए. एल., "प्रायोगिक प्राणी विज्ञान" आर. बी. डी. पब्लिकेशन		
8. Books Published by MP Hindi Granth Academy, Bhopal.		
Suggestive digital platforms web links (Virtual Dissection)		
2. https://en.wikipedia.org/wiki/Chordate		
3. https://www.youtube.com/watch?v=BBfdzpdNh70		
4. https://www.youtube.com/watch?v=6GbJWJ3Swsc		
5. http://www.ignothelp.in/ignou-Ise-08-study-material-in-hindi/		
6. https://www.mphindigranthacademy.org/		
Suggested equivalent online courses:		

Part D- Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/ Model Seminar / Rural Service/	20	Table work / Experiments 1 Spotting (museum specimens, slides and bones) 2. Mounting 3. Comment on comparative study (Models and Charts of organs, Systems) Any two 4. Identification and comment on feather / beak of bird (any 2- Photograph/ model/chart) 5. Collection	16 4 6 6 8
TOTAL	40		60

Any remark/Suggestions: Visit to National Park/Sanctuary/Zoo any nearby Forest area

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. III Semester
(Session 2023-24)

Theory Syllabus

Part A- Introduction			
Program: Diploma		Class: B.Sc.	Year: III Sem
Session: 2023-24			
Subject: Zoology			
1	Course Code	S2-ZOOL1T	
2	Course Title	Diversity of Chordates and Comparative Anatomy	
3	Course Type	Core Course-Minor	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Zoology in class B.Sc. III Sem	
5	Course Learning outcomes (CLO)	After completion of the course the students will able to: 1. Understand chordate diversity of animals and their taxonomic positions. 2. Identify the morphological and anatomical features and basis of chordate classification. 3. Know economic importance and present status that will develop positive attitude towards conservation of biodiversity. 4. Differentiate the organism belonging to different taxa, by studying comparative anatomy. 5. The project, assignment will give them a flavor of research in studying biodiversity, taxonomy besides improving their writing skills and lay foundation of career in Zoology.	
6	Credit Value	4	
7	Total Marks:	Max. Marks: 60+40	Min. Passing Marks:35
Part B – Content of the course			
Total No of lectures-Tutorials-Practical: 02 hours per week			
LTP-			
No. of Lectures = 60			
Unit	Topics		No. of Lectures
I	1. Introduction to Chordates		12
	1.1 Traditional Knowledge on Animal Science in ancient Indian Civilization 1.2 Origin of Chordates, General characteristics and outline classification of Phylum Chordata up to orders according to Parker and Haswell, Seventh Edition		
	2. Protochordata		
	2.1 General characteristics and classification of Sub- Phylum Urochordata and Cephalochordata. 2.2 Type study of Herdmania and retrogressive metamorphosis in ascidian tadpole.		

	<p>2.3 Type study of Amphioxus and its Affinities.</p> <p>3. Agnatha</p> <p>3.1 Comparison of Petromyzon and Myxine.</p> <p>Keywords/Tags: Chordata, Herdmania, Amphioxus, Cephalochordata, Petromyzon.</p>	
II	<p>1. Pisces</p> <p>1.1. General characteristics and classification of Pisces.</p> <p>1.2. Accessory respiratory organs, Parental care in fishes.</p> <p>2. Amphibia</p> <p>2.1 General characteristics and classification of Amphibia.</p> <p>2.2 Parental Care in Amphibia and Paedomorphosis</p> <p>3. Reptilia</p> <p>3.1. General Characteristics and classification of Reptilia.</p> <p>3.2. Difference between Poisonous and Non-Poisonous snakes, Venom and Antivenom</p> <p>3.3. Poison apparatus and biting mechanism in snake.</p> <p>Keywords/Tags: Pisces, Parental care, Amphibia, Reptiles, Poison apparatus.</p>	12
III	<p>1. Aves</p> <p>1.1 Brief Introduction of "Birdman" of India - Dr. Salim Ali</p> <p>1.2 General characteristics and classification of Aves.</p> <p>1.3 Migration of birds, principles and aerodynamics of flight.</p> <p>1.4 Flight adaptation in birds.</p> <p>2. Mammalia</p> <p>2.1 General characteristics and classification of mammals.</p> <p>2.2 Adaptive radiation in mammals with reference to locomotory appendages.</p> <p>2.3 Introduction of ZSI (Zoological Survey of India)</p> <p>Keywords/Tags: Aves, Aerodynamics, Flight Adaptation, Mammalia, Adaptive Radiation, Locomotory Appendages.</p>	12
IV	<p>Comparative Anatomy of Vertebrates.</p> <p>1. Comparative study of integument and its derivatives of Vertebrates.</p> <p>2. Comparative study of appendicular skeleton (Limb and girdles) of Vertebrates.</p> <p>3. Comparative study of digestive system of Vertebrates.</p> <p>4. Comparative study of respiratory system of Vertebrates</p> <p>Keywords/Tags: Integument, Derivatives, Girdles, Digestive System, Respiratory System.</p>	14
V	<p>Comparative Anatomy of Vertebrates.</p> <p>1. Comparative study of aortic arches and heart of Vertebrates.</p> <p>2. Comparative study of Brain of Vertebrates.</p> <p>3. Comparative study of Urinogenital System of Vertebrates</p> <p>4. Study of Eye and Ear of mammals</p> <p>Keywords/Tags: Heart, Brain, Kidney, Urinogenital System, Eye, Ear.</p>	10

Practical Syllabus

Part A- Introduction			
Program: Diploma	Class : B.Sc.	Year: III Sem	Session: 2023-24
Subject: Zoology			
1	Course Code	S2-ZOOL1P	
2	Course Title	Chordate Zoology	
3	Course Type (Core)	Core Course-Major	
4	Pre-requisite (if any)	To study this course, a student must have had studied the subject Zoology in class B.Sc. III Sem.	
5	Course Learning outcomes (CLO)	On completion of this course, learners Will be able 1. Identify diversity of chordates, basics of systematics and hierarchy of different categories. 2. Learn characteristics of different classes of vertebrates through studying examples (preserved specimens) 3. Gain training experience in anatomy by learning dissection and mounting. 4. Get knowledge how vertebrate organs differ from class to class by comparative study of Osteology and histology. 5. Develop flow of research and skills of writing by submitting project report and assignment.	
6	Credit Value	2	
7	Total Marks	Max. Marks: 60+40 . Min. Passing Marks:35	
Part B – Content of the course			
Total No. of Lectures-Tutorials-Practical: 2 hour per week No. of Lectures = 30			L-T-P:
Unit	Topics		No. of Lectures
I	Study of museum specimens 1. Protochordata: Herdmania, Amphioxus 2. Fishes: Scoliodon, Stegostoma, Torpedo, Heteropneustes, Labeo, Exocoetus, Hippocampus, Anabas, Eel, Flat fish. 3. Amphibia : Necturus, Bufo , Rana, Salamander, Hyla, Axolotl larva, Mid Wife Toad, Ichthyophis 4. Reptilia : Chelone, Trionyx, Hemidactylus, Varanus, Chameleon, Draco, Viper, Raja, Hydrophis. 5. Aves : Local Birds, Vulture, Great Indian Bustard, Lesser Florican 6. Mammalia : Bat, Funambulus, Platypus, Rat,		6

II	Study of Histological slides - T.S. of Duodenum, Stomach, Small Intestine, Liver, Pancreas, Testis, Ovary, V.S. of skin, L.S. of Kidney of vertebrates	2
III	Osteology - Study of Limb Bones and Girdles of Vertebrates (Amphibia, Reptilia, Aves, Mammalia).	3
IV	Study of different types of feathers/ beaks of birds at local level.	2
V	Dissection of Local fish (Only demonstration of commercially available local fish / Through computer simulation method/through You tube videos / through models and charts. a) General Viscera, Arterial System b) Cranial nerves V, VII, IX and X	8
VI	Mounting of scales of fishes Locally available Major/Minor Carp	2
VII	Comparative study of heart and brain of vertebrates	2
VIII	Study of local bird fauna of surrounding area (College campus/ Village/ Garden/ Ward)	3
VIX	Collection of local fauna	2

Keywords/Tags: Protochordates, Duodenum, Girdles, Feathers, Cranial nerves, Brain, Birds

Part C – Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Lal, S.S., "Vertebrate Practical Zoology", 11 Revised edition, Rastogi publications, Meerut (2009).
2. Sharma, Vijay Laxmi., "Practical Zoology", Paragon industrial publication (2004)
3. Verma P.S., "Manual of Practical Zoology — Chordates", S. Chand Co. Ltd. 11th Edition (2010).
4. Prakash, M., & Arora, C.K., "Laboratory animals", Anmol Publications, New Delhi (1998).
5. Yadav & Varshney, " Practical Zoology", Kedarnath Ramnath (2015).
6. ताल, एस. एस. "प्रयोगात्मक प्राणी विज्ञान – कशेरुकी" रस्तोगी प्रकाशन, मेरठ
7. अंसारी एस. एस., डॉक्टर कोहली, के., जैन, नरेंद्र, भाटिया, ए. एल., "प्रायोगिक प्राणी विज्ञान" आर. बी. डी. पब्लिकेशन

8. Books Published by MP Hindi Granth Academy, Bhopal.

Suggestive digital platforms web links

(Virtual Dissection)

2. <https://en.wikipedia.org/wiki/Chordate>
3. <https://www.youtube.com/watch?v=BBfdzpdNh70>
4. <https://www.youtube.com/watch?v=6GbJWJ3Swsc>
5. <http://www.ignothelp.in/ignou-Ise-08-study-material-in-hindi/>
6. <https://www.mphindigranthacademy.org/>

Suggested equivalent online courses:

Part D- Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)	20	Table work / Experiments	
		1- Spotting (museum specimens, slides and bones)	16
		2. Dissection	08
		Major	
		Minor	
		3. Mounting	4
4. Comment on comparative study (Models Charts of organs, Systems) Any two	4		
5. Identification and comment on feather / of bird (any 2- Photograph/ model/chart	4		
6. Collection	4		
TOTAL	40		60

Any remark/Suggestions: Visit to National Park/Sanctuary/Zoo any nearby Forest area

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. III Semester
(Session 2023-24)

Theory Syllabus

Part A- Introduction			
Program: Diploma		Class: B.Sc.	Year: III Sem
Session: 2023-24			
Subject: Zoology			
1	Course Code	S2-ZOOL1T	
2	Course Title	Diversity of Chordates and Comparative Anatomy	
3	Course Type	Core Course-Major	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Zoology in class B.Sc. III Sem	
5	Course Learning outcomes (CLO)	After completion of the course the students will able to: 1. Understand chordate diversity of animals and their taxonomic positions. 2. Identify the morphological and anatomical features and basis of chordate classification. 3. Know economic importance and present status that will develop positive attitude towards conservation of biodiversity. 4. Differentiate the organism belonging to different taxa, by studying comparative anatomy. 5. The project, assignment will give them a flavor of research in studying biodiversity, taxonomy besides improving their writing skills and lay foundation of career in Zoology.	
6	Credit Value	4	
7	Total Marks:	Max. Marks: 60+40	Min. Passing Marks:35
Part B – Content of the course			
Total No of lectures-Tutorials-Practical: 02 hours per week			
LTP-			
No. of Lectures = 60			
Unit	Topics		No. of Lectures
I	1. Introduction to Chordates 1.1 Traditional Knowledge on Animal Science in ancient Indian Civilization 1.2 Origin of Chordates, General characteristics and outline classification of Phylum Chordata up to orders according to Parker and Haswell, Seventh Edition 2. Protochordata 2.1 General characteristics and classification of Sub- Phylum Urochordata and Cephalochordata. 2.2 Type study of Herdmania and retrogressive metamorphosis in ascidian tadpole.		12

	<p>2.3 Type study of Amphioxus and its Affinities.</p> <p>3. Agnatha</p> <p>3.1 Comparison of Petromyzon and Myxine.</p> <p>Keywords/Tags: Chordata, Herdmania, Amphioxus, Cephalochordata, Petromyzon.</p>	
II	<p>1. Pisces</p> <p>1.1. General characteristics and classification of Pisces.</p> <p>1.2. Accessory respiratory organs, Parental care in fishes.</p> <p>2. Amphibia</p> <p>2.1 General characteristics and classification of Amphibia.</p> <p>2.2 Parental Care in Amphibia and Paedomorphosis</p> <p>3. Reptilia</p> <p>3.1. General Characteristics and classification of Reptilia.</p> <p>3.2. Difference between Poisonous and Non-Poisonous snakes, Venom and Antivenom</p> <p>3.3. Poison apparatus and biting mechanism in snake.</p> <p>Keywords/Tags: Pisces, Parental care, Amphibia, Reptiles, Poison apparatus.</p>	12
III	<p>1. Aves</p> <p>1.1 Brief Introduction of "Birdman" of India - Dr. Salim Ali</p> <p>1.2 General characteristics and classification of Aves.</p> <p>1.3 Migration of birds, principles and aerodynamics of flight.</p> <p>1.4 Flight adaptation in birds.</p> <p>2. Mammalia</p> <p>2.1 General characteristics and classification of mammals.</p> <p>2.2 Adaptive radiation in mammals with reference to locomotory appendages.</p> <p>2.3 Introduction of ZSI (Zoological Survey of India)</p> <p>Keywords/Tags: Aves, Aerodynamics, Flight Adaptation, Mammalia, Adaptive Radiation, Locomotory Appendages.</p>	12
IV	<p>Comparative Anatomy of Vertebrates.</p> <p>1. Comparative study of integument and its derivatives of Vertebrates.</p> <p>2. Comparative study of appendicular skeleton (Limb and girdles) of Vertebrates.</p> <p>3. Comparative study of digestive system of Vertebrates.</p> <p>4. Comparative study of respiratory system of Vertebrates</p> <p>Keywords/Tags: Integument, Derivatives, Girdles, Digestive System, Respiratory System.</p>	14
V	<p>Comparative Anatomy of Vertebrates.</p> <p>1. Comparative study of aortic arches and heart of Vertebrates.</p> <p>2. Comparative study of Brain of Vertebrates.</p> <p>3. Comparative study of Urinogenital System of Vertebrates</p> <p>4. Study of Eye and Ear of mammals</p> <p>Keywords/Tags: Heart, Brain, Kidney, Urinogenital System, Eye, Ear.</p>	10

Practical Syllabus

Part A- Introduction			
Program: Diploma	Class : B.Sc.	Year: III Sem	Session: 2023-24
Subject: Zoology			
1	Course Code	S2-ZOOL1P	
2	Course Title	Chordate Zoology	
3	Course Type (Core)	Core Course-Major	
4	Pre-requisite (if any)	To study this course, a student must have had studied the subject Zoology in class B.Sc. III Sem.	
5	Course Learning outcomes (CLO)	On completion of this course, learners Will be able 1. Identify diversity of chordates, basics of systematics and hierarchy of different categories. 2. Learn characteristics of different classes of vertebrates through studying examples (preserved specimens) 3. Gain training experience in anatomy by learning dissection and mounting. 4. Get knowledge how vertebrate organs differ from class to class by comparative study of Osteology and histology. 5. Develop flow of research and skills of writing by submitting project report and assignment.	
6	Credit Value	2	
7	Total Marks	Max. Marks: 60+40 . Min. Passing Marks:35	
Part B – Content of the course			
Total No. of Lectures-Tutorials-Practical: 2 hour per week No. of Lectures = 30			L-T-P:
Unit	Topics		No. of Lectures
I	Study of museum specimens 1. Protochordata: Herdmania, Amphioxus 2. Fishes: Scoliodon, Stegostoma, Torpedo, Heteropneustes, Labeo, Exocoetus, Hippocampus, Anabas, Eel, Flat fish. 3. Amphibia : Necturus, Bufo , Rana, Salamander, Hyla, Axolotl larva, Mid Wife Toad, Ichthyophis 4. Reptilia : Chelone, Trionyx, Hemidactylus, Varanus, Chameleon, Draco, Viper, Raja, Hydrophis. 5. Aves : Local Birds, Vulture, Great Indian Bustard, Lesser Florican 6. Mammalia : Bat, Funambulus, Platypus, Rat,		6

II	Study of Histological slides - T.S. of Duodenum, Stomach, Small Intestine, Liver, Pancreas, Testis, Ovary, V.S. of skin, L.S. of Kidney of vertebrates	2
III	Osteology - Study of Limb Bones and Girdles of Vertebrates (Amphibia, Reptilia, Aves, Mammalia).	3
IV	Study of different types of feathers/ beaks of birds at local level.	2
V	Dissection of Local fish (Only demonstration of commercially available local fish / Through computer simulation method/through You tube videos / through models and charts. a) General Viscera, Arterial System b) Cranial nerves V, VII, IX and X	8
VI	Mounting of scales of fishes Locally available Major/Minor Carp	2
VII	Comparative study of heart and brain of vertebrates	2
VIII	Study of local bird fauna of surrounding area (College campus/ Village/ Garden/ Ward)	3
VIX	Collection of local fauna	2

Keywords/Tags: Protochordates, Duodenum, Girdles, Feathers, Cranial nerves, Brain, Birds

Part C – Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Lal, S.S., "Vertebrate Practical Zoology", 11 Revised edition, Rastogi publications, Meerut (2009).
2. Sharma, Vijay Laxmi., "Practical Zoology", Paragon industrial publication (2004)
3. Verma P.S., "Manual of Practical Zoology — Chordates", S. Chand Co. Ltd. 11th Edition (2010).
4. Prakash, M., & Arora, C.K., "Laboratory animals", Anmol Publications, New Delhi (1998).
5. Yadav & Varshney, " Practical Zoology", Kedarnath Ramnath (2015).

6. ताल, एस. एस. "प्रयोगात्मक प्राणी विज्ञान – कशेरुकी" रस्तोगी प्रकाशन, मेरठ

7. अंसारी एस. एस., डॉक्टर कोहली, के., जैन, नरेंद्र, भाटिया, ए. एल., "प्रायोगिक प्राणी विज्ञान" आर. बी. डी. पब्लिकेशन

8. Books Published by MP Hindi Granth Academy, Bhopal.

Suggestive digital platforms web links

(Virtual Dissection)

2. <https://en.wikipedia.org/wiki/Chordate>
3. <https://www.youtube.com/watch?v=BBfdzpdNh70>
4. <https://www.youtube.com/watch?v=6GbJWJ3Swsc>
5. <http://www.ignothelp.in/ignou-Ise-08-study-material-in-hindi/>
6. <https://www.mphindigranthacademy.org/>

Suggested equivalent online courses:

Part D- Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)	20	Table work / Experiments	
		1- Spotting (museum specimens, slides and bones)	16
		2. Dissection	08
		Major	
		Minor	
		3. Mounting	4
4. Comment on comparative study (Models Charts of organs, Systems) Any two	4		
5. Identification and comment on feather / of bird (any 2- Photograph/ model/chart	4		
6. Collection	4		
TOTAL	40		60

Any remark/Suggestions: Visit to National Park/Sanctuary/Zoo any nearby Forest area

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. IV Semester
(Session 2023-24)

Theory Syllabus

Part A- Introduction			
Program : Diploma		Class: B. Sc.	Year: IV Sem
Session: 2023-24			
Subject: Zoology			
1	Course Code	S2-ZOOL2T	
2	Course Title	Physiology and Biochemistry	
3	Course Type (Core Course)	Core course-Major	
4	Pre-requisite (if any)	To study this course, a student must have had the Subject Zoology in class B.Sc.IV	
5	Course Learning outcomes (CLO)	Upon completion of the course, Students will be able to 1 How organs function at different levels i.e. from cellular to system levels. 2 Examine internal harmony of different body systems by learning inherent disorders and deficiencies, which is needed to maintain good health. 3 Understand functions of biomolecules & their role in metabolism by studying biochemistry. 4 Develop a strong foundation for research & employability skills 5 Improve the student's perspective of health biology through deep study of physiology.	
6	Credit Value	4	
7	Total Marks	Max. Marks: 40+60	
Part B — Content of the Course			
Total No. of Lectures-Tutorials-Practical : (2 Hours per Week) L-T-P : No. of Lectures= 60			
Unit	Topics		No. of Lectures

I	<p>Introduction and Historical background of Physiology and Biochemistry Biomolecules and Regulatory mechanism.</p> <p>1. Contribution of Indian Scientists</p> <p>1.1 Contribution of Charak</p> <p>1.2 Contribution of Sushrut</p> <p>2. Biomolecules</p> <p>2.1 Micro and Macro molecules</p> <p>12 Water and Buffer System</p> <p>3. Enzymes</p> <p>3.1 Definition and General Properties</p> <p>3.2 Nomenclature and Classification and functions</p> <p>3.4 Mechanism and Regulation of Enzyme action</p> <p>3.5 Co-Enzyme</p> <p>4. Vitamins and Minerals</p> <p>4.1 Types and Sources</p> <p>4.2 Biological importance</p> <p>4.3 Deficiencies and Disorders</p> <p>Key words/Tags : Biomolecules, Buffer system, Enzymes, Vitamins,</p>	12
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II	<p>Metabolism, Physiology and Regulation</p> <p>1. Protein</p> <p>1.1 Structure, Nomenclature, Classification and Biological importance.</p> <p>1.2 Metabolism -Deamination, Decarboxylation, Transamination of amino acids and Ornithine cycle</p> <p>2. Carbohydrates</p> <p>2.1 Structure, Nomenclature, Classification and Biological importance.</p> <p>2.2 Metabolism -Glycogenesis, Gluconeogenesis, Glycogenolysis, Glycolysis, Citric Acid Cycle and Electron Transport Chain</p> <p>3. Lipids</p> <p>3.1 Structure, Classification and Biological importance</p> <p>3.2 Metabolism -Beta oxidation of fatty acids.</p> <p>4. Physiology of Digestion, regulation and disorders with special reference to Gastrointestinal and constipation</p> <p>5. Homeostasis and Basal Metabolic Rate (BMR)</p> <p>6. Thermoregulation</p> <p>Key words/Tags:Proteins, Carbohydrates, Krebs cycle, Digestion, Homeotherms</p>	14
III	<p>Respiration, Excretion and Immune System</p> <p>1. Respiration</p> <p>1.1 Mechanism -Inspiration and Expiration</p> <p>1.2 Physiology- Exchange and Transport of Gases (Oxygen and carbon dioxide), Chloride shift, role of Respiratory pigment.</p> <p>1.3 Disorders - Apnea, Hypoxia, Asphyxia, Carbon monoxide poisoning, Bronchitis, Asthma</p> <p>2. Excretion</p> <p>2.1 Physiology -Urea, Urine formation and Counter Current mechanism</p> <p>2.2 Excretory products, disorders</p> <p>2.3 Osmoregulation</p> <p>3. Immunity</p> <p>3.1 Innate and acquired Immunity</p> <p>3.2 Immune cells and Immuno Gobulinus</p> <p>3.3 Antigen responses</p> <p>Key words/Tags: Chloride shift, Excretion, Urea, Immunity, Antigen</p>	12
IV	<p>Neuromuscular Co-ordination</p> <p>1. Nerves</p> <p>1.1 Structure and type of Neurons</p> <p>1.2 Physiology of nerve impulse conduction</p> <p>1.3 Neuromuscular disorders -Epilepsy, Alzheimer's and Parkinson's disease</p> <p>2.Muscles</p>	10

- 2.1 Structure and type of muscles
- 2.2 Physiology of muscles contraction and its Biochemistry
- 2.3 Muscular disorders – Fatigue

Key words/Tags: Neuron, Impulse conduction, Muscle.

V	<p>Hormones, Endocrine system and Reproductive Physiology</p> <p>1 Hormones</p> <p>1.1 Definition and Classification</p> <p>1.2 Mechanism of hormone action</p> <p>2 Endocrine system</p> <p>2.1 Structure, functions and disorders of Pituitary gland</p> <p>2.2 Structure, functions and disorders of Thyroid and Parathyroid gland</p> <p>2.3 Structure, functions and disorders of Adrenal gland</p> <p>2.4 Structure, functions and disorders of Thymus gland, Pineal gland and Pancreas</p> <p>3 Reproductive Physiology</p> <p>3.1 Physiology of reproduction</p> <p>3.2 Sex Hormones</p> <p>Key words/Tags: Hormone, Pituitary, Thyroid gland, Adrenal, Sex Hormones</p>	12
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Part C-Learning Resources
Text Books, Reference books Other resources

Suggested Readings:

1. Lehniger A.L., Cox. M.M. and Nelson, D.L. "Principles of Biochemistry". Edition W.H. Freeman and Co., New York. (2008)
2. Berg. J.M., Tymoczko, J.L. and Stryer, L. "Biochemistry", VI Edition W.H. Freeman and Co., New York. (2007)"
3. Murray, R.K., Bender, D.A., Botham, K.M. Kennelly, P.J., Rodwell, V.W. and Well, P.A. "Harper'S Illustrated Biochemistry", XXXVIII Edition, International Edition, The McGraw-Hill Companies Inc (2009).
4. Haines. B.D. and Hooper, N.M." Instant Notes in Biochemistry", II Edition, BIOS Scientific Publishers Ltd., U.K (2000).
5. Best & Taylor, "Physiological basig of Medical Practice" Wilkins Co (1990).
6. Guyton, A.C. & Hall, J.E., "Textbook of Medical Physiology", XI Edition Hercourt Asia PET Ltd., W.B. Saunders Company (2006).
7. Tortora, G.J. & Grabowski, S., " Principles of Anatomy & Physiology", XI Edition, John Wiley & sons (2006).
8. Victor P. Eroshenko, diFiore's "Atlas of Histology with Functional correlations" XII Edition, Lippincott W. & Wilkins (2008).
9. Vander A. Sherman J. And Luciano D, "Vander's Human Physiology: The Mechanism of Body Function". XIII Edition, McGraw Hills. (2014)
10. Hoar, W.S., " General Comparative Physiology & Biochemistry", Prentice & Hall (1975)
11. Subramanyam, S. and Madhavan kutty, K. " The Textbook of Physiology", Orient Longman Ltd, New Delhi (1977).
12. Jain, J.L.et. al. "Fundamental of Biochemistry", S. Chand & co. New Delhi (2005)
13. Rastogi Veer Bala, "Text book of Animal Physiology", New Age International Publishers (2008).
14. Singh H.R., "Text book of Animal Physiology and Biochemistry", Vishal Publishing Co., 9th Edition (2014).
15. Kindt, T.J., Goldby, R.A., Osborne, B.A. & Kuby, J. " Immunology", VI Edition W.H. Freeman & company (2006)
16. Rastogi S.C., "Outline of Biochemistry" , CBS Publication, New Delhi 2007
17. Verma P.S., Tyagi B.S., Agrawal V.K., " Animal Physiology", S.Chand & company Ram nagar, New Delhi (2010)
18. Berry A.K., "A Text book of Animal Physiology", Emkay Publication, B-19, East Krishna nagar, Swami Dayanand marg, Delhi-11005(1991)

11. Study of endocrine glands through histological slides of pituitary gland, adrenal gland, thyroid gland, pancreas, testis, ovary, spleen and thymus.
12. Study of histological slides of organ systems of mammalian oesophagus, stomach, duodenum, ileum, rectum, liver, trachea, lung, and kidney.

Key word/Tags: Protein test, Haemoglobin, Blood Groups, Endocrine glands, Mammalian Systems.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/Model/Seminar/Rural Service/Technology Dissemination/Report of Excursion/Lab Visits Survey/Industrial Visit)	20	Table work / Experiments 1. slides of organ system (Spotting- Histological slides, of endocrine glands (03), Histological 03), instruments 02 2. Estimation of protein/ carbohydrates /fat in given sample. (any two). 3. Detection of ammonia, urea, uric acid in the given sample. 4. Study of Enzyme Activity of salivary amylase/trypsin/lipase 5. Haematological experiment (any two)	16 06 06 4 08
Total	40	Total	60
Any Remark/Suggestions:			

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. IV Semester
(Session 2023-24)

Theory Syllabus

Part A- Introduction			
Program: Diploma		Class: B. Sc.	Year: IV Sem
Session: 2023-24			
Subject: Zoology			
1	Course Code	S2-ZOOL2T	
2	Course Title	Physiology and Biochemistry	
3	Course Type (Core Course)	Core course-Elective	
4	Pre-requisite (if any)	To study this course, a student must have had the Subject Zoology in class B.Sc.	
5	Course Learning outcomes (CLO)	Upon completion of the course, Students will be able to 1 How organs function at different levels i.e., from cellular to system levels. 2 Examine internal harmony of different body systems by learning inherent disorders and deficiencies, which is needed to maintain good health. 3 Understand functions of biomolecules & their role in metabolism by studying biochemistry. 4 Develop a strong foundation for research & employability skills 5 Improve the student's perspective of health biology through deep study of physiology.	
6	Credit Value	3	
7	Total Marks	Max. Marks: 60+40	
Part B — Content of the Course			
Total No. of Lectures-Tutorials-Practical : (2 Hours per Week) L-T-P : No. of Lectures= 60			
Unit	Topics		No. of Lectures
I	Introduction and Historical background of Physiology and Biochemistry Biomolecules and Regulatory mechanism. 1. Contribution of Indian Scientists 1.1 Contribution of Charak 1.2 Contribution of Sushrut 2. Biomolecules 2.1 Micro and Macro molecules 12 Water and Buffer System 3. Enzymes 3.1 Definition and General Properties 3.2 Nomenclature and Classification and functions 3.4 Mechanism and Regulation of Enzyme action 3.5 Co-Enzyme 4. Vitamins and Minerals 4.1 Types and Sources 4.2 Biological importance 4.3 Deficiencies and Disorders Key words/Tags: Biomolecules, Buffer system, Enzymes, Vitamins,		11

II	<p>Metabolism, Physiology and Regulation</p> <p>1. Protein</p> <p>1.1 Structure, Nomenclature, Classification and Biological importance.</p> <p>1.2 Metabolism -Deamination, Decarboxylation, Transamination of amino acids and Ornithine cycle</p> <p>2. Carbohydrates</p> <p>2.1 Structure, Nomenclature, Classification and Biological importance.</p> <p>2.2 Metabolism -Glycogenesis, Gluconeogenesis, Glycogenolysis, Glycolysis, Citric Acid Cycle and Electron Transport Chain</p> <p>3. Lipids</p> <p>3.1 Structure, Classification and Biological importance</p> <p>3.2 Metabolism -Beta oxidation of fatty acids.</p> <p>4. Physiology of Digestion, regulation and disorders with special reference to Gastroenteritis & Constipation</p> <p>5. Homeostasis and Basal Metabolic Rate (BMR)</p> <p>6. Thermoregulation</p> <p>Key words/Tags:Proteins, Carbohydrates, Krebs cycle, Digestion, Homeotherms</p>	13
III	<p>Respiration, Excretion and Immune System</p> <p>1. Respiration</p> <p>1.1 Mechanism -Inspiration and Expiration</p> <p>1.2 Physiology- Exchange and Transport of Gases (Oxygen and carbon dioxide), Chloride shift, role of Respiratory pigment.</p> <p>1.3 Disorders - Apnea, Hypoxia, Asphyxia, Carbon monoxide poisoning, Bronchitis, Asthma</p>	10

	<p>2. Excretion</p> <p>2.1 Physiology -Urea, Urine formation and Counter Current mechanism</p> <p>2.2 Excretory products, disorders</p> <p>2.3 Osmoregulation</p> <p>3. Immunity</p> <p>3.1 Innate and acquired Immunity</p> <p>3.2 Immune cells and Immuno Gobulinus</p> <p>3.3 Antigen responses</p> <p>Key words/Tags: Chloride shift, Excretion, Urea, Immunity, Antigen</p>	
IV	<p>Neuromuscular Co-ordination, Hormones, Endocrine system and Reproductive Physiology</p> <p>1. Nerve</p> <p>1.1 Structure and type of Neurons</p> <p>1.2 Neuromuscular disorders -Epilepsy, Alzheimer's and Parkinson's disease</p> <p>2. Muscles</p> <p>2.1 Structure and type of muscles</p> <p>2.2 Muscular disorders – Fatigue</p> <p>3. Hormones</p> <p>1.1 Definition and Classification</p> <p>1.2 Mechanism of hormone action</p> <p>3 Reproductive Physiology</p> <p>3.1 Physiology of reproduction</p> <p>3.1 Definition and Mechanism of hormone action</p> <p>4. Endocrine system</p> <p>4.1 Structure, functions and disorders of Pituitary gland, Thyroid gland, Adrenal gland and Pancreas</p> <p>5. Reproductive Physiology</p> <p>5.1 Physiology of reproduction</p> <p>Key words/Tags: Neuron, Impulse conduction, Muscle, Hormones, Pituitary gland, Reproduction</p>	10

Part C-Learning Resources

Text Books, Reference books Other resources

Suggested Readings:

1. Lehninger A.L., Cox. M.M. and Nelson, D.L. "Principles of Biochemistry". Edition W.H. Freeman and Co., New York. (2008)
2. Berg. J.M., Tymoczko, J.L. and Stryer, L." Biochemistry", VI Edition W.H. Freeman and Co., New York. (2007)"
3. Murray, R.K., Bender, D.A., Botham, K.M. Kennelly, P.J., Rodwell, V.W. and Well, P.A. "Harper'S Illustrated Biochemistry", XXXVIII Edition, International Edition, The McGraw-Hill Companies Inc (2009).
4. Haines. B.D. and Hooper, N.M." Instant Notes in Biochemistry", II Edition, BIOS Scientific Publishers Ltd., U.K (2000).
5. Best & Taylor, "Physiological basig of Medical Practice" Wilkins Co (1990).
6. Guyton, A.C. & Hall, J.E., "Textbook of Medical Physiology", XI Edition Hercourt Asia PET Ltd., W.B. Saunders Company (2006).
7. Tortora, G.J. & Grabowski, S., " Principles of Anatomy & Physiology", XI Edition, John Wiley & sons (2006).
8. Victor P. Eroshenko, diFiore's "Atlas of Histology with Functional correlations" XII Edition, Lippincott W. & Wilkins (2008).
9. Vander A. Sherman J. And Luciano D, "Vander's Human Physiology: The Mechanism of Body Function". XIII Edition, McGraw Hills. (2014)
10. Hoar, W.S., " General Comparative Physiology & Biochemistry", Prentice & Hall (1975)
11. Subramanyam, S. and Madhavan kuty, K. " The Textbook of Physiology", Orient Longman Ltd, New Delhi (1977).
12. Jain, J.L.et. al. "Fundamental of Biochemistry", S. Chand & co. New Delhi (2005)
13. Rastogi Veer Bala, "Text book of Animal Physiology", New Age International Publishers (2008).
14. Singh H.R., "Text book of Animal Physiology and Biochemistry", Vishal Publishing Co., 9th Edition (2014).
15. Kindt, T.J., Goldby, R.A., Osborne, B.A. & Kuby, J. " Immunology", VI Edition W.H. Freeman & company (2006)
16. Rastogi S.C., "Outline of Biochemistry" , CBS Publication, New Delhi 2007
17. Verma P.S., Tyagi B.S., Agrawal V.K., " Animal Physiology", S.Chand & company Ram nagar, New Delhi (2010)
18. Berry A.K., "A Text book of Animal Physiology", Emkay Publication, B-19, East Krishna nagar, Swami Dayanand marg, Delhi-11005(1991)

Practical Syllabus

Part A Introduction				
Program: Diploma		Class: B.Sc.	Year: IV Sem	Session: 2023-24
Subject: Zoology				
1	Course Code	S2-ZOOL2P		
2	Course Title	System Physiology and Biochemistry		
3	Course Type (Core Course/Elective/Generic Elective/Vocational.....)	Elective		
4	Pre-requisite (if any)	To study this course, a student must have had the Subject Zoology in class B.Sc. IV Sem		
5	Course Learning outcomes (CLO)	Upon completion of this course, students will be able to understand — 1 The effect of temperature and pH on enzyme activity. 2 Qualitative estimations of biomolecules and gain knowledge of their role in our body. 3 Various parameters of hematology and know importance of it for our healthy life. 4 The principle and working of instruments required for performing exercises in laboratory. 5 Collaborative learning and communication skills through practical sessions in laboratory. 6 Assignment and project writing process which will give them a flow of research and writing skills.		
6	Credit Value	1		
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35	

Part B — Content of the Course		
Total No. of Lectures-Tutorials-Practical: (2 Hours per Week)		
L-T-P: No. of Lectures= 30		
Unit	Topics	No. of Lectures
I	1. Qualitative estimations of Protein, Carbohydrates and Lipids at locally available samples 2. Study of effect of temperature and pH on salivary amylase activity. 3. Study of enzymatic activity of Trypsin and Lipase.	15
II	5. Estimation of hemoglobin using haemometer. 6. Preparation of haemin crystals. 7. Preparation of blood smear, study and identification of blood cells. 8. Determination of ABO blood groups. RBC, WBC counting	
III	9. Measurement of blood pressure using sphygmomanometer.	

IV	10. Study of endocrine glands through histological slides of pituitary gland, adrenal gland, thyroid gland, pancreas, testis, ovary 11. Study of histological slides of organ. systems of mammalian oesophagus, stomach, duodenum, liver, lung, and kidney.	
	Key word/Tags: Protein test, Haemoglobin, Blood Groups, Endocrine glands, Mammalian Systems.	

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/Model/Seminar/Rural Service/Technology Dissemination/Report of Excursion/Lab Visits Survey/Industrial Visit)	20	Table work / Experiments 1. Slides of organ system (Spotting- Histological slides, of endocrine glands (03), Histological (03), 2. Estimation of protein/ carbohydrates /Fat in given sample. (Any two). 3. Detection of ammonia, urea, uric acid in the given sample. 4. Study of Enzyme Activity of salivary amylase/trypsin/lipase 5. Haematological experiment (Any two)	12 06 06 06 10
Total	40	Total	60
Any Remark/Suggestions:			

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc. (Bio)
As recommended by Central board of Studies in Zoology
Class - B.Sc. IV Semester
(Session 2023-24)

Theory Syllabus

		Part A- Introduction		
Program : Diploma		Class: B. Sc.	Year: IV Sem	Session: 2023-24
		Subject: Zoology		
1	Course Code	S2-ZOOL2T		
2	Course Title	Physiology and Biochemistry		
3	Course Type (Core)	Core course-Major		
4	Pre-requisite (if any)	To study this course, a student must have had the Subject Zoology in class B.Sc.IV		
5	Course Learning outcomes (CLO)	Upon completion of the course, Students will be able to 1 How organs function at different levels i.e. from cellular to system levels. 2 Examine internal harmony of different body systems by learning inherent disorders and deficiencies, which is needed to maintain good health. 3 Understand functions of biomolecules & their role in metabolism by studying biochemistry. 4 Develop a strong foundation for research & employability skills 5 Improve the student's perspective of health biology through deep study of physiology.		
6	Credit Value	4		
7	Total Marks	Max. Marks: 60+40		
		Part B — Content of the Course		
		Total No. of Lectures-Tutorials-Practical : (2 Hours per Week) L-T-P : No. of Lectures= 60		
Unit	Topics			No. of Lectures
I	Introduction and Historical background of Physiology and Biochemistry Biomolecules and Regulatory mechanism. 1. Contribution of Indian Scientists 1.1 Contribution of Charak 1.2 Contribution of Sushrut 2. Biomolecules 2.1 Micro and Macro molecules 12 Water and Buffer System 3. Enzymes 3.1 Definition and General Properties 3.2 Nomenclature and Classification and functions 3.4 Mechanism and Regulation of Enzyme action 3.5 Co-Enzyme 4. Vitamins and Minerals 4.1 Types and Sources 4.2 Biological importance 4.3 Deficiencies and Disorders Key words/Tags : Biomolecules, Buffer system, Enzymes, Vitamins,			12

II	<p>Metabolism, Physiology and Regulation</p> <p>1. Protein</p> <p>1.1 Structure, Nomenclature, Classification and Biological importance.</p> <p>1.2 Metabolism -Deamination, Decarboxylation, Transamination of amino acids and Ornithine cycle</p> <p>2. Carbohydrates</p> <p>2.1 Structure, Nomenclature, Classification and Biological importance.</p> <p>2.2 Metabolism -Glycogenesis, Gluconeogenesis, Glycogenolysis, Glycolysis, Citric Acid Cycle and Electron Transport Chain</p> <p>3. Lipids</p> <p>3.1 Structure, Classification and Biological importance</p> <p>3.2 Metabolism -Beta oxidation of fatty acids.</p> <p>4. Physiology of Digestion, regulation and disorders wsr Gastroenteritis & Constipation.</p> <p>5. Homeostasis and Basal Metabolic Rate (BMR)</p> <p>6. Thermoregulation</p> <p>Key words/Tags:Proteins, Carbohydrates, Krebs cycle, Digestion, Homeotherms</p>	14
III	<p>Respiration, Excretion and Immune System</p> <p>1. Respiration</p> <p>1.1 Mechanism -Inspiration and Expiration</p> <p>1.2 Physiology- Exchange and Transport of Gases (Oxygen and carbon dioxide), Chloride shift, role of Respiratory pigment.</p> <p>1.3 Disorders - Apnea, Hypoxia, Asphyxia, Carbon monoxide poisoning, Bronchitis, Asthma</p> <p>2. Excretion</p> <p>2.1 Physiology -Urea, Urine formation and Counter Current mechanism</p> <p>2.2 Excretory products, disorders</p> <p>2.3 Osmoregulation</p> <p>3. Immunity</p> <p>3.1 Innate and acquired Immunity</p> <p>3.2 Immune cells and Immunoglobulins</p> <p>3.3 Antigen responses</p> <p>Key words/Tags: Chloride shift, Excretion, Urea, Immunity, Antigen</p>	12
IV	<p>Neuromuscular Co-ordination</p> <p>1. Nerves</p> <p>1.1 Structure and type of Neurons</p> <p>1.2 Physiology of nerve impulse conduction</p> <p>1.3 Neuromuscular disorders -Epilepsy, Alzheimer's and Parkinson's disease</p> <p>2.Muscles</p> <p>2.1 Structure and type of muscles</p> <p>2.2 Physiology of muscles contraction and its Biochemistry</p> <p>2.3 Muscular disorders – Fatigue</p> <p>Key words/Tags: Neuron, Impulse conduction, Muscle.</p>	10

V	<p>Hormones, Endocrine system and Reproductive Physiology</p> <p>1 Hormones</p> <p>1.1 Definition and Classification</p> <p>1.2 Mechanism of hormone action</p> <p>2 Endocrine system</p> <p>2.1 Structure, functions and disorders of Pituitary gland</p> <p>2.2 Structure, functions and disorders of Thyroid and Parathyroid gland</p> <p>2.3 Structure, functions and disorders of Adrenal gland</p> <p>2.4 Structure, functions and disorders of Thymus gland, Pineal gland and Pancreas</p> <p>3 Reproductive Physiology</p> <p>3.1 Physiology of reproduction</p> <p>3.2 Sex Hormones</p> <p>Key words/Tags: Hormone, Pituitary, Thyroid gland, Adrenal, Sex Hormones</p>	12
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Part C-Learning Resources	
Text Books, Reference books Other resources	

Suggested Readings:

1. Lehninger A.L., Cox. M.M. and Nelson, D.L. "Principles of Biochemistry". Edition W.H. Freeman and Co., New York. (2008)
2. Berg. J.M., Tymoczko, J.L. and Stryer, L. "Biochemistry", VI Edition W.H. Freeman and Co., New York. (2007)"
3. Murray, R.K., Bender, D.A., Botham, K.M. Kennelly, P.J., Rodwell, V.W. and Well, P.A. "Harper'S Illustrated Biochemistry", XXXVIII Edition, International Edition, The McGraw-Hill Companies Inc (2009).
4. Haines. B.D. and Hooper, N.M." Instant Notes in Biochemistry", II Edition, BIOS Scientific Publishers Ltd., U.K (2000).
5. Best & Taylor, "Physiological basig of Medical Practice" Wilkins Co (1990).
6. Guyton, A.C. & Hall, J.E., "Textbook of Medical Physiology", XI Edition Hercourt Asia PET Ltd., W.B. Saunders Company (2006).
7. Tortora, G.J. & Grabowski, S., " Principles of Anatomy & Physiology", XI Edition, John Wiley & sons (2006).
8. Victor P. Eroshenko, diFiore's "Atlas of Histology with Functional correlations" XII Edition, Lippincott W. & Wilkins (2008).
9. Vander A. Sherman J. And Luciano D, "Vander's Human Physiology: The Mechanism of Body Function". XIII Edition, McGraw Hills. (2014)
10. Hoar, W.S., " General Comparative Physiology & Biochemistry", Prentice & Hall (1975)
11. Subramanyam, S. and Madhavan kutty, K. " The Textbook of Physiology", Orient Longman Ltd, New Delhi (1977).
12. Jain, J.L.et. al. "Fundamental of Biochemistry", S. Chand & co. New Delhi (2005)
13. Rastogi Veer Bala, "Text book of Animal Physiology", New Age International Publishers (2008).
14. Singh H.R., "Text book of Animal Physiology and Biochemistry", Vishal Publishing Co., 9th Edition (2014).
15. Kindt, T.J., Goldby, R.A., Osborne, B.A. & Kuby, J. " Immunology", VI Edition W.H. Freeman & company (2006)
16. Rastogi S.C., "Outline of Biochemistry" , CBS Publication, New Delhi 2007
17. Verma P.S., Tyagi B.S., Agrawal V.K., " Animal Physiology", S.Chand & company Ram nagar, New Delhi (2010)
18. Berry A.K., "A Text book of Animal Physiology", Emkay Publication, B-19, East Krishna nagar, Swami Dayanand marg, Delhi-11005(1991)

Practical Syllabus

Part A Introduction			
Program : Diploma	Class: B.Sc. B.Sc.	Year: IV Sem	Session: 2023-24
Subject: Zoology			
1	Course Code	S2-ZOOL2P	
2	Course Title	System Physiology and Biochemistry	
3	Course Type (Core Course/Elective/Generic Elective/Vocational.....)	Core course	
4	Pre-requisite (if any)	To study this course, a student must have had the Subject Zoology in class B.Sc. IV Sem	
5	Course Learning outcomes (CLO)	Upon completion of this course, students will be able to understand — <ol style="list-style-type: none"> 1 The effect of temperature and pH on enzyme activity. 2 Qualitative estimations of biomolecules and gain knowledge of their role in our body. 3 Various parameters of hematology and know importance of it for our healthy life. 4 The principle and working of instruments required for performing exercises in laboratory. 5 Collaborative learning and communication skills through practical sessions in laboratory. 6 Assignment and project writing process which will give them a flow of research and writing skills. 	
6	Credit Value	2	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B — Content of the Course

Part B — Content of the Course		
Total No. of Lectures-Tutorials-Practical : (2 Hours per Week)		
L-T-P : No. of Lectures= 30		
Unit	Topics	No. of Lectures
I	<ol style="list-style-type: none"> 1. Qualitative estimations of Protein, Carbohydrates and Lipids at locally available Samples 2. Study of effect of temperature and pH on salivary amylase activity. 3. Study of enzymatic activity of Trypsin and Lipase. 	7
II	<ol style="list-style-type: none"> 5. Estimation of hemoglobin using haemometer. 6. Preparation of haemin crystals. 7. Preparation of blood smear, study and identification of blood cells. 8. Determination of ABO blood groups. RBC, WBC counting 	12
III	<ol style="list-style-type: none"> 9. Measurement of blood pressure using sphygmomanometer. 10. Principles and uses of instruments- Sphygmomanometer, Stethoscope, Biochemistry analyzer 	5

11. Study of endocrine glands through histological slides of pituitary gland, adrenal gland, thyroid gland, pancreas, testis, ovary, spleen and thymus.
12. Study of histological slides of organ. systems of mammalian oesophagus, stomach, duodenum, ileum, rectum, liver, trachea, lung, and kidney.

Key word/Tags: Protein test, Haemoglobin, Blood Groups, Endocrine glands, Mammalian Systems.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	10
Attendance	10	Practical Record File	10
Assignments (Charts/Model/Seminar/Rural Service/Technology Dissemination/Report of Excursion/Lab Visits Survey/Industrial Visit)	20	Table work / Experiments 1. slides of organ system (Spotting- Histological slides, of endocrine glands (03), Histological 03), instruments 02 2. Estimation of protein/ carbohydrates /fat in given sample. (any two). 3. Detection of ammonia, urea, uric acid in the given sample. 4. Study of Enzyme Activity of salivary amylase/trypsin/lipase 5. Haematological experiment (any two)	16 06 06 04 08
Total	40	Total	60
Any Remark/Suggestions:			

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.

Under Graduate Syllabus for B.Sc. (Bio)

As recommended by Central board of Studies in Zoology

Class - B.Sc. III Year

(Session 2023-24)

Theory Paper

Part A Introduction

Part A Introduction			
Program: Degree	Class : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL2T	
2	Course Title	Genetics	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Minor/Elective	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	<p>On successful completion of this course, the students will be able to</p> <ol style="list-style-type: none"> 1. Gain knowledge of basic principles of inheritance and variations, DNA, RNA and their function. 2. Deeper understanding of linkage, Sex determination, Chromosomes, Mutations and mutagens. 3. Gain knowledge of human karyotype, Genome project, Inheritance of blood group and genetic diseases in human. 4. Demonstrate gene therapy, PCR, DNA fingerprinting techniques and their application. 5. Find Job Opportunities in Hospitals, Pharmaceutical Companies and other health services, Forensic Science Research Associates, Genetic Counselor, Clinical Research Associate, Animal Breeder, Genetic Laboratory Technician 	
6	Credit Value	4	
7	Total Marks	Max. Marks : 30+70	Min. Passing Marks - 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 30

Unit	Topic	No. of Lectures
I	<p>Overview of Genetics</p> <ol style="list-style-type: none">1. Introduction and Historical background of genetics2. Definition, Scope and Importance of Genetics3. Chromosomes: Transmitters of Heredity<ol style="list-style-type: none">3.1. Structure and Organization of Chromosomes3.2. Types of Chromosomes3.3. Chemical composition of chromosomes4. Nucleocytoplasmic Interaction5. Mendel's laws of Heredity6. Variations: Types and genetic basis of Variations on <p>Keywords: Heredity, Chromosome, Variation, Genetics, Nucleocytoplasmic Interaction</p>	12
II	<p>Gene and Genetic Material</p> <ol style="list-style-type: none">1. Chemistry of Gene - Nucleic acids and their structure2. Concept of DNA replication3. Nucleosome (Solenoid Model)4. Types of genes: Split genes, Overlapping genes and Pseudogenes	12

	<p>5. Genetic code</p> <p>Keywords: Nucleic acids, DNA replication, Nucleosome, Pseudogenes, Split genes, Genetic code</p>	
III	<p>Linkage and Chromosomal Aberrations</p> <p>1. Gene linkage and recombination</p> <p>2. Sex-determination.</p> <p>3. Sex-linked Inheritance</p> <p>4. Structural changes in chromosomes: Deficiency, Duplication, Translocation and Inversion</p> <p>5. Numerical changes in chromosomes: Aneuploidy, Polyploidy</p> <p>6. Mutation: Types of mutations and mutagens</p> <p>Keywords - Linkage, Recombination, Sex-determination, Sex-linked Inheritance, Mutation, Mutagens, Polyploidy</p>	12
IV	<p>Human Genetics</p> <p>1. Human chromosomes: Human Karyotype and Human Genome Project</p> <p>2. Common genetic disorders</p> <p>3. Multiple factors and blood groups .</p>	12

	<p>4. Twins: Fraternal, Maternal and Siamese twins</p> <p>5. Transgenic and knockout animals and their applications</p> <p>Keywords: Karyotype, Genetic disorders, Transgenic, Knockout animals</p>	
V	<p>Genetic Engineering</p> <p>1. Gene Therapy:- Germline, and Somatic cell gene therapy.</p> <p>2. Recombinant DNA technology</p> <p>3. Gene cloning</p> <p>4. Gene library 5. PCR and Hybridization techniques</p> <p>6. DNA finger printing</p> <p>Keywords: Genetic Engineering, Gene Therapy Recombinant DNA, Gene cloning Gene library, PCR, DNA finger printing.</p>	12

Part –D: Assessment & Evaluation (Practical)

Suggested Continuous Evaluation Methods:

S.No.	Internal Assessment	Marks	External Assessment	Marks
1.	Class interaction/Quiz	30	Viva Voce on Practical	70
2	Attendance		Practical Record File	
3	Assignments (Charts/Model) Seminar/Rural Service/ Technology Dissemination/ Report of Excursion/Lab Visits Survey/Industrial Visit		Table work/Experiments	
			Total	100
Remark:				

Practical Paper**Part A Introduction**

Program: Degree	Calss : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL2P	
2	Course Title	Experimental Genetics(Paper-I)	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Minor/Elective	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	<p>Upon completion of the course students will be able to</p> <ol style="list-style-type: none"> 1. Gain knowledge of basic principles of inheritance and variations, DNA, RNA and their function. 2. Gain knowledge of Sex-linked inheritance, Inheritance of blood group and genetic diseases in human. 3. Learn about Mendelian genetics. 4. Learn pedigree analysis of human traits 5. Identify gene therapy, PCR, DNA fingerprinting techniques and their application. 6. Find Job Opportunities in Hospitals, Pharmaceutical Companies and other health services, Forensic Science Research Associates, Genetic Counselor, Clinical Research Associate, Animal Breeder, <p>Genetic Laboratory Technician</p>	
6	Credit Value	2	
7	Total Marks	Max. Marks : 100	Min. Passing Marks – 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 30

Unit	Topic	No. of Lectures
I	Study of special types of chromosomes through model, charts and photographs	02
II	Study of DNA and RNA through model, charts and photographs	03
III	Mendelian Experiments: <ol style="list-style-type: none"> 1. Monohybrid and Dihybrid Cross 2. Verification of Mendelian Ratio 	05
IV	Study of genetic disease in humans (through internet and photographs) <ol style="list-style-type: none"> 1. Gene related disorder (Sickle cell Anemia, Thalassemia, Retinoblastoma, Goitre cretinism, Albinism) 2. Multiple factorial Diseases (Schizophrenia, Diabetes, Asthma, Depression, Heart Diseases, Thyroidism) 3. Chromosomal Disorders (Down syndrome, Edward syndrome, Patau syndrome, Turner syndrome, Klinefelter syndrome) 4. Mitochondrial genetic inheritance disease (Leigh syndrome, MELAS, Neurological disorder, Dementia) 	05
V	Problems related to sex-linked inheritance (Colour blindness and Haemophilia)	06
VI	Exercise based on inheritance of Blood groups	04
VII	<ul style="list-style-type: none"> • Study and e-demonstration of PCR and DNA fingerprinting techniques • Study of Principle and Working of Gradient PCR • Comparative analysis of short DNA sequences using PCR thermocycler • Study of Human Karyotype under Phase Contrast Microscope 	05

Keywords: Chromosome, DNA, RNA, Sex-linked Inheritance, Blood group, Limnaea, Genetic Disease, Cytoplasmic Inheritance

St. Aloysius College (Autonomous), Jabalpur

Department of Higher Education, Govt. of M.P.

Under Graduate Syllabus for B.Sc. (Bio)

As recommended by Central board of Studies in Zoology

Class - B.Sc. III Year

(Session 2023-24)

Theory Paper

Part A Introduction			
Program: Degree	Class : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOLID	
2	Course Title	Aquaculture (Paper -I) Group-A	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specific Elective (DSE)	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	On Completion of this course, learners with be able to: 1. Identify Aquaculture and its scope in India. 2. Recognize the different economically important fishes and other culturable fauna. 3. Identify the details of different steps involved in Aquaculture. 4. Identify the profitability of the culture and identify the fields of Aquaculture which generate self-employment.	
6	Credit Value	4	
7	Total Marks	Max. Marks : 30+70	Min. Passing Marks – 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 60

Unit	Topic	No. of Lectures
I	<ol style="list-style-type: none">1. Aquaculture<ol style="list-style-type: none">1.1. Definition, History and Indian Traditional knowledge of Aquaculture.1.2. Planning for higher Aquaculture productivity.1.3. Present strategies and future policies.1.4. Problems of Aquaculture.1.5. Significance of Aquaculture- as food and as non-food products.1.6. Aquaculture resources in India.2. Common Aquatic Weeds and its control. <p>Keywords: Aquaculture, Aquatic Weeds.</p>	10
II	<ol style="list-style-type: none">1. Prawn Culture<ol style="list-style-type: none">1.1. History of Prawn Culture.1.2. Prawns of commercial value.1.3. Biology of fastest growing species of freshwater Prawn.1.4. Different stages of lifecycle.1.5. Culture technology.1.6. Methods of Prawn Fishing.1.7. Preservation and processing of Prawns.1.8. Parasite and diseases of Prawns and its control.2. Aquatic Insects.<ol style="list-style-type: none">2.1. Introduction of Aquatic Insects.2.2. Control of Predatory Insects. <p>Keywords: Prawn Culture, Aquatic Insects.</p>	12
III	<ol style="list-style-type: none">1. Edible Oyster Culture<ol style="list-style-type: none">1.1. Culturable species of Oysters and their distribution.1.2. Biology of Oyster.1.3. Oyster culture technique.1.4. Rearing and harvesting of Oyster.1.5. Preservation of Oyster.1.6. Use of Oysters and its shell.2. Pearl Culture<ol style="list-style-type: none">2.1. History of Pearl culture and pearl producing sites.2.2. Pearl producing animals.	12

	<p>2.3. Biology of pearl oyster. 2.4. Process of Pearl formation. 2.5. Pearl culture techniques. 2.6. Composition, types of pearls and its enemies. 2.7. Economic value and Pearl industry in India. Keywords: Oyster culture and pearl culture.</p>	
IV	<p>1. Fresh water edible fishes of India. 1.1. Biology of major carp fishes, minor carp fishes, cat fishes, live fishes and miscellaneous fishes. 2. Marine water edible fishes of India. 2.1. Hilsa, Eel, Sardines, Pomfrets, Mackerel, Bombay duck, 3. Carp culture 3.1. Introduction and History of carp culture. 3.2. Qualities of cultures fishes. 3.3. Reason and achievements of carps culture in India. 3.4. Resources of crap culture in India. 3.5. Carp culture techniques-Indian, Chinese and European system. 3.6. Types of ponds and its management. 3.7. Procedure of carp culture. 3.8. Methods of catching of carps. 3.9. Transport of fishes open type and close type. 3.10. Diseases, control and carp fishes' health management. 3.11. Fish preservation processing and marketing. Keywords: Carp culture, Marine Fishes, Freshwater Fishes.</p>	14
V	<p>1. Aquarium 1.1. Introduction and History of Aquarium. 1.2. Types of Aquarium tree and fixed. 1.3. Requisites for fabrication of aquarium. 1.4. Types of significance of aquatic plants. 1.5. Types of aquarium fishes. 1.6. Maintenance of aquarium. 2. Plankton 2.1. Definition and History of Plankton. 2.2. Classification of plankton – based on their origin, size, lifecycle and their habitat. 2.3. Groups of phytoplankton and zooplankton. 2.4. Role of plankton and fisheries. 3. Polyculture 3.1 Identification and history in fisheries. 3.2 General idea and history of Polyculture.</p>	12

Keywords: aquarium, Plankton, Polyculture

Part C – Learning Resources

Text Book , Reference Books , Other resources

Suggested Readings:

1. Pillay, T.V.R., "Aquaculture- Principle & Practice", Wiley Int.
2. Santhanam, E., Sukumaran, N, Natarajan, P, "A Manual of Fresh Water Aquaculture", Oxford IBH
3. Rath, RK "Freshwater Aquaculture", Scientific publishers, Jodhpur, 1993
4. Shukla, G S, Upadhyay, V B, "economic Zoology", Rastogi Publication, Meerut, 2014
5. Sarkar, S, Kundus, G, Chaki, K, "Introduction to Economic Zoology", NCBS
6. Vishwapremi, K K C, "Economic Zoology", Anmol publication pvt. Ltd. New Delhi, 1995
7. Pillai, NGK, "Marine fishery and mariculture in India", Narendra publishing house, Delhi
8. Books Published by MP Hindi Granth Academy, Bhopal

Suggestive digital platforms web Links

1. Aquaculture-
<https://igor.crew.c-base.org/aquaculture.pdf>
2. Applied Zoology-
https://books.google.co.in/books?id=BjINII*UjbEC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

Suggestive equivalent on line courses

1. <https://www.fao.org/gfem/news/details>
2. <https://www.openlearning.com/course>
3. <https://www.udemy.com/topic/aquaculture>
4. <https://www.Swayam> online courses
5. UNIMAS MOOC : Aquaculture
6. <https://www.mphindigranthacademy.org/>

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Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) :30 marks University Exam (UE) 70 marks

Internal assessment: Continuous Comprehensive Evaluation (cce):	Class Test Assignment/Presentation	30
External Assessment: University Exam Section: Time : 03:00 Hours	Section(A): Very Short Questions Section(B): Short Questions Section(C): Long Questions	70
Any remarks/suggestions:		

Practical Paper

Part A Introduction

Program: Degree	Class: B.Sc.	Year: III	Session :2023-24
Subject: Zoology			
1	Course Code	S3-ZOOLIQ	
2	Course Title	Applied Aquaculture (Paper -I) Group-A	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specific Elective (DSE)	

4	Pre-requisite (if any)	To study this course, a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	<p>On Completion of this course, learners will be able to:</p> <ol style="list-style-type: none"> 1. Identify and study the fresh and marine water economically important fauna. 2. Identify the water quality parameters by different experiments. 3. Learn the required things in the set-up of an aquarium and its maintenance. 4. Identify and learn the Rearing Method of aquarium fishes. 5. Know the method of preparation of slide of Zoo Plankton and Preservation method of Phyto Plankton. 6. Identify harmful aquatic insects for Aquaculture. 7. Enhance Collaborative Learning and Communication Skills through Practical Work, Team Work, Group Discussion, Assignment and Project. 	
6	Credit Value	2	
7	Total Marks	Max. Marks : 100	Min. Passing Marks – 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week):

Unit	Topic	No. of Lectures
I	Identification & Study of fresh water/marine water culturable, economically important fauna- Prawns, Pearl oyster, Edible oyster, Carp fishes, Crab, Lobsters and Squilla.	04
II	Identification & Study of fresh water edible fishes- Labeo, Catla, Mystus, Wallego, Channa, Anabas and Cirrhinus.	03

III	Identification & Study of marine water edible fishes- Hilsa, Pomfret, Mackerel, Eel and Bombay duck.	03
IV	Collection Identification, Study and Preservation/slide preparation of phytoplankton and zooplankton from a pond.	03
V	<p>Study of Water analysis of local ponds</p> <p>a. Estimation of dissolved oxygen in water b. Estimation of Biological oxygen Demand in water c. Estimation of Chemical oxygen demand in water d. Detection of chloride in water. e. Determination of pH/Recording of temperature of water. f. Hardness of water. g. Transparency of water.</p>	06
VI	Study/Establishment and maintenance of aquarium in laboratory.	03
VII	Identification and Study of Aquarium fishes- Gold fish, Tiger fish, Kissing Gourami, Guppy, Black molly, X-ray fish, Zebra fish.	02
VIII	<p>Identification and Study of Aquatic insects - Ranatra, Balostoma, Nepa, Water boat men, Back swimmier.</p> <p>Identification and Study of Aquatic weeds Azolla, Pistia, Vallisneria Hydrilla , Chara</p>	
IX	Visit/Virtual tour and Study of an aquatic site/any culture site and submit a report to supervisor.	04
Text Book , Reference Books , Other resources		

Text Book , Reference Books , Other resources Suggested Readings:

1. Saxena, O.P., "Modern Approach to Non-Chordate Practical Zoology", Rajhans Publication, Meerut, 1992
2. Swarup, N, Arora, S and Pathak, S.C, "Laboratory Techniques in Modern Biology", Kalyani Publishers, New Delhi, 1992
3. Shukla, GS, Upadhyay, V B, "Economic Zoology", Rastogi Publication, Meerat,2014
4. Sarkar, S, Kundus, G, Chaki, K, "Introduction to Economic Zoology", NCBS
5. Lal, S.S., "A Textbook of Practical Zoology - Invertebrates", Rastogi Publication, 2016
6. Lal, S.S., "A Textbook of Practical Zoology - Vertebrates", Rastogi Publication, 2016
7. Verma, P.S., "A Manual of Practical Zoology - Invertebrates", S. Chand & Co., 2013
8. Verma, P.S., "A Manual of Practical Zoology - Vertebrates", S. Chand & Co., 2013
9. Besty, Judith, C., Felix, S., "Principles of Aquaculture: Practical Manual", Narendra Publishing House, Delhi, 2019
10. Books Published by MP Hindi Granth Academy, Bhopal

Suggestive digital platforms web links

1. <https://www.fao.org>>
2. <https://asean.org>>storage
3. <https://www.researchgate.net>
4. <https://www.mphindigranthacademy.org/>

St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.

Under Graduate Syllabus for B.Sc. (Bio)

As recommended by Central board of Studies in Zoology

Class - B.Sc. III Year

(Session 2023-24)

Theory Paper
Part A Introduction

Program: Degree	Class: B.Sc	Year: III	Session :2023-24
Subject: Zoology			
1	Course Code	S3-ZOOL2D	
2	Course Title	Wild Life Conservation and Management (Paper-II) Group-A	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specific Elective (DSE)	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	Upon completion of the course, students will 1. Identify and realize the values of wild animals, forests and the rare, threatened and endangered species of wildlife. 2. Gain knowledge of conservation of forest and wild animals (Ex situ and In situ) 3. Identify the role of local and tribal communities in protected areas. 4. Know the opportunities of employment in the field of wild life.	

		5. Develop an understanding for wise use and management of natural resources.	
6	Credit Value	4	
7	Total Marks	Max. Marks : 30+70	Min. Passing Marks – 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 60

Unit	Topic	No. of Lectures
I	<p>1. Introduction to Wildlife and Conservation</p> <p>1.1 Historical background of wildlife.</p> <p>1.2 Values of wild life and valuable products of forests and wild animals.</p> <p>1.3 Important wild animals of India.</p> <p>1.4 Causes of extinction of forests and wild life.</p> <p>(a) Direct destruction (b) Indirect destruction</p> <p>1.5 Importance and necessity of conservation of wild life and forests.</p> <p>1.6 Principles of conservation and management.</p> <p>1.7 Conservation ethics and World wildlife conservation strategies.</p> <p>Keywords/Tags: Wildlife, Extinction, Values, Conservation, Strategy.</p>	12
II	<p>1. Wild Life Conservation Measures in India</p> <p>1.1 Indian board for wildlife and wild life protection act. 1.2 Indian forest laws and their amendments, Indian forest act, Forest conservation act and Forest legislation of India.</p>	12

	<p>1.3 National organizations - Govt. and non-Govt. organisation for wildlife conservation.</p> <p>1.4 International organizations - IUCN, WWF.</p> <p>1.5 Wild life conservation measures. Ex situ conservation - Rehabilitation centers in situ conservation - Protected Areas.</p> <p>1.6 Important features, Flora and Fauna of protected areas wsr locally spotted birds Koel and Myna</p> <p>1.7 National Parks, Sanctuaries and Biosphere Reserves of India.</p> <p>1.8 Methods of conservation and tracking of large territorial vertebrates- camera traps, mark and recapture techniques, trail camera, computer vision.</p> <p>2. Wildlife and important Tiger Reserves of M.P.</p> <p>2.1 Management challenges in Tiger Reserves.</p> <p>Keywords/Tags: Organizations', National parks, Protected areas, Methods, Large territorial animals.</p>	
<p>III</p>	<p>1. Threatened and Endangered Species</p> <p>1.1 Major threats to wild life.</p> <p>1.2 Concept of threatened species.</p> <p>1.3 IUCN categories of threatened plants and animals - Endangered, Vulnerable, Rare, Threatened, Out of danger, Intermediate species.</p> <p>1.4 Special projects for endangered species - Project Tiger, Gir Lion Project.</p> <p>1.5 Musk Deer Project, Crocodile Project and Elephant Project.</p> <p>1.6 Biotelemetry and its utility in wildlife.</p>	<p>12</p>

	<p>Keywords/Tags: Threats, Projects, Endangered, IUCN Categories, Biotelemetry.</p>	
IV	<p>1. Population Estimation</p> <p>1.1 Estimation and Computation of Population density, Natality, Birth rate, Mortality and sex ratio.</p> <p>1.2 Census method for density estimation of wild animals-</p> <p>1.3 Direct count method- Vehicle transect or road count method, King's census</p> <p>1.4 Indirect count method - Identification of Pug Marks, Hoof marks, Hair, Scats, Pellet groups, Nest, Antlers</p> <p>1.5 Faecal analysis of Ungulates and Carnivores.</p> <p>1.6 Management planning of wildlife in protected areas, estimation of carrying capacity.</p> <p>2. Ecotourism / Wild life Tourism in forests</p> <p>2.1 Anthropogenic activities and livelihood of local communities in Reserved Forest Areas.</p> <p>Keywords/Tags: Population, Estimation, Pug Marks, Ecotourism, Local Communities.</p>	12

V	<p>1. Management of Habitat and Animal Health</p> <p>1.1 Care of injured and diseased animal. Equipment for locating, capture, handling and treatment of injured animal.</p> <p>1.2 Common diseases of wild animals.</p> <p>1.3 Translocation of animals, Quarantine measures and Quarantine act.</p> <p>1.4 Importance of forests, their conservation measures and management.</p> <p>1.5 Remote sensing and GIS.</p> <p>Food, Forage, Cover, Browse and Cover Estimation.</p> <p>1.6 Role of Tribal Communities in Management of Forest areas. Management challenges in Tiger Reserves.</p> <p>1.7 Elementary Idea of wild life forensics.</p> <p>1.8 Opportunities of employment in Reserve Forest Areas.</p> <p>Keywords/Tags: Diseases, Remote sensing, GIS, Translocation, Quarantine act, Employment.</p>	14
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Part C – Learning Resources

Text Book , Reference Books , Other resources

1. Babel, B.L (Forest & Wildlife protection), Hindi, 4th edn., Eastern Book Company, 2014.
2. Kotwal, P.C. and Gopal, Rajesh. Radio-telemetry and field observations on territoriality of tigers in Kanha National Park. Vol. 22: No. 4 Oct.-Dec. 1995.
3. Kotwal, P.C. Immobilisation of wild animals-Equipments, Drugs and Techniques. Kanha National Park and Project Tiger, Mandla, M.P., India. 1982.
4. Kotwal, P.C., Evaluation of Wildlife Habitats. Parameters and Procedures. Workshop on Wildlife Management, Kanha, 1982.
5. Khetrapal, B.S. & Khetrapal, Puja: 1972 (Wildlife Protection Act.1972) Puja Law House, Indore.

6. Mathur, R.: Wildlife Conservation & Management, Rastogi Publications, 2018.
7. Mills, L. Scott: Conservation of Wildlife Populations, 2nd edn., Wiley Black well: Demography, Genetics & Management, 2009.
8. Kotwal P.C.: Biodiversity and Conservation. Agro Bios, Jodhpur, India, 1998.
9. Rajesh Gopal: Fundamentals of Wildlife Management, English. Natraj Publisher, Dehradun, 2011
10. Saharia, V.B., Wildlife in India Dehra Dun. Natraj Publishers, Dehradun, 1982.
11. Saharia, V.B., Guidelines for the preparation of Management Plans for Sanctuaries and National Parks. Natraj Publisher, Dehradun, 1983.
12. Tiwari, S.K., Wildlife in Central India. 3 Vols, Sarup & Sons Publishers, New Delhi, 2004.
13. Shukla, C.P.: Raj Publication, New Delhi, 2016. 14. Shukla, G.S. & Upadhyay, V.B.: Economic Zoology 4th edn English, Rastogi Publications, Meerut, 2001.
15. Shukla, G.S. & Upadhyay, V.B.: vkfFkZd izkf.kfoKku 4th edn Hindi, Rastogi Publications, Meerut, 2001.
16. Books Published by MP Hindi Granth Academy, Bhopal.

Suggestive digital platforms web links:

1. <https://www.inflibnet.ac.in> - e books
2. <http://vle.du.ac.in>
3. <http://wiienvis.nic.in>
1. <https://www.mphindigranthacademy.org/>

Practical Paper

Part A Introduction

Program: Degree	Calss : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL2Q	
2	Course Title	Importance of Wildlife (Paper-III) Group-A	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specific Elective (DSE)	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	Upon completion of the course, students will - 1. Acquire visual knowledge of wild animals. 2. Gain information of conservation methods of wild Animals and Forests (tree and shrubs) 3. Have knowledge equipment used in the field work of wild life. 4. Become acquainted with wild animals and their behavior. 5. Learn to visually recognize and estimate the population of wild life	
6	Credit Value	4	
7	Total Marks	Max. Marks : 100	Min. Passing Marks – 35
Part B- Content of the Course			
Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 30			

Unit	Topic	No. of Lectures
I	Study of Endangered & Threatened species of Wild Animals.	2
II	Study of National Parks - Kanha, Bandhavgarh, Pench. Sanctuaries Bori, Ratapani, Gandhisagar Biosphere Reserves - Pachmarhi, Panna, Achanakmar.	4
III	Demonstration of use of Tags, Collars, Radio tracking equipment, Biological sampling, preservation and transport of samples.	4
IV	Identification of Fauna - Mammalian Fauna, Avian Fauna, Herpeto Fauna (wildlife)	2
V	Identification, demonstration, use, care and maintenance of basic equipment needed for wildlife study- Compass, Binoculars, Spotting scope, Range finders, various types of Camera and lenses.	4
VI	Familiarisation and study of animal evidences in the field by Pug Marks, Hoof marks, Nest, Antlers and Pellet groups.	4
VII	Study and estimation of diversity of Mammals and Birds	2
VIII	Faecal Analysis of cattle dung	2
IX	Tree canopy, cover assessment and shrubs cover assessment	2
X	Field visit and report	4
Keywords/Tags: National Park, Identification, Pug Marks, Tree, Visit		

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Under Graduate Syllabus for B.Sc. (Bio)

As recommended by Central board of Studies in Zoology

Class - B.Sc. III Year

(Session 2023-24)

Theory Paper

Part A Introduction			
Program: Degree	Calss : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL3D	
2	Course Title	Insect Taxonomy and Applied Entomology (Paper-I) Group-B	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specific Elective (DSE)	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	On completion of this course, learners will be able to- 1 Learn about the taxonomy, Morphology and Anatomy of Insect 2 Identify the importance of insect as Beneficial and Harmful Pests of different crops, forest, medical and veterinary field with their control measures. 3 Get Self Employment in the field of Silk, Honey and Lac Production 4 Identify the nutritive value of the insects.	

		5 Identify ecological services of insects and its role in agriculture.	
6	Credit Value	4	
7	Total Marks	Max. Marks : 30+70	Min. Passing Marks - 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 60

Unit	Topic	No. of Lectures
I	<p>1. Introduction of Insect</p> <p>1.1 History of Insect biology, Identifying characters and outline classification of class - Insecta upto orders.</p> <p style="padding-left: 40px;">a. Diagnostic features with example of Insect orders - Isoptera, Orthoptera, Hemiptera, Coleoptera, Hymenoptera, Lepidoptera, Diptera.</p> <p>2. General Morphology of an insect (Periplaneta) Antennae, Mouth parts, Legs, Wings, Genitalia.</p> <p>1. General Anatomy of an insect (Periplaneta) -Digestive System, Excretory System, Nervous System and Reproductive system.</p> <p>2. Ecological services of Insect.</p> <p>3. Role of Insect in Agriculture (Direct & Indirect)</p>	14
II	Beneficial Insects	14

<p>1. Sericulture</p> <p>1.1 History of Sericulture, Systematic position, Silk producing moths (mulberry and non mulberry)</p> <p>1.2 Mulberry Silkworm - lifecycle of Bombyx mori</p> <p>1.3 Sericulture Industry and its management.</p> <p>1.4 Diseases and enemies of silkworm.</p> <p>1.5 Uses of Silk and Sericulture in India.</p> <p>2 Apiculture</p> <p>2.1 History of Apiculture, classification and species of Honeybee. 2.2 Social organization, division of labor and lifecycle of Honeybee.</p> <p>2.3 Bee keeping methods and equipments.</p> <p>2.4 Diseases and enemies of Honeybee.</p> <p>2.5 Products, its uses and Apiculture in India.</p> <p>3 Lac Culture</p> <p>3.1 History of Lac culture, Systematic position, structure of lac insect.</p> <p>3.2 Lifecycle of lac insect and host plants.</p> <p>3.3 Varieties and crops of lac.</p> <p>3.4 Cultivation of lac and enemies of lac insect.</p> <p>3.5 Uses of lac and Lac industry in India.</p> <p>4 Edible Insects - Locust, Termite, Grasshopper, Beetles, Caterpillars and Bees.</p>	
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	Keywords: Sericulture, Apiculture, Lac culture, Edible Insects	
III	<p>Important Insect pest of Crop and Forestry</p> <p>Classification, Lifecycle, Diseases and Control measures-</p> <p>1. Crop pest</p> <p>1.1 Sugarcane pest - <i>Pyrilla perpusilla</i></p> <p>1.2 Fruit pest - <i>Amritodus alkensoni</i></p> <p>1.3 Polyphagus pest - <i>Schistocerca gregaria</i></p> <p>2 Forest pest</p> <p>2.1 Sal borer - <i>Hoplocerambyx spinicornis</i></p> <p>2.2 Bamboo borer - <i>Dinoderus brevis</i></p> <p>2.3 Common forest beetle - <i>Sinoxylon</i> sps.</p> <p>3 Insect and Plant interaction</p> <p>Keywords: Crop Insect pest, Forest Insect pest.</p>	10
IV	<p>Pests of Medical and Veterinary Importance</p> <p>1. Pests of Medical importance</p> <p>1.1 Mode of transmission</p> <p>1.2 Common vector insect distribution, host, characters, lifecycle, diseases and their control.</p> <p style="padding-left: 40px;">a. Housefly <i>Musca domestica</i></p> <p style="padding-left: 40px;">b. Mosquitoes - <i>Culex</i>, <i>Anopheles</i> and <i>Aedes</i></p> <p>1.3 Distinguished characters of <i>Culex</i>, <i>Anopheles</i> and <i>Aedes</i>.</p>	10

	<p>2. Pests of Veterinary importance</p> <p>2.1 Insect parasitism</p> <p>2.2 Distribution, host, characters, lifecycle, host pest interaction, diseases and their control.</p> <p style="padding-left: 40px;">a. Horsefly - Tabanus sps.</p> <p style="padding-left: 40px;">b. Stable fly - Stomoxys sps.</p> <p style="padding-left: 40px;">c. Cattle blood sucking louse - Linognathus sps.</p> <p>Keywords Pests of Medical importance, Pest of veterinary importance.</p>	
V	<p>1. Insect pest control</p> <p>1.1 Natural control</p> <p>1.2 Artificial (applied/chemical) control</p> <p>1.3 Biological control</p> <p>1.4 Integrated pest management. (IPM)</p> <p>1.5 Equipment for insecticidal application and their maintenance.</p> <p>1.6 Safety precautions by insecticides.</p> <p>Keywords: Insect pest control, Biological control, IPM.</p>	12

Practical Paper

Part A Introduction

Program: Degree	Class : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL3Q	
2	Course Title	Applied Entomology(Paper-I) Group-B	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specific Elective (DSE)	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	

5	Course Learning Outcome (CLO)	On completion of this course, learners will be able to: <ol style="list-style-type: none"> 1. Identify and Comment on insects of different orders and their morphology through study of museum specimens / collection/ w.m. slides. 2 Gain knowledge of morphological parts and internal body system of insects through dissection. 3 Gather understanding of Veterinary and Medical important insect pests those harm humans and domestic animals. 4. Identify insect pests that harm Crop and Forests. 5. Practical understanding and thorough knowledge of Beneficial insects which can be cultured and also provide self employment opportunities. 6. Enhance Collaborative Learning and Communication Skills through Practical Work, Team Work, Group Discussion, Assignment and Project. 	
6	Credit Value	2	
7	Total Marks	Max. Marks : 100	Min. Passing Marks – 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 30

Unit	Topic	No. of Lectures
I	Identification and Comments on common insects of different orders of Class-Insecta	04
II	Demonstration of Morphological parts of insect -Grasshopper/ Cockroach)Antennae, Mouth parts, Wings,Legs and Genetalia	04
III	Demonstration by Dissection - Internal system of Periplaneta (Cockroach)	04
IV	Techniques – a) Mounting of Morphological parts b) To calculate the Total Haemocyte Count (THC)	10

	c) To determine the Differential Haemocyte Count (DHC)	
V	Study the Life cycle of Beneficial Insects - a) Bombyx mori b) Apis indica c) Laccifer lacca	12
VI	Identification, Characters and Control Measures of Crop and Forestry Important Pests	02
VII	Identification, Characters, Diseases and Control of Medical and Veterinary Important Pests	02
VIII	Study and Application of Collection and Insecticidal Equipment's	03
IX	Collection and Preservation Techniques of different Insects according to Orders	03
X	Physical/ Virtual Visit to Crop Field/Forest Site/ Insect Culture Site/ Veterinary Institute and Submit a Visit Report to Supervisor	03

Keywords/Tags: Insect Taxonomy, Morphology and Anatomy, Haemocyte Count, Beneficial Insects, Insect Pests

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St. Aloysius College (Autonomous), Jabalpur
Department of Higher Education, Govt. of M.P.

Under Graduate Syllabus for B.Sc. (Bio)

As recommended by Central board of Studies in Zoology

Class - B.Sc. III Year

(Session 2023-24)

Theory Paper

Part A Introduction

Program: Degree	Class : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL4D	
2	Course Title	Ecology, Biodiversity and Evolution (Paper-II) Group-B	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specify Elective (DSE)	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	<p>After the completion of the course the student will be able to:</p> <ol style="list-style-type: none"> 1. Have comprehensive understanding of the basic terms, principles, rules, values & concept of ecological science. 2. Identify the different types of Ecosystem and relationship between the organisms and their environment. 3. Identify the significance of Biodiversity with emphasis on various groups of animals. 4. Get clear understanding on the major issues of Biodiversity. 5. Get knowledge of the theories of origin and development of early life on earth. 6. Identify how the Evolution takes place from single cell to man. 	
6	Credit Value	4	
7	Total Marks	Max. Marks : 30+70	Min. Passing Marks – 35

Part B- Content of the Course

Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P-60

Unit	Topic	No. of Lectures
I	<p>1. Concept of Ecology</p> <p>1.1 Introduction and History of Ecology.</p> <p>1.2 Component of Ecosystem.</p> <p>1.3 Classification of Ecosystem.</p> <p>1.4 Function of Ecosystem-</p> <p>Productivity of ecosystem.</p> <p>Energy flow of the ecosystem - food chain, food web, ecological pyramid and trophic level.</p> <p>Ecological footprint and Carbon footprint.</p> <p>12. Bio-Geochemical cycle - Carbon, Oxygen, Nitrogen, Phosphorus cycle.</p> <p>Keywords: Ecosystem, Bio-geochemical cycle</p>	10
II	<p>1. Population Concept</p> <p>1.1 Basic concept and characteristics of population.</p> <p>1.2 Factors affecting population.</p> <p>1.3 Population interaction - Mutualism, Predation, Competition.</p> <p>1.4 Species interaction - Herbivory, Carnivory, Symbiosis.</p> <p>2. Community Concept</p> <p>2.1 Characteristics of community.</p> <p>2.2 Stratification in terrestrial and aquatic habitat.</p> <p>3. Ecological Succession</p> <p>3.1 Types of succession.</p> <p>Keywords: Population concept, Community concept, Ecological succession.</p>	10
III	<p>1. Habitat Ecology</p> <p>1.1 Concept of Habitat and Ecological Niche.</p> <p>1.2 Fresh water habitat and its conservation.</p> <p>1.3 Marine water habitat and its conservation.</p> <p>1.4 Estuarine habitat and its conservation.</p> <p>1.5 Terrestrial habitat and its conservation.</p> <p>2. General idea of Ecological and Biological indicators.</p> <p>3. Ecological division of India</p> <p>Keywords: Habitat ecology, Ecological division, Bio indicators</p>	12

<p style="text-align: center;">IV</p>	<p>1. Biodiversity</p> <p>1.1 Meaning, values and ethics of Biodiversity.</p> <p>1.2 Importance of biodiversity.</p> <p>1.3 Types of biodiversity - genetic, species and ecological biodiversity.</p> <p>1.4 Causes of depletion of biodiversity.</p> <p>1.5 Hotspots of biodiversity in India.</p> <p>1.6 Conservation of biodiversity.</p> <p style="padding-left: 20px;">- In Situ - protected areas.</p> <p style="padding-left: 20px;">- Ex Situ - Germplasm bank, Gene bank, Seed bank, Zoo and Botanical garden.</p> <p>1.7 Biodiversity Protection Act - 2002.</p> <p>2 Role of People for conservation of biodiversity.</p> <p>3 Emerging trends in conservation of biodiversity.</p> <p>4 Medicinal Plants of Forest and its Uses.</p> <p>Mahua, Harad, Baheda, Amla, Oak.</p> <p>Keywords: Biodiversity, Conservation, Forest medicinal plants.</p>	<p>14</p>
<p style="text-align: center;">V</p>	<p>1. Evolution</p> <p>1.1 Definition and History of evolution.</p> <p>1.2 Origin of life - Theories of evolution.</p> <p style="padding-left: 20px;">- Lamarckism</p> <p style="padding-left: 20px;">- Darwinism</p> <p style="padding-left: 20px;">- Neo-darwinism</p> <p>1.3 Modern synthetic theory of evolution.</p> <p>1.4 Evidence of organic evolution - anatomical, paleontological, embryological.</p> <p>2. Micro, Macro and Mega evolution.</p> <p>3. Evolution of man.</p> <p>4. Elementary idea of Geological timescale.</p> <p>5. Adaptation - Definition and types of adaptation.</p> <p>6. Mimicry - Definition and kinds of mimicry.</p> <p>Keywords: Evolution, Adaptation, Mimicry, Geological timescale.</p>	<p>14</p>

Part C – Learning Resources

Text Book , Reference Books , Other resources

Suggested Readings:

1. Odum, E P. "Fundamental of Ecology", Saunders, USA
2. Smith, TH, Smith, R L, "Elements of Ecology"
3. Ricklefs, R E, Miller, G L, "Ecology", Mc Milan
4. Rastogi, V B. "Animal Ecology and distribution of animals", Rastogi publications, Meerat
5. Sharma, P D. "Ecology and Environment", Rastogi publications, Meerat, 2007
6. Kotwal, P C, "Biodiversity and Conservation"
7. Wilson, E O, "Diversity", National Academic Press
8. Ghosh, A, Agarwal, S P, Sau, B, "Loss of Biodiversity and its Ethical implications", Sadesh
9. Negi, SS, "Biodiversity and Conservation in India", Indian publ. co.
10. Seth, P K. "Understanding evolution of Man: An introduction to Palaeontology"
11. Arora, M P, "Organic Evolution", Himalayan Publication, 2000
12. Rastogi, V B, "Evolutionary Biology"
13. Tomar, B.S., Singh, S.P., "Evolution", 2000
14. Books Published by MP Hindi Granth Academy, Bhopal

Syllabus of practical

Part A Introduction			
Program	Calss : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL4Q	
2	Course Title	Environment Biology (Paper -II) Group	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Discipline Specific Elective (DSE)	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	On Completion of this course, learners with be able to : <ol style="list-style-type: none"> 1. Identify and Understand the fresh water, marine water and terrestrial habitat –economically 2. To determine the population, estimate biomass by experiment, visit and know the pond ecosystem. 3. Identify and study of different types of adaptation and mimicry by the specimens. 4. Recognise and known the uses of Forest Medicinal Plant. 5. Develop an understanding of how evolution occurred by using various evolutionary experiment 6. Enhance Collaborative Learning and Communication Skill through Practical Work, Team Work, Group Discussion, Assignment and project. 	
6.	Credit Value	2	
7.	Total Marks	Max. Marks : 100	Min. Passing Marks
Part B- Content of the Course			
Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 30			
Unit	Topic		No. of Lectures
I	Identification and study of fresh water fauna and its economical importance – Paramoecium, Spongilla, Leech, Prawn, Unio, Crab, Frog, Catla.		03

II	Identification & study of marine water fauna and its economic important – Euplectella, Neries, King crab, Pinctada, Asterias, Balanoglossus, Sea Horse, Scoliodon.	03
III	Identification & Study of terrestrial fauna and its economic importance – Earthworm, Millipede, Peripatus, Scorpion, Naja, Tortoise, Echidna, Kangaroo.	03
IV	Study of ecological experiments: a. To Determine the population of some species of organism by Quadrat sampling method. b. To measure the population of a locality by mark and Recapture method. c. To estimate the biomass of particular area.	05
V	To identify, study and prepare slide/preservation of micro and macro- organisms from any wate body.	04
VI	Study of pond ecosystem.- Visit to a nearby pond/lake	03
VII	Identify, comment and use of important forest medicinal plants- Mahua, Harad, Bah eda , Amla, Oak.	02
VIII	Identify and comment on specimen related to adaption and mimicry – Scoliodon , Pigeon , Phrynosoma , Chameleon , Draco , Stick Insect , Leaf Insect.	03
IX	Evolutionary experiment: a. Connection link – -Peripatus , Archaeopteryx Platypus. b. Homology and Homologous organs – - Homology in four limbs structure of vertebrates - Serial homology – Crustacean appendages. c. Analogy – - Wing of Bird and Bate.	04

Keyword/ tags: Pond Ecosystem , Biodiversity , Evolution , Connection Link , Homology , Analogy

Part C – Leaning Resources

Text Book , Reference Books , Other resources

Suggested Readings:

1. Saxena, O.P., " Modern Approach to Non Chordate Zoology" , Rajhang Publication, Meerat, 1992
2. Trigunayat , M.M., Trigunayat , Kritika, " A Monual of Practical Zoology : Biodiversity " , Scientific Publishers , jodhpur 2019
3. Lal.S.S. "A Textbook of Practical Zoology- Invertebrate", Rastogi Pulication, Meerat, 2016
4. Lal. S.S., " A Textbook of Practical Zoology- Vertebrate", Rastogi Publication, Meerat, 2016
5. Books Published by MP Hindi Granth Academy, Bhopal

Suggestive digital platforms web links

1. <https://nios.ac.in>documents>
2. <https://www.hzu.edu.in>bed>
3. <https://www.uou.ac.in>slm>
4. <https://www.ccolab.bas.bg>s>
5. <https://www.mphindigranthacademy.org/>

Part A Introduction			
Program: Degree	Calss : B.Sc	Year :III	Session :2023-24
Subject : Zoology			
1	Course Code	S3-ZOOL2T	
2	Course Title	Genetics	
3	Course Type (Core Course /Elective/Generic Elective/ Vocational/...)	Minor/Elective	
4	Pre-requisite (if any)	To study this course ,a student must have had the subject Zoology in Diploma.	
5	Course Learning Outcome (CLO)	<p>On successful completion of this course, the students will be able to</p> <ol style="list-style-type: none"> 1. Gain knowledge of basic principles of inheritance and variations, DNA, RNA and their function. 2. Deeper understanding of linkage, Sex determination, Chromosomes, Mutations and mutagens. 3. Gain knowledge of human karyotype, Genome project, Inheritance of blood group and genetic diseases in human. 4. Demonstrate gene therapy, PCR, DNA fingerprinting techniques and their application. 5. Find Job Opportunities in Hospitals, Pharmaceutical Companies and other health services, Forensic Science Research Associates, Genetic Counselor, Clinical Research Associate, Animal Breeder, Genetic Laboratory Technician 	
6	Credit Value	4	
7	Total Marks	Max. Marks : 30+70	Min. Passing Marks - 35

Part B- Content of the Course**Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 30**

Unit	Topic	No. of Lectures
I	<p>Overview of Genetics</p> <ol style="list-style-type: none">1. Introduction and Historical background of genetics2. Definition, Scope and Importance of Genetics3. Chromosomes: Transmitters of Heredity<ol style="list-style-type: none">3.1. Structure and Organization of Chromosomes3.2. Types of Chromosomes3.3. Chemical composition of chromosomes4. Nucleocytoplasmic Interaction5. Mendel's laws of Heredity6. Variations: Types and genetic basis of Variations on <p>Keywords: Heredity, Chromosome, Variation, Genetics, Nucleocytoplasmic Interaction</p>	12
II	<p>Gene and Genetic Material</p> <ol style="list-style-type: none">1. Chemistry of Gene - Nucleic acids and their structure2. Concept of DNA replication3. Nucleosome (Solenoid Model)4. Types of genes: Split genes, Overlapping genes and Pseudogenes5. Genetic code <p>Keywords: Nucleic acids, DNA replication, Nucleosome, Pseudogenes, Split genes, Genetic code</p>	12
III	<p>Linkage and Chromosomal Aberrations</p> <ol style="list-style-type: none">1. Gene linkage and recombination2. Sex-determination.3. Sex-linked Inheritance4. Structural changes in chromosomes: Deficiency, Duplication, Translocation and Inversion5. Numerical changes in chromosomes: Aneuploidy, Polyploidy6. Mutation: Types of mutations and mutagens <p>Keywords - Linkage, Recombination, Sex-determination, Sex-linked Inheritance, Mutation, Mutagens, Polyploidy</p>	12
IV	<p>Human Genetics</p> <ol style="list-style-type: none">1. Human chromosomes: Human Karyotype and Human Genome Project	12

	<p>2. Common genetic disorders- Down syndrome, Edward syndrome, patau syndrome, Turner syndrome, Klinefelter Syndrome, Criminal Syndrome, sickle cell anemia and Thalassemia</p> <p>3. Multiple factors and blood groups .</p> <p>4. Twins: Fraternal, Maternal and Siamese twins</p> <p>5. Transgenic and knockout animals and their applications</p> <p>Keywords: Karyotype, Genetic disorders, Transgenic, Knockout animals</p>	
V	<p>Genetic Engineering</p> <p>1. Gene Therapy:- Germline, and Somatic cell gene therapy.</p> <p>2. Recombinant DNA technology</p> <p>3. Gene cloning</p> <p>4. Gene library 5. PCR and Hybridization techniques</p> <p>6. DNA finger printing</p> <p>Keywords: Genetic Engineering, Gene Therapy, Recombinant DNA, Gene cloning, Gene library, PCR, DNA finger printing.</p>	12

Part –D: Assessment & Evaluation (Practical)

Suggested Continuous Evaluation Methods:

S.No.	Internal Assessment	Marks	External Assessment	Marks
1.	Class interaction/Quiz	30	Viva Voce on Practical	70
2.	Attendance		Practical Record File	
3.	Assignments (Charts/Model) Seminar/Rural Service/ Technology Dissemination/ Report of Excursion/Lab Visits Survey/Industrial Visit		Table work/Experiments	
			Total	100
Remark:				



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

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College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS

UG

POLITICAL SCIENCE

St. Aloysius College (Autonomous) Jabalpur

B.A. I Semester	
Subject	Political Science
	Major/ Minor
Title of the paper	Political Theory
MM	60

Unit -1	<ol style="list-style-type: none"> 1. Political Theory: Meaning and Significance 2. Approaches of study of Politics 3. Different Terms- Political Science, Political Philosophy, Political Theory, Political Thought and Politics 4. Introducing Ideologies (Feminism, Anarchism, Marxism, Liberism, Fascism, Socialism)
Unit-2	Concept of State <ol style="list-style-type: none"> 1. Defining State, Elements of State 2. Theories of origin of State 3. Changing nature of State
Unit -3	Power, Authority and Sovereignty
Unit -4	Core Political Concepts <ol style="list-style-type: none"> 1- Freedom, 2- Equality 3- Justice 4- Rights
Unit-5	The Idea of Democracy <ol style="list-style-type: none"> 1. Definition, characteristics and merits - demerits 2. Essential conditions for a successful Democracy 3. Types of Democracy 4. Various theories of Democracy

St. Aloysius College (Autonomous) Jabalpur

B.A. I Semester	
Subject	Political Science
	Elective
Title of the paper	Political Theory
MM	60

Unit -1	5. Political Theory: Meaning and Significance 6. Approaches of study of Politics 7. Different Terms- Political Science, Political Philosophy, Political Theory, Political Thought and Politics 8. Introducing Ideologies (Feminism, Anarchism, Marxism, Liberism, Fascism, Socialism)
Unit-2	Concept of State 4. Defining State, Elements of State 5. Theories of origin of State 6. Changing nature of State
Unit -3	Power, Authority and Sovereignty
Unit -4	Core Political Concepts 5- Freedom, 6- Equality 7- Justice 8- Rights

St. Aloysius College (Autonomous) Jabalpur

B.A. I Semester	
Subj	Political Science
	Generic Elective
Title of the	Indian National Movement
Max. Marks	Theory
100	60
Unit -1	Background of Indian National Movement 1. First freedom struggle of 1857 2. Major Social and Religious Movement in 19 th century. 3. Rise and growth of National Consciousness. 4. Emergence of Indian National Congress: Moderates & Extremist.
Unit -2	Gandhi and National Movement 1. Gandhi and Mass Movement 2. Non-Cooperation Movement 3. Civil disobedience 4. Quit India Movement
Unit -3	Other Important Movement and Struggles 1. Rise and Growth of Revolutionary Movement 2. Growth of left movement 3. Peasant's and Worker's Movement 4. Indian National Army
Unit -4	Towards Freedom 1. Factors responsible for rise and growth of Communalism in India 2. Second World War and changing world scenario 3. Cripps Mission, Cabinet Mission Plan 4. Partition of India and its consequences Indian Independence Act 1947

St. Aloysius College (Autonomous) Jabalpur

B.A. II Semester	
Subject	Political Science
	Major / Minor
Title of the paper	Indian Constitution
MM	60

Unit -1	<p>Genesis of the Indian Constitution and Salient Features</p> <ol style="list-style-type: none"> 1- Constitutional Development in India 2- Making of the Constituent Assembly: History and Objectives 3- Salient Features of the Constitution: <ol style="list-style-type: none"> a. Preamble b. Fundamental Rights and Duties c. Directive Principles of State Policy d. Procedure for Constitutional Amendment
Unit-2	<p>Legislature</p> <ol style="list-style-type: none"> 1. Central Legislature <ol style="list-style-type: none"> a. Indian Parliament – Composition and Functions of the Lok Sabha and Rajya Sabha b. Speaker of the Lok Sabha- Role, Power and Functions, Independence and Impartiality of the Speaker c. Legislative procedure of the Parliament d. <i>Parliamentary Committees</i> 2. State Legislature <ol style="list-style-type: none"> a. Vidhan Sabha- Composition and Functions b. Vidhan Parishad- Composition and Functions
Unit -3	<p>Executive</p> <ol style="list-style-type: none"> 1- Union Executive <ol style="list-style-type: none"> a. President- Power and Functions b. Prime Minister- Role and Functions c. Council of Ministers- Composition and Functions 2- State Executive <ol style="list-style-type: none"> a. Governor- Power and Functions b. Chief Minister- Power and Functions c. State Council of Ministers
Unit -4	<p>Judiciary and Other Constitutional Bodies</p> <ol style="list-style-type: none"> 1 Supreme Court- Composition and Jurisdiction 2 High Court- Composition and Jurisdiction 3 <i>Judicial Activism</i> 4 Constitutional Bodies <ol style="list-style-type: none"> 4-1 Election Commission 4-2 Union Public Service Commission

	<ul style="list-style-type: none">4-3 National Commission for SC's4-4 National Commission for ST's4-5 State Public Service Commission
Unit-5	<p>Division of Powers</p> <ul style="list-style-type: none">1- Centre-State Relations<ul style="list-style-type: none">a. Legislative Relationsb. Administrative Relationsc. Financial Relations2- Local Self Government- 73rd and 74th Amendment.

St. Aloysius College (Autonomous) Jabalpur

B.A. II Semester	
Subject	Political Science
	Elective
Title of the paper	Indian Constitution
MM	60

Unit -1	<p>Genesis of the Indian Constitution and Salient Features</p> <p>4- Constitutional Development in India</p> <p>5- Making of the Constituent Assembly: History and Objectives</p> <p>6- Salient Features of the Constitution:</p> <p>a. Preamble</p> <p>b. Fundamental Rights and Duties</p> <p>c. Directive Principles of State Policy</p> <p>d. Procedure for Constitutional Amendment</p>
Unit-2	<p>Legislature</p> <p>3. Central Legislature</p> <p>a. Indian Parliament – Composition and Functions of the Lok Sabha and Rajya Sabha</p> <p>b. Speaker of the Lok Sabha- Role, Power and Functions, Independence and Impartiality of the Speaker</p> <p>c. Legislative procedure of the Parliament</p> <p>d. <i>Parliamentary Committees</i></p> <p>4. State Legislature</p> <p>a. Vidhan Sabha- Composition and Functions</p> <p>b. Vidhan Parishad- Composition and Functions</p>
Unit -3	<p>Executive</p> <p>3- Union Executive</p> <p>a. President- Power and Functions</p> <p>b. Prime Minister- Role and Functions</p> <p>c. Council of Ministers- Composition and Functions</p> <p>4- State Executive</p> <p>a. Governor- Power and Functions</p> <p>b. Chief Minister- Power and Functions</p> <p>c. State Council of Ministers</p>
Unit -4	<p>Judiciary and Other Constitutional Bodies</p> <p>5 Supreme Court- Composition and Jurisdiction</p> <p>6 High Court- Composition and Jurisdiction</p> <p>7 <i>Judicial Activism</i></p> <p>8 Constitutional Bodies</p> <p>8-1 Election Commission</p> <p>8-2 Union Public Service Commission</p> <p>8-3 National Commission for SC's</p> <p>8-4 National Commission for ST's</p> <p>8-5 State Public Service Commission</p>

St. Aloysius College (Autonomous) Jabalpur

B.A. II Semester	
Subject	Political Science
	Generic Elective
Title of the paper	Indian Political System
Max.Marks	Theory
100	60
Unit -1	Fundamentals of Indian Political System 1. Nature of Indian Political System 2. Determinants of Indian Political System: 2.1.Salient Features of Indian Constitution 2.2 Preamble 2.3 Fundamental Rights 2.4 Directive Principle of State Policy 3. Federal System 4. Parliamentary System
Unit -2	Institutional Setting of Indian Political System 1. Role of President, Prime Minister and Council of Minister 2. Parliament and its working 3. Supreme Court and Judicial Review 4. Panchayati Raj Institutions
Unit -3	Problems of Indian Political System: 1. Linguism 2. Regionalism 3. Casteism 4. Communalism 5. Criminalization
Unit -4	Challenges of Indian Political System: 1. Poverty 2. Social Justice 3. Gender justice 4. Defection politics 5. Election Reforms

B.A. III Semester	
Subject	Political Science
	Major/ Minor
Title of the paper प्रश्न पत्र का शीर्षक	Western Political Thought
MM	60

Unit -1	<p>Greek Political Thought</p> <ol style="list-style-type: none"> 1. Plato: Theory of Justice, Theory of Education, Theory of Communism, Philosopher King, The Ideal State 2. Aristotle: State, Slavery, Citizenship, Classification of Government, Revolution
Unit-2	<p>Modern Political Thought</p> <ol style="list-style-type: none"> 1. Niccolo Machiavelli: First Modern Political Thinker: The Child of his time, Conception of Human Nature, Thoughts about Religion and Morality, Ideas of the Prince 2. Thomas Hobbes: Social Contract Theory, Individualism 3. John Locke: Social Contract Theory, Theory of Natural Rights, Liberalism 4. Jean Jacques Rousseau: Social Contract Theory, Theory of General Will
Unit -3	<p>Philosophy of Utilitarianism</p> <ol style="list-style-type: none"> 1. Jeremy Bentham: Utilitarianism, Natural Laws and Rights, Theory of State and Legislation, Theory of Punishment and Reform (Prison, Government, Law, Education and Religion), Contribution of Political Thought 2. John Stuart Mill: Alteration in Utilitarianism, Views on Liberty, Representative Government, Contribution to Political Thought
Unit -4	<p>Idealism in Political Philosophy</p> <ol style="list-style-type: none"> 1. Immanuel Kant: Philosophy of Ethics, Views of Theory of State, Forms of Government and International Peace 2. George W.F. Hegel: Dialectical Method, Views on Nation State, Internationalism and War, Views on Government and Constitution 3. Thomas Hill Green: Views on Freedom, Views on Rights, Views on State, Views on General Will
Unit-5	<p>Karl Marx- Scientific Socialism</p> <ul style="list-style-type: none"> • Dialectical Materialism, Economic Interpretation of History, Theory of Class struggle, Theory of Surplus Value <p>Vladimir Lenin</p> <ul style="list-style-type: none"> • Development of Marxist Theory, As a Revolutionary <p>Harold J. Laski</p> <ul style="list-style-type: none"> • Views on Liberty, Rights and Equality, Democratic Socialism

St. Aloysius College (Autonomous) Jabalpur

B.A. III Semester	
Subject	Political Science
	Elective
Title of the paper प्रश्न पत्र का शीर्षक	Western Political Thought
MM	60

Unit -1	<p>Greek Political Thought</p> <p>3. Plato: Theory of Justice, Theory of Education, Theory of Communism, Philosopher King, The Ideal State</p> <p>4. Aristotle: State, Slavery, Citizenship, Classification of Government, Revolution</p>
Unit-2	<p>Modern Political Thought</p> <p>1. Niccolo Machiavelli: First Modern Political Thinker: The Child of his time, Conception of Human Nature, Thoughts about Religion and Morality, Ideas of the Prince</p> <p>2. Thomas Hobbes: Social Contract Theory, Individualism</p> <p>5. John Locke: Social Contract Theory, Theory of Natural Rights, Liberalism</p> <p>6. Jean Jacques Rousseau: Social Contract Theory, Theory of General Will</p>
Unit -3	<p>Philosophy of Utilitarianism</p> <p>3. Jeremy Bentham: Utilitarianism, Natural Laws and Rights, Theory of State and Legislation, Theory of Punishment and Reform (Prison, Government, Law, Education and Religion), Contribution of Political Thought</p> <p>4. John Stuart Mill: Alteration in Utilitarianism, Views on Liberty, Representative Government, Contribution to Political Thought</p>
Unit -4	<p>Idealism in Political Philosophy</p> <p>4. Immanuel Kant: Philosophy of Ethics, Views of Theory of State, Forms of Government and International Peace</p> <p>5. George WF Hegel: Dialectical Method, Views on Nation State, Internationalism and War, Views on Government and Constitution</p> <p>6. Thomas Hill Green: Views on Freedom, Views on Rights, Views on State, Views on General Will</p>

St. Aloysius College (Autonomous) Jabalpur

B.A. III Semester	
Subj	Political Science
	Generic Elective
Title of the	Human Rights
Max. Marks	Theory
100	60
Unit -1	Introduction to Human Rights <ul style="list-style-type: none"> • Meaning of Human Rights and Its correlation with other rights • History and Evolution of Human Rights • Institutionalization of Human Rights : Universal Declaration of Human Rights • Expanding Horizons of Human Rights
Unit -2	Conflict Zones, Violence and the Issues in Human Rights <ul style="list-style-type: none"> • Terrorism, Police Encounter and Human Rights • Human Rights of the Armed Forces • Human Rights Initiatives of Women
Unit -3	Human Rights Discourses in India <ul style="list-style-type: none"> • Gender, Caste and Untouchability • Industrialization, Displacement and Land Questions
Unit -4	State and Human Rights <ul style="list-style-type: none"> • Issues of surveillance and Censorship • Police Custody, Torture and Human Rights

St. Aloysius College (Autonomous) Jabalpur

B.A. IV Semester	
Subject	Political Science
	Major / Minor
Title of the paper	Indian Political Thinker
MM	60

Unit -1	<ol style="list-style-type: none"> 1. Indian Political Thought: Introduction, Nature, Sources and Features 2. Manu- Ideas of State- The Origin and Form of the State, Saptanga Philosophy, Ideas of Exchequer and Economics, Mandala Principles and Six Fold Policy. 3. Kautilya : State- related Ideas- The Origin and Nature of the State, The Saptanga Doctrine, The Council of Ministers, The Justice and Penal System, The Mandala Doctrine and the Six Fold Policy.
Unit- 2	<ol style="list-style-type: none"> 1. Rajaram Mohan Roy: Ideas on Social Reform, Ideas of Freedom and Equality 2. Swami Vivekananda: The Spiritual basis of Humanism, The Idea of Freedom, The Essence of Socialism 3. Lokmanya Bal Gangadhar Tilak: Social Reform Programme, National Education and Nationalism, Swadeshi and Swaraj 4. Shri Aurobindo Ghosh : Concept of Nationalism, Ideas related to Freedom
Unit-3	<ol style="list-style-type: none"> 1. Mahatma Gandhi: Spiritualization of Politics, The Ends and Means Relationship, The Idea of Non-Violence and Satyagraha, State, Economic Thought 2. Pt. Jawaharlal Nehru: Ideas of Nationalism, Democracy, Internationalism, State and Planning, Panchsheel, Non- Alignment 3. Subhas Chandra Bose: Nationalism, Freedom and Socialism, Role in the National Movement. 4. Dr. Bhimrao Ambedkar- Social Justice, Ideas of Freedom and Equality, Role of Dr. Ambedkar in Constitution Making.
Unit- 4	<ol style="list-style-type: none"> 1. M.N. Roy: The Concept of New-Humanism, Marxism 2. Ram Manohar Lohia: Social and Political Ideas, Freedom, Equality, Concept of Chaukhamba State, Socialist Thought 3. Jayaprakash Narayan : Ideas on Democracy and Sarvodaya, Party System and Ideas on the Total Revolution 4. Pt. Deendayal Upadhyaya: The Concept of Integral Humanism, Nationalism and Economic Thought
Unit- 5	<p>Contribution of Women Thinkers</p> <ol style="list-style-type: none"> 1. Pandita Ramabai 2. Tarabai Shinde 3. Savitribai Phule 4. Kamaladevi Chattopadhyay

B.A. IV Semester	
Subject	Political Science
	Elective
Title of the paper	Indian Political Thinker
MM	60

Unit -1	<p>4. Indian Political Thought: Introduction, Nature, Sources and Features</p> <p>5. Manu- Ideas of State- The Origin and Form of the State, Saptanga Philosophy, Ideas of Exchequer and Economics, Mandala Principles and Six Fold Policy.</p> <p>6. Kautilya : State- related Ideas- The Origin and Nature of the State, The Saptanga Doctrine, The Council of Ministers, The Justice and Penal System, The Mandala Doctrine and the Six Fold Policy.</p>
Unit- 2	<p>5. Rajaram Mohan Roy: Ideas on Social Reform, Ideas of Freedom and Equality</p> <p>6. Swami Vivekananda: The Spiritual basis of Humanism, The Idea of Freedom, The Essence of Socialism</p> <p>7. Lokmanya Bal Gangadhar Tilak: Social Reform Programme, National Education and Nationalism, Swadeshi and Swaraj</p> <p>8. Shri Aurobindo Ghosh : Concept of Nationalism, Ideas related to Freedom</p>
Unit-3	<p>5. Mahatma Gandhi: Spiritualization of Politics, The Ends and Means Relationship, The Idea of Non- Violence and Satyagraha, State, Economic Thought</p> <p>6. Pt. Jawaharlal Nehru: Ideas of Nationalism, Democracy, Internationalism, State and Planning, Panchsheel, Non- Alignment</p> <p>7. Subhas Chandra Bose: Nationalism, Freedom and Socialism, Role in the National Movement.</p> <p>8. Dr. Bhimrao Ambedkar- Social Justice, Ideas of Freedom and Equality, Role of Dr. Ambedkar in Constitution Making.</p>
Unit- 4	<p>5. M.N. Roy: The Concept of New-Humanism, Marxism</p> <p>6. Ram Manohar Lohia: Social and Political Ideas, Freedom, Equality, Concept of Chaukhamba State, Socialist Thought</p> <p>7. Jayaprakash Narayan : Ideas on Democracy and Sarvodaya, Party System and Ideas on the Total Revolution</p> <p>8. Pt. Deendayal Upadhyaya: The Concept of Integral Humanism, Nationalism and Economic Thought</p>

St. Aloysius College (Autonomous) Jabalpur

B.A. IV Semester	
Subject	Political Science
	Generic Elective
Title of the	Understanding Gandhi and Ambedkar
Max. Marks	Theory
100	60
Unit -1	<p>Key Points of Gandhian Philosophy</p> <ul style="list-style-type: none"> • Biography and Impacts of Others on Gandhi • Truth and Non- Violence • Satyagraha <p>Gandhi and His Political Ideas</p> <ul style="list-style-type: none"> • Swaraj • Swadeshi • Critiques of Modern Civilization <p>Hind Swaraj (Full Original Text)</p>
Unit -2	<p>Ideas of Ambedkar</p> <ul style="list-style-type: none"> • Biography and His Contribution • Ambedkar's view on Democracy • Socialism vs. Social Justice • Understanding "Annihilation of Caste"(Full Original Text)
Unit -3	<p>Gandhi and Ambedkar's view on Caste</p> <ul style="list-style-type: none"> • Dalit vs Harijan • Varna vs Caste • Possibility of Change in Hindu Social Order • Poona Act
Unit -4	<p>Gandhi and Ambedkar's view on Religion</p> <ul style="list-style-type: none"> • Gandhi's views on Hindu, Muslim and Christianity • Ambedkar's views on Hindu, Muslim and Buddhim

St. Aloysius College (Autonomous) Jabalpur

<u>B.A. III Year</u>	
Subject	Political Science DSE (Group A)
Paper	I
Title of the paper	India's Foreign Policy
MM	70

Unit -1	<p>Continuation and Change in India's Foreign Policy</p> <ol style="list-style-type: none"> 1. Historical Perspective of Indian Foreign Policy 2. Key Principles and Determinants of Indian Foreign Policy 3. Foreign Policy and National Interest 4. Non- Aligned Policy 5. India's Geo-Economic Strategy 6. India's Look East Policy
Unit-2	<p>India As a Leading Power</p> <ol style="list-style-type: none"> 1. India is a Global Economic and Military Power 2. Multi-Polar World Order and India 3. New Frontiers of India's Foreign Policy : Outer Space, Polar Regions, Climate Change 4. India and The Indian Ocean 5. India's Geopolitics and Geo-Economics: One Road One Belt Issue 6. Rise of Indo-Pacific and Act East Policy of India
Unit -3	<p>Major Super Powers and India</p> <ol style="list-style-type: none"> 1. India's relations with the United States 2. India's relations with Russia 3. India- China Relations 4. India- EU Relations
Unit -4	<p>India and International Forum</p> <ol style="list-style-type: none"> 1. India's Role in the United Nations 2. Demand for Reform in the United Nations Security Council 3. India's demand for Democratization of International Organizations 4. India and Nuclear Theory: NPT and CTBT 5. India's Role in Environmental Protection 6. Problem of Terrorism and India
Unit-5	<p>India and South Asian Neighbouring States</p> <ol style="list-style-type: none"> 1. Afghanistan 2. Pakistan 3. Bangladesh 4. Sri Lanka 5. Nepal 6. Bhutan 7. Maldives

St. Aloysius College (Autonomous) Jabalpur

B.A. III Year

Subject	Political Science	DSE (Group A)
Paper	II	
Title of the paper	Public Administration	
MM	70	

Unit -1	Introduction of Public Administration
	<ol style="list-style-type: none"> 1. Public Administration: Meaning, Nature and Scope. Evolution of Public Administration as an Academic Discipline. Politics- Administration Dichotomy. Public Administration and Private Administration: Features, Differences and Similarities. 2. Administration and Management ; Features, Differences and Similarities. New Public Administration and New Public Management.
Unit-2	Organization and its Principles
	<ol style="list-style-type: none"> 1. Organization: Meaning, Bases of Organization, Types of Organization – Features, Merits and Demerits. 2. Principles of Organization- Hierarchy, Unity of Command, Span of Control, Coordination, Supervision, Authority and Responsibility, Centralization and Decentralization, Delegation. 3. Headquarter – Field Relationship. 4. Line Agencies, Staff Agencies and Auxiliary Agencies, Meaning, Features and significance
Unit -3	Personnel Administration and Bureaucracy
	<ol style="list-style-type: none"> 1. Personnel Administration- Meaning, Objectives, Scope and Significance. 2. Recruitment- Concept, Principles, Types (with Merits and Demerits)., Training- Meaning, Objectives, Types and Importance, Promotion: Meaning and Principles. 3. Bureaucracy- Concept, Types, Max Weber's Ideal Type of Bureaucracy and its relevance. Indian Bureaucracy, Characteristic Features, Politician and Minister- Civil Servant Relationship. 4. Civil Service Recruitment Procedure at Union and State (with reference to Madhya Pradesh) levels.
Unit -4	Budget
	<ol style="list-style-type: none"> 1. Budget- Concept, Principles and Significance. Types of Budget: Features, Merits- Demerits. Accounts and Audit : Concept and Importance. 2. Budgetary Process in India ; Budget- Making, Budget- Enactment and Budget- Implementation. Agencies involved in Budgetary Process. 3. Comptroller and Auditor General of India : Appointment Provisions, Power and Functions, Criticism.
Unit-5	Recent Trends of Administration in India
	<ol style="list-style-type: none"> 1. Good Governance : Concept, Elements, Characteristics, Significance. E-Governance : Meaning, features, scope, types and importance. 2. Public Private Partnership (PPP) : Concept, types and Significance. 3. People – Participation : Meaning, Types and Importance. Nature of people- Participation in India.

St. Aloysius College (Autonomous) Jabalpur

B.A. III Year		
Subject	Political Science	DSE (Group B)
Paper	I	
Title of the paper	Comparative World Constitution	
Max.Marks/	Theory	
100	70	

Unit -1	Introduction to the British Constitution
	<ul style="list-style-type: none"> a. Journey of Parliamentary Democracy and Evolving of Constitution b. Salient Features of Constitution c. King, Prime Minister and Cabinet d. Parliament e. Judiciary f. Party System
Unit-2	Introduction to the American Constitution
	<ul style="list-style-type: none"> a. Framing of American Constitution b. Salient Features of Constitution c. Executive d. Legislative e. Judiciary f. Party System
इकाई 3	Introduction to the Swiss Constitution
	<ul style="list-style-type: none"> a. Framing of Swiss Constitution and its Salient Features b. Executive c. Legislative d. Judiciary e. Party System f. Direct Democracy
Unit—4	Introduction to the Chinese Constitution
	<ul style="list-style-type: none"> a. Framing of Chinese Constitution and its Salient Features b. Executive c. Legislative d. Judiciary e. Communist party of China f. Democracy in China
Unit- 5	Comparative Study of the Constitutions
	<ul style="list-style-type: none"> a. Constitutional Amendment in USA and Switzerland b. American President and British Prime Minister c. American Senate and British House of Lords d. Swiss Federal System and American Federal System e. Political Party System of China, UK and USA

St. Aloysius College (Autonomous) Jabalpur

B.A. III Year

Subject	Political Science	DSE (Group B)
Paper	II	
Title of the paper	International Relations and Contemporary Issues	
Max.Mark	Theory	
100	70	

Unit -1	Introducing International Relations
	<p>3. International Relations as a discipline: Development and different definitions</p> <p>4. Theories of International Relations:</p> <ul style="list-style-type: none"> • Realism (Classical realism, structural realism, defensive/offensive realism) • Liberalism (Interdependence, neoliberal institutionalism, commercial liberalism) • Marxism (Lenin, Gramsci and World System Theory) <p>5. Key Concepts of International Politics: National Power, National Interest, Balance of Power, Collective Security</p> <p>6. Understanding Globalization</p>
Unit-2	Changing International Political Order
	<p>5. Cold War and Bi-Polarity</p> <p>6. Collapse of Soviet Union, Post-cold War, Unipolarity</p> <p>7. Non-Alignment Movement: Aims and achievements, Relevance of NAM in contemporary world</p> <p>8. Colonialism to Neo-colonialism</p>
Unit -3	United Nations and World peace
	<p>5. Main organs of United Nations: Role and Functions</p> <p>6. Need for UN reforms</p> <p>7. Promoting peace and security</p> <p>8. Promoting economic and social development</p>
Unit -4	Global Economy and Multilateral Organizations
	<p>4. Global Economic Governance: Making of Bretton Woods System, The International Monetary Fund, The World Bank, The World Trade Organization</p> <p>5. ASEAN, EU, SAARC, BRICS, QUAD</p>
Unit-5	Understanding Global Issues
	<p>4. Rescuing the Sustainable Development Goals</p> <p>5. Environmental Issues: Climate Change</p> <p>6. Economic issues: Poverty</p> <p>7. Social Issues: Gender Justice, Human Rights, Terrorism</p>

St. Aloysius College (Autonomous) Jabalpur

B.A. III Year

Subject	Political Science
Paper	Minor / Elective
Title of the paper	State Politics in India
MM	70

Unit -1	<ul style="list-style-type: none"> • State formation after Independence and integration of Indian States • A case study of Junagarh, Hyderabad, Goa and Kashmir
Unit-2	<ul style="list-style-type: none"> • Colonial Administrative Units • Reorganization of States-Issues and perspectives • Language, Religion and Identity Formations
Unit -3	<ul style="list-style-type: none"> • Regional Identity (Regionalism), interests and Aspirations • Case and community polarization • State Politics responding to National Issues such as Secularism, Communalism and Politics of Minorities • Agrarian Politics
Unit -4	<ul style="list-style-type: none"> • Party Politics and Coalition government • Issues and trends in Centre-state Relations • Politics of the State against the Centre-State Relation • Role of Governor in State Politics
Unit-5	<ul style="list-style-type: none"> • Inter-State Council • Inter-State Water Disputes • Inter-State Territorial Disputes • Implementation of Public Welfare Policies- such as Poverty Elimination, Food Security and Empowerment Policies

B.A. III Year

Subj	Political Science
	Generic Elective
Title of the	Local Self Government
Max. Marks	Theory
100	70
Unit -1	Local Self Government- Meaning, Definition Characteristics, Functions, Merits, Significance, Development of Local Self government <ul style="list-style-type: none">• Ancient Administration• Gupta Administration• Rajput Administration• Sultanate Administration• Mughal Administration• British Administration
Unit -2	Local Administration in India <ul style="list-style-type: none">• Community Development Program• Panchayati Raj• Balwant Rai Mehta Committee• Study Groups and Committees• Ashok Mehta Committee• GVK Rao Committee• L.M. Singhvi Committee• 73rd Constitutional Amendment• 74th Constitutional Amendment
Unit -3	Local Self Government in Madhya Pradesh Urban Institutions <ul style="list-style-type: none">• Municipality• Municipal Corporation• Other Urban Bodies- Cantonment Board, Industrial Town• Sources of Income of Urban Bodies• Control Over urban bodies rural institutions• Village Panchayat• Janpad Panchayat• District Panchayat• Sources of Income of Rural Bodies• Control Over Rural Institutions
Unit -4	Evaluation of Local Self- Government in India <ul style="list-style-type: none">• Achievements of Local Self Government• As Social Development• In the Form of Economic Development• Major Problems of Local Self Government• Local Self Government- Improvement Suggestions
Unit-5	Local Self- Government- Governance and Organization <ul style="list-style-type: none">• Administration in Madhya Pradesh – Secretariat, Chief Secretary, Secretary and Commissioner• State Election Commission- Organization, Functions and Role• State Finance Commission- Organization, Functions and Role• District Administration in Madhya Pradesh- Role of District Magistrate• Non- Government Organization(NGO)- Concept, Process of Registration (Trust Act, Societies Act, Companies Act), Economic Sources, Role, Challenges in Contemporary problems of Social revival and Rural Development

St. Aloysius College (Autonomous) Jabalpur

B.A. III Year		
Subj	Political Science	
	Elective	
Title of the	Globalization and Politics	
Max. Marks	Theory	Internal Assessment
100	70	30
Unit -1	Introduction to Globalization <ul style="list-style-type: none"> • Meaning of Globalization and its different Dimensions • Globalization Debate: for and Against 	
Unit -2	Approaches to Understanding Globalization <ul style="list-style-type: none"> • Liberal Approach, Realist Approach and Marxist Approach • Debates on Globalization in India: Liberals, School of Swadeshi and Marxist 	
Unit -3	Economic and Technological Drivers of Globalization <ul style="list-style-type: none"> • International Financial Institutions (World Bank, International Monetary Fund, World Trade Organization) • Information and Communication Technology • Culture and Market: Globalization and Domestic Market • Globalization and Its Impact on Culture 	
Unit -4	Globalization and Nation-State <ul style="list-style-type: none"> • Globalization and Democracy • Globalization and the Issue of National Sovereignty • Notion of Citizenship in Globalizing World • Global Resistances (Global Social Movements and NGOs) 	
Unit-5	Contemporary Global Issues <ul style="list-style-type: none"> • Ecological Issues, Historical Overview of International Environment Agreements • Climate Change, Global Common Debate • Proliferation of Nuclear Weapons • International Terrorism: Non- State Actors and State Terrorism ; Post 9/11 developments • Migration • Human Displacement and Human Security 	



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

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SYLLABUS

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संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)
2023 & 2024

भाग अ परिचय -			
कार्यक्रम यूजी लेवल प्रमाण पत्र	कक्षा बीए, बीकॉम, बीएससी, बीसीए, बीबीए	प्रथम सेमेस्टर	सत्र 2023-2024
विषय: आधार पाठ्यक्रम			
1	पाठ्यक्रम का कोड	X1-FCEAIT	
2	पाठ्यक्रम का शीर्षक	भाषा और संस्कृति	
3	पाठ्यक्रम का प्रकार	आधार पाठ्यक्रम	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए जिस विद्यार्थी ने किसी भी विषय से कक्षा बारहवीं प्रमाणपत्र डिप्लोमा किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	<ol style="list-style-type: none"> 1. उत्कृष्ट साहित्य पाठों के अध्ययन से रुचि का विकास करना 2. सांस्कृतिक चेतना और राष्ट्रीय भावना का विकास करना 3. भाषा ज्ञान 4. सामान्य शब्दावली और विशेष शब्दावली के अध्ययन द्वारा भाषा एवं संस्कृति बोध का विकास करना 5. विशिष्ट शब्दावली से परिचित करवाते हुए बोध के स्तर को विकसित करना 6. प्रतियोगी परीक्षाओं हेतु तैयार करना 	
6	क्रेडिट मान	02	
7	कुल अंक	50 अंक सैद्धांतिक मूल्यांकन - 30 अंक आंतरिक मूल्यांकन - 20 अंक	
भाग ब पाठ्यक्रम की विषयवस्तु			

पाठ्यक्रम		
इकाई	पाठ	व्याख्यान की संख्या
इकाई 1	मैथिलीशरण गुप्त परिचय पाठ मातृभूमि कविता	10
	प्रेमचंद परिचय पाठ शतरंज के खिलाड़ी कहानी	
	व्यंग शरद जोशी जीप पर सवार इल्लियां	
इकाई 2	वैचारिक भारतीय भाषाओं में राम	10
	आचार्य रामचंद्र शुक्ल परिचय पाठ उत्साह भाग मुल्क निबंध	
	रामधारी सिंह दिनकर परिचय पाठ भारत एक है संस्कृति	
	आदि शंकराचार्य जीवन व दर्शन	
इकाई 3	पर्यायवाची शब्द, विलोम शब्द, अनेक शब्द, के लिए एक शब्द	10
	संधि और उसके प्रकार	
	बीज शब्द धर्म अद्वैत भाषा अवधारणा उदारीकरण	

अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री:

पाठ पुस्तकें -

- सं. बड़थवाल, पीतांबरदत्त, गोरखबानी, प्रकाशन हिंदी साहित्य सम्मेलन, प्रयाग
- दीक्षित, आनंद प्रकाश, विद्यापति पदावली, साहित्य मंदिर प्रकाशन, ग्वालियर
- सं. दास, श्यामसुंदर, कबीर ग्रंथावली, नागरी प्रचारिणी सभा, वाराणसी
- शुक्ल, आचार्य रामचंद्र, जायसी ग्रंथावली, नागरी प्रचारिणी सभा, वाराणसी
- शुक्ल, आचार्य रामचंद्र, भ्रमरगीत सार, लोकभारती प्रकाशन, इलाहाबाद
- गोस्वामी, तुलसीदास, श्री रामचरितमानस, गीता प्रेस, गोरखपुर
- रत्नाकर, जगन्नाथदास, बिहारी रत्नाकर, रत्नाकर पब्लिकेशन, वाराणसी
- मिश्र, विश्वनाथ प्रसाद, भूषण ग्रंथावली, साहित्य सेवक कार्यालय, काशी
- शर्मा, हेमंत, भारतेन्दु समग्र, हिंदी प्रचारक संस्था, वाराणसी
- शाही, सदानंद, अयोध्या सिंह उपाध्याय हरिऔध रत्नावली, वाणी प्रकाशन, नई दिल्ली
- प्रसाद, जयशंकर, कामायनी, लोकभारती प्रकाशन, इलाहाबाद
- शर्मा, रामविलास, राग विराग, लोकभारती प्रकाशन, इलाहाबाद

- वर्मा, महादेवी, परिक्रमा, साहित्य भवन प्राइवेट लिमिटेड, इलाहाबाद
- पालीवाल, कृष्ण, अजेय रचनावली, भारतीय ज्ञानपीठ प्रकाशन, नई दिल्ली
- मुक्तिबोध, गजानन माधव, चांद का मुंह टेढ़ा है, राजकमल प्रकाशन, नई दिल्ली
- सिंह, नामवर, प्रतिनिधि कविताएं नागार्जुन, राजकमल प्रकाशन, नई दिल्ली
- सं. द्विवेदी, हजारी प्रसाद, संक्षिप्त पृथ्वीराज रासो, काशी विश्वविद्यालय, बनारस प्रथम संस्करण 1952 ई.

संदर्भ ग्रंथ

- डॉ नगेंद्र, (संपादक), हिंदी साहित्य का इतिहास, नेशनल पब्लिशिंग हाउस, नई दिल्ली 1976
- शुक्ल, रामचंद्र, हिंदी साहित्य का इतिहास, लोकभारती प्रकाशन, इलाहाबाद 2019
- तिवारी, रामचंद्र, हिंदी गद्य का इतिहास, विश्वविद्यालय प्रकाशन, वाराणसी 1992
- चतुर्वेदी, रामस्वरूप, हिंदी साहित्य और संवेदना का विकास, लोकभारती प्रकाशन, इलाहाबाद 2019
- सिंह, नामवर, आधुनिक साहित्य की प्रवृत्तियां, राजकमल प्रकाशन, नई दिल्ली 2011
- द्विवेदी, हजारीप्रसाद, हिंदी साहित्य का आदिकाल, बिहार राष्ट्रभाषा परिषद, पटना, 1961 तृतीय संस्करण
- भटनागर, रामरतन, प्राचीन हिंदी काव्य, इंडियन प्रेस लिमिटेड, प्रयाग 1952

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)
2023&2024

भाग अ परिचय -			
कार्यक्रम	प्रमाण पत्र	कक्षा बी ए	प्रथम सेमेस्टर सत्र 2023&2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A1-HLIT1T	
2	पाठ्यक्रम का शीर्षक	हिन्दी काव्य	
3	पाठ्यक्रम का प्रकार	कोर कोर्स ¼मेजर माईनर ½	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी ने किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	1.इस पाठ्यक्रम के अध्ययन से विद्यार्थी हिंदी काव्य की सुदीर्घ परंपरा से परिचित होंगे। 2.प्रसिद्ध रचनाओं के अध्ययन से देश की सामाजिक सांस्कृतिक एवं राष्ट्रीय पृष्ठभूमि से सुविज्ञ होंगे। विद्यार्थियों के व्यक्तित्व का विकास होगा, उनकी जीवन दृष्टि का विस्तार होगा जिससे वह जीवन एवं जीवन मूल्यों को समझने में सक्षम होंगे। 4.रचनात्मक कौशल में दक्षता होगी जिससे उन्हें रोजगार की अनेक संभावनाएं मिलेगी।	
6	क्रेडिट मान	06	
7	कुल अंक	100 सैद्धांतिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40	
भाग ब पाठ्यक्रम की विषयवस्तु			
व्याख्यान की कुल संख्या 90			
इकाई	विषय	व्याख्यान की संख्या	
इकाई 1	भारतीय ज्ञान परंपरा के अंतर्गत हिंदी साहित्य के इतिहास की पृष्ठभूमि एवं प्रमुख कवि 1 हिंदी साहित्य के इतिहास की पृष्ठभूमि		

	<p>1.1 काल विभाजन एवं नामकरण 1.2 आदिकाल की सामाजिक एवं सांस्कृतिक पृष्ठभूमि 1.3 आदिकालीन काव्य धाराएं एवं प्रवृत्तियां 1.4 आदिकालीन कवि ॥ प्रमुख कवि 2.1 गोरखनाथ व्याख्या एवं समीक्षा गोरख बानी सबदी पद – 2,4,7,8,16 राग रामघी पद – 10,11 2.2 चंद बरदाई व्याख्या एवं समीक्षा पृथ्वीराज रासो कनवज्जा समय कवित्त – 144,145,146 2.3 विद्यापति व्याख्या एवं समीक्षा पदावली – पद सं – 1,49,54,55,58</p>	16
इकाई 2	<p>1 भक्ति काल एवं प्रमुख कवि 1.1 भक्ति आंदोलन सामाजिक सांस्कृतिक पृष्ठभूमि 1.2 काव्य धाराएं एवं प्रवृत्तियां 1.3 प्रमुख निर्गुण एवं सगुण कवि, भक्ति काल की प्रवृत्तियां 2 प्रमुख कवि - निर्गुण मार्गी 2.1 कबीर दास व्याख्या एवं समीक्षा साखी - गुरुदेव को अंग – 1,5,7,11,13 विरह को अंग – 4,10,12,20,23 पद – <ul style="list-style-type: none"> • दुल्हनी गावहु मंगलचार • पंडित बाद बंदते झूठा • लोका मति के भोरा रे • बोलौ भाई राम की दुहाई 2.1 मलिक मोहम्मद जायसी व्याख्या एवं समीक्षा मानसरोदक खंड - पद संख्या 1 से 3 3 प्रमुख कवि सगुणमार्गी 3.1 सूरदास व्याख्या एवं समीक्षा पद संख्या – 21,23,25,85 3.2 गोस्वामी तुलसीदास व्याख्या एवं समीक्षा अयोध्याकांड मागी नाव न केवट आना। कहइ तुम्हार मरमु मैं जाना ॥</p>	18

	से बिदा कीन्ह करुनायतन भगति बिमल बरू देइ। (102 दोहा तक)	
इकाई 3	1 रीतिकाल की पृष्ठभूमि एवं प्रमुख कवि 1.1 रीतिकाल की सामाजिक, सांस्कृतिक पृष्ठभूमि 1.2 रीतिकालीन साहित्य के प्रमुख भेद - रीति सिद्ध, रीतिबद्ध, रीतिमुक्त 1.3 रीतिकाल की प्रवृत्तियां 2 प्रमुख कवि 2.1 बिहारी व्याख्या एवं समीक्षा दोहा क्रमांक 1, 16, 18, 20, 21, 25, 27, 28, 37, 46 2.2 भूषण (व्याख्या एवं समीक्षा) शिवा बावनी पद संख्या 4, 25, 26 छत्रसाल दशक पद संख्या - 1, 7	16
इकाई 4	1 आधुनिक काल की पृष्ठभूमि एवं प्रमुख कवि 1.1 आधुनिक काल की सामाजिक, सांस्कृतिक पृष्ठभूमि, पुनर्जागरण काल, हिंदी नवजागरण काल एवं प्रवृत्तियां 1.2 भारतेन्दु युगीन साहित्य एवं प्रवृत्तियां 1.3 द्विवेदी युगीन साहित्य एवं प्रवृत्तियां 1.4 छायावाद युगीन साहित्य एवं प्रवृत्तियां 2 प्रमुख कवि 2.1 भारतेन्दु हरिश्चंद्र (व्याख्या एवं समीक्षा) हिंदी भाषा - निज भाषा उन्नति अहै सब उन्नति को मूल (10 दोहे) 2.2 अयोध्या सिंह उपाध्याय हरिऔध (व्याख्या एवं समीक्षा) काव्य - एक बूंद मीठी बोली 2.3 जयशंकर प्रसाद (व्याख्या एवं समीक्षा) कामायनी के श्रद्धा सर्ग से - प्रकृति के यौवन का श्रृंगार करेंगे कभी ना बासी फूल से खिंची आवेगी सकल समृद्धि तक का अंश 2.4 सूर्यकांत त्रिपाठी निराला (व्याख्या एवं समीक्षा) जागो फिर एक बार : भाग 2, वह तोड़ती पत्थर 2.5 महादेवी वर्मा (व्याख्या एवं समीक्षा) मैं नीर भरी दुख की बदली बीन भी हूं मैं तुम्हारी, रागिनी भी हूं	20
इकाई 5	1 छायावादोत्तर काव्य धाराएं एवं प्रमुख कवि	

<p>1.1 उत्तर छायावाद की विविध वैचारिक प्रवृत्तियां</p> <p>1.2 प्रगतिवाद साहित्य एवं प्रवृत्तियां</p> <p>1.3 प्रयोगवाद साहित्य एवं प्रवृत्तियां</p> <p>1.4 नई कविता, समकालीन कविता प्रमुख प्रवृत्तियां</p> <p>2 प्रमुख कवि</p> <p>2.1 अज्ञेय (व्याख्या एवं समीक्षा) नदी के द्वीप, यह दीप अकेला</p> <p>2.2 गजानन माधव मुक्तिबोध (व्याख्या एवं समीक्षा) मैं तुम लोगों से दूर हूँ, भूल गलती</p> <p>2.3 नागार्जुन (व्याख्या एवं समीक्षा) अकाल और उसके बाद, बादल को घिरते देखा है</p> <p>2.3 धूमिल (व्याख्या एवं समीक्षा) रोटी और संसद, बीस साल बाद</p> <p>2.4 इंद्र बहादुर खरे(व्याख्या एवं समीक्षा) मृत्यु पथ का राही (सुरबाला)</p> <p>3 अभ्यास</p> <p>3.1 काव्य पाठ (सस्वर)</p> <p>3.2 सुलेखन</p> <p>3.3 शुद्धवाचन</p>	20
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अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री:

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- शाही, सदानंद, अयोध्या सिंह उपाध्याय हरिऔध रत्नावली, वाणी प्रकाशन, नई दिल्ली
- प्रसाद, जयशंकर, कामायनी, लोकभारती प्रकाशन, इलाहाबाद

- शर्मा, रामविलास, राग विराग, लोकभारती प्रकाशन, इलाहाबाद
- वर्मा, महादेवी, परिक्रमा, साहित्य भवन प्राइवेट लिमिटेड, इलाहाबाद
- पालीवाल, कृष्ण, अजेय रचनावली, भारतीय ज्ञानपीठ प्रकाशन, नई दिल्ली
- मुक्तिबोध, गजानन माधव, चांद का मुंह टेढ़ा है, राजकमल प्रकाशन, नई दिल्ली
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संदर्भ ग्रंथ

- डॉ नगेंद्र, (संपादक), हिंदी साहित्य का इतिहास, नेशनल पब्लिशिंग हाउस, नई दिल्ली 1976
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संत अलायंसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय -			
कार्यक्रम प्रमाण पत्र	कक्षा बी ए	प्रथम सेमेस्टर	सत्र 2023& 2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A1-HLIT1T	
2	पाठ्यक्रम का शीर्षक	हिन्दी काव्य	
3	पाठ्यक्रम का प्रकार	इलेक्टिव	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी में किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो पात्र हैं।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	1.इस पाठ्यक्रम के अध्ययन से विद्यार्थी हिंदी काव्य की सुदीर्घ परंपरा से परिचित होंगे। 2.प्रसिद्ध रचनाओं के अध्ययन से देश की सामाजिक सांस्कृतिक एवं राष्ट्रीय पृष्ठभूमि से सुविज्ञ होंगे। विद्यार्थियों के व्यक्तित्व का विकास होगा, उनकी जीवन दृष्टि का विस्तार होगा जिससे वह जीवन एवं जीवन मूल्यों को समझने में सक्षम होंगे। 4.रचनात्मक कौशल में दक्षता होगी जिससे उन्हें रोजगार की अनेक संभावनाएं मिलेगी।	
6	क्रेडिट मान	04	
7	कुल अंक	100 सैद्धांतिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40	
भाग ब पाठ्यक्रम की विषयवस्तु			
व्याख्यान की कुल संख्या - 60			
इकाई	विषय	व्याख्यान की संख्या	
इकाई 1	1 भक्ति काल एवं प्रमुख कवि 3.1 भक्ति आंदोलन सामाजिक सांस्कृतिक पृष्ठभूमि 3.2 काव्य धाराएं एवं प्रवृत्तियां		

	<p>3.3 प्रमुख निर्गुण एवं सगुण कवि, भक्ति काल की प्रवृत्तियां</p> <p>4 प्रमुख कवि - निर्गुण मार्गी</p> <p>4.1 कबीर दास व्याख्या एवं समीक्षा साखी - गुरुदेव को अंग - 1,5,7,11,13 विरह को अंग - 4,10,12,20,23 पद -</p> <ul style="list-style-type: none"> • दुल्हनी गावहु मंगलचार • पंडित बाद बंदते झूठा • लोका मति के भोरा रे • बोलौ भाई राम की दुहाई <p>2-1 मलिक मोहम्मद जायसी व्याख्या एवं समीक्षा मानसरोदक खंड - पद संख्या 1 से 3</p> <p>5 प्रमुख कवि सगुणमार्गी</p> <p>3.1 सूरदास व्याख्या एवं समीक्षा पद संख्या - 21,23,25,85</p> <p>3.2 गोस्वामी तुलसीदास व्याख्या एवं समीक्षा - अयोध्याकांड मागी नाव न केवट आना। कहइ तुम्हार मरमु मैं जाना ॥ से बिदा कीन्ह करुनायतन भगति बिमल बरु देइ। (102 दोहा तक)</p>	15
इकाई 2	<p>1 रीतिकाल की पृष्ठभूमि एवं प्रमुख कवि</p> <p>2.3 रीतिकाल की सामाजिक, सांस्कृतिक पृष्ठभूमि</p> <p>2.4 रीतिकालीन साहित्य के प्रमुख भेद - रीति सिद्ध, रीतिबद्ध, रीतिमुक्त</p> <p>2.5 रीतिकाल की प्रवृत्तियां</p> <p>3 प्रमुख कवि</p> <p>3.1 बिहारी व्याख्या एवं समीक्षा दोहा क्रमांक 1, 16, 18,20,21, 25, 27, 28, 37,46</p> <p>3.2 भूषण (व्याख्या एवं समीक्षा) शिवा बावनी पद संख्या 4,25, 26 छत्रसाल दशक पद संख्या - 1,7</p>	15
इकाई 3	<p>1 आधुनिक काल की पृष्ठभूमि एवं प्रमुख कवि</p> <p>2.6 आधुनिक काल की सामाजिक, सांस्कृतिक पृष्ठभूमि, पुनर्जागरण काल, हिंदी नवजागरण काल एवं प्रवृत्तियां</p> <p>2.7 भारतेन्दु युगीन साहित्य एवं प्रवृत्तियां</p> <p>2.8 द्विवेदी युगीन साहित्य एवं प्रवृत्तियां</p>	

	<p>2.9 छायावाद युगीन साहित्य एवं प्रवृत्तियां</p> <p>3 प्रमुख कवि</p> <p>3.1 भारतेन्दु हरिश्चंद्र (व्याख्या एवं समीक्षा) हिंदी भाषा - निज भाषा उन्नति अहै सब उन्नति को मूल (10 दोहे)</p> <p>3.2 अयोध्या सिंह उपाध्याय हरिऔध (व्याख्या एवं समीक्षा) काव्य - एक बूंद मीठी बोली</p> <p>3.3 जयशंकर प्रसाद (व्याख्या एवं समीक्षा) कामायनी के श्रद्धा सर्ग से - प्रकृति के यौवन का श्रृंगार करेंगे कभी ना बासी फूल से खिंची आवेगी सकल समृद्धि तक का अंश</p> <p>3.4 सूर्यकांत त्रिपाठी निराला (व्याख्या एवं समीक्षा) जागो फिर एक बार : भाग 2, वह तोड़ती पत्थर</p> <p>3.5 महादेवी वर्मा (व्याख्या एवं समीक्षा) मैं नीर भरी दुख की बदली बीन भी हूं मैं तुम्हारी, रागिनी भी हूं</p>	15
इकाई 4	<p>1 छायावादोत्तर काव्य धाराएं एवं प्रमुख कवि</p> <p>3.1 उत्तर छायावाद की विविध वैचारिक प्रवृत्तियां</p> <p>3.2 प्रगतिवाद साहित्य एवं प्रवृत्तियां</p> <p>3.3 प्रयोगवाद साहित्य एवं प्रवृत्तियां</p> <p>3.4 नई कविता, समकालीन कविता प्रमुख प्रवृत्तियां</p> <p>4 प्रमुख कवि</p> <p>4.1 अजेय (व्याख्या एवं समीक्षा) नदी के द्वीप, यह दीप अकेला</p> <p>4.2 गजानन माधव मुक्तिबोध (व्याख्या एवं समीक्षा) मैं तुम लोगों से दूर हूं, भूल गलती</p> <p>2.3 नागार्जुन (व्याख्या एवं समीक्षा) अकाल और उसके बाद, बादल को घिरते देखा है</p> <p>4.3 धूमिल (व्याख्या एवं समीक्षा) रोटी और संसद, बीस साल बाद</p> <p>4.4 इंद्र बहादुर खरे (व्याख्या एवं समीक्षा) मृत्यु पथ का राही (सुरबाला)</p> <p>5 अभ्यास</p> <p>3.1 काव्य पाठ (सस्वर)</p> <p>3.2 सुलेखन</p>	15

3.3 शुद्धवाचन	
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अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री:

पाठ पुस्तकें -

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- दीक्षित, आनंद प्रकाश, विद्यापति पदावली, साहित्य मंदिर प्रकाशन, ग्वालियर
- सं. दास, श्यामसुंदर, कबीर ग्रंथावली, नागरी प्रचारिणी सभा, वाराणसी
- शुक्ल, आचार्य रामचंद्र, जायसी ग्रंथावली, नागरी प्रचारिणी सभा, वाराणसी
- शुक्ल, आचार्य रामचंद्र, भ्रमरगीत सार, लोकभारती प्रकाशन, इलाहाबाद
- गोस्वामी, तुलसीदास, श्री रामचरितमानस, गीता प्रेस, गोरखपुर
- रत्नाकर, जगन्नाथदास, बिहारी रत्नाकर, रत्नाकर पब्लिकेशन, वाराणसी
- मिश्र, विश्वनाथ प्रसाद, भूषण ग्रंथावली, साहित्य सेवक कार्यालय, काशी
- शर्मा, हेमंत, भारतेंदु समग्र, हिंदी प्रचारक संस्था, वाराणसी
- शाही, सदानंद, अयोध्या सिंह उपाध्याय हरिऔध रत्नावली, वाणी प्रकाशन, नई दिल्ली
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- शर्मा, रामविलास, राग विराग, लोकभारती प्रकाशन, इलाहाबाद
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संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)
2023&2024

भाग अ परिचय -			
कार्यक्रम प्रमाण पत्र	कक्षा बी ए	सेमेस्टर प्रथम	सत्र 2023&2024
विषय: प्रयोजनमूलक हिंदी			
1	पाठ्यक्रम का कोड	A1-FHIN1T	
2	पाठ्यक्रम का शीर्षक	प्रयोजनमूलक हिंदी: परिचय एवं विविध रूप	
3	पाठ्यक्रम का प्रकार	कोर कोर्स ¼मेजर/ माईनर ½	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी में किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो पात्र हैं।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	<p>प्रयोजनमूलक हिंदी एक कार्यात्मक एवं व्यावहारिक हिंदी से संबंधित पाठ्यक्रम है. वैश्वीकरण के युग में विश्व मंच पर हिंदी की स्वीकार्यता में आशातीत वृद्धि हुई है. जिसके कारण आज हिंदी का क्षेत्रफल भारत की सीमाओं तक ही सीमित नहीं है कि हर क्षेत्र में चाहे सरकारी कार्यालयों कारपोरेट जगत जनसंचार माध्यम के विपक्ष हो अथवा स्कूल कॉलेजों में पढ़ाई का माध्यम सभी जगह हिंदी माध्यम से कार्य करने वाले कुशल व्यक्ति की महती आवश्यकता है. इसी आवश्यकता को दृष्टिगत रखते हुए एवं कार्यात्मक हिंदी का पाठ्यक्रम प्रयोजनमूलक हिंदी के रूप में तैयार किया गया है.</p> <p>पाठ्यक्रम के अध्ययन से</p> <ol style="list-style-type: none"> 1. विद्यार्थी हिंदी के परंपरागत अध्ययन और साहित्यिक हिंदी से इतर हिंदी के प्रयोजनमूलक और व्यवहारिक पक्ष को सरलता से समझ सकेगा. 2. दैनिक जीवन के विविध क्षेत्रों शिक्षा व्यवसाय प्रशासन विधि एवं कला जगत में प्रयुक्त होने वाले हिंदी के व्यवहारिक प्रयोग का ज्ञान विद्यार्थी को हो सकेगा. 	

		<ol style="list-style-type: none"> 3. भारत में राजभाषा संबंधी संवैधानिक प्रावधानों राष्ट्रभाषा और राजभाषा में अंतर और त्रिभाषा सूत्र को विद्यार्थी भली-भांति समझ सकेगा. 4. हिंदी प्रयोग में होने वाली अशुद्धियों के सुधार का अभ्यास होगा जिससे विद्यार्थी का शुद्ध हिंदी लिखने का अभ्यास बढ़ेगा. 5. पारिभाषिक शब्दावली से परिचित होकर विद्यार्थी उचित पारिभाषिक शब्दों का प्रयोग कर अपने व्यवसायिक हिंदी को परिष्कृत कर सकेगा. 6. शिक्षा, व्यवसाय, प्रशासनिक एवं कला के क्षेत्र में विद्यार्थी द्वारा मानक हिंदी के शब्दों का सुगम व सटीक प्रयोग करने से ज्ञान में वृद्धि होगी. 7. कला के व्यापक क्षेत्र में विद्यमान अनेक घटकों जैसे सिनेमा टीवी और विज्ञापन आदि के लिए विभिन्न विधाओं में बाजार की मांग के अनुरूप हिंदी लेखन का व्यवहारिक ज्ञान विद्यार्थी के लिए रोजगार उपलब्ध कराने में सहायक होगा.
6	क्रेडिट मान	06
7	कुल अंक	100 सैद्धांतिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40
भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या- 90		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	प्रयोजनमूलक हिंदी -अर्थ, स्वरूप, नामकरण एवं परिभाषा, प्रयोजनमूलक हिंदी की विशेषताएं एवं महत्व, प्रयोजनमूलक हिंदी के विविध रूप	18
इकाई 2	प्रयोजनमूलक हिंदी का प्रयोगक्षेत्र- शिक्षा व प्रशासन के क्षेत्र में व्यवसाय के क्षेत्र में कला के क्षेत्र में	18

इकाई 3	राजभाषा हिंदी की संवैधानिक स्थिति राजभाषा का स्वरूप एवं परिभाषा राजभाषा और राष्ट्रभाषा में अंतर, संपर्क भाषा, त्रिभाषा सूत्र - परिचय, आवश्यकता एवं महत्व	18
इकाई 4	भाषा का अर्थ एवं परिभाषा हिंदी का मानक रूप एवं विशेषताएँ भाषा की अशुद्धियों के प्रकार एवं सुधार	18
इकाई 5	पारिभाषिक शब्दावली - अर्थ, स्वरूप, परिभाषा एवं विशेषताएँ. पारिभाषिक शब्दावली निर्माण की आवश्यकता एवं महत्व. विविध क्षेत्रों विज्ञान, प्रशासनिक एवं विधि में प्रयुक्त होने वाले पारिभाषिक शब्द. (50 शब्द)	18

अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री:

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- "शुक्ल डॉ. अभिलाषा, अरासू, रेव. डॉ. जी, वलन, हिंदी के विविध आयाम, विश्व हिंदी साहित्य परिषद, दिल्ली, संस्करण 2020"
- "शुक्ल डॉ. अभिलाषा, अरासू, रेव, डॉ. जी वलन, विविध रूपा हिंदी, विश्व हिंदी साहित्य परिषद, दिल्ली संस्करण 2021"

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भाग अ परिचय -			
कार्यक्रम प्रमाण पत्र	कक्षा बी ए	सेमेस्टर प्रथम	सत्र 2022 2023
विषय: प्रयोजनमूलक हिंदी प्रथम प्रश्न पत्र			
1	पाठ्यक्रम का कोड	A1-FHIN1T	
2	पाठ्यक्रम का शीर्षक	प्रयोजनमूलक हिंदी : परिचय एवं विविध रूप	
3	पाठ्यक्रम का प्रकार	इलेक्टिव	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी में किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो पात्र हैं।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	<p>प्रयोजनमूलक हिंदी एक कार्यात्मक एवं व्यवहारिक हिंदी से संबंधित पाठ्यक्रम है। वैश्वीकरण के युग में विश्व मंच पर हिंदी की स्वीकार्यता में आशातीत वृद्धि हुई है। जिसके कारण आज हिंदी का क्षेत्रफल भारत की सीमाओं तक ही सीमित नहीं है कि हर क्षेत्र में चाहे सरकारी कार्यालयों कारपोरेट जगत जनसंचार माध्यम के विपक्ष हो अथवा स्कूल कॉलेजों में पढ़ाई का माध्यम सभी जगह हिंदी माध्यम से कार्य करने वाले कुशल व्यक्ति की महती आवश्यकता है। इसी आवश्यकता को दृष्टिगत रखते हुए एवं कार्यात्मक हिंदी का पाठ्यक्रम प्रयोजनमूलक हिंदी के रूप में तैयार किया गया है।</p> <p>पाठ्यक्रम के अध्ययन से</p> <ol style="list-style-type: none"> 1. विद्यार्थी हिंदी के परंपरागत अध्ययन और साहित्यिक हिंदी से इतर हिंदी के प्रयोजनमूलक और व्यवहारिक पक्ष को सरलता से समझ सकेगा. 2. दैनिक जीवन के विविध क्षेत्रों शिक्षा व्यवसाय प्रशासन विधि एवं कला जगत में प्रयुक्त होने वाले हिंदी के व्यवहारिक प्रयोग का ज्ञान विद्यार्थी को हो सकेगा. 3. भारत में राजभाषा संबंधी संवैधानिक प्रावधानों 	

		<p>राष्ट्रभाषा और राजभाषा में अंतर और त्रिभाषा सूत्र को विद्यार्थी भली-भांति समझ सकेगा.</p> <p>4. हिंदी प्रयोग में होने वाली अशुद्धियों के सुधार का अभ्यास होगा जिससे विद्यार्थी का शुद्ध हिंदी लिखने का अभ्यास बढ़ेगा.</p> <p>5. पारिभाषिक शब्दावली से परिचित होकर विद्यार्थी उचित पारिभाषिक शब्दों का प्रयोग कर अपने व्यवसायिक हिंदी को परिष्कृत कर सकेगा.</p> <p>6. शिक्षा, व्यवसाय, प्रशासनिक एवं कला के क्षेत्र में विद्यार्थी द्वारा मानक हिंदी के शब्दों का सुगम व सटीक प्रयोग करने से ज्ञान में वृद्धि होगी.</p> <p>7. कला के व्यापक क्षेत्र में विद्यमान अनेक घटकों जैसे सिनेमा टीवी और विज्ञापन आदि के लिए विभिन्न विधाओं में बाजार की मांग के अनुरूप हिंदी लेखन का व्यावहारिक ज्ञान विद्यार्थी के लिए रोजगार उपलब्ध कराने में सहायक होगा.</p>
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6	क्रेडिट मान	04
7	कुल अंक	100
		सैद्धांतिक मूल्यांकन - 60
		आंतरिक मूल्यांकन - 40

भाग ब पाठ्यक्रम की विषयवस्तु

की कुल संख्या प्रायोगिक प्रतिशत घंटे में 3 घंटे प्रति सप्ताह कुल व्याख्यान 60

पाठ्यक्रम

इकाई	विषय	व्याख्यान की संख्या
इकाई 1	प्रयोजनमूलक हिंदी अर्थ स्वरूप नामकरण एवं परिभाषा प्रयोजनमूलक हिंदी की विशेषताएं एवं महत्व प्रयोजनमूलक हिंदी के विविध रूप	15
इकाई 2	प्रयोजनमूलक हिंदी का प्रयोग क्षेत्र शिक्षा व प्रशासन के क्षेत्र में व्यवसाय के क्षेत्र में कला के क्षेत्र में	15
इकाई 3	राजभाषा हिंदी की संवैधानिक स्थिति	

	राजभाषा का स्वरूप एवं परिभाषा राजभाषा और राष्ट्रभाषा में अंतर संपर्क भाषा त्रिभाषा सूत्र परिचय आवश्यकता एवं महत्व	15
इकाई 4	भाषा का अर्थ एवं परिभाषा हिंदी का मानक रूप एवं विशेषताएं भाषा की अशुद्धियों के प्रकार एवं सुधार	15
अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री: पाठ पुस्तकें -		
	<ul style="list-style-type: none"> • अंडाल डॉ. प.प., प्रशासनिक हिंदी प्रयोग और संभावनाएं, वाणी प्रकाशन, दिल्ली, 2007 • कुलश्रेष्ठ, अरविंद, राजभाषा नीति, संपादक कृष्ण कुमार गोस्वामी, केंद्रीय हिंदी संस्थान नई दिल्ली • गुप्ता, गार्गी, पारिभाषिक शब्दावली की विकास यात्रा, संपा., भारतीय अनुवाद परिषद नई दिल्ली, 1986 • गोदरेज, विनोद, प्रयोजनमूलक हिंदी, वाणी प्रकाशन, इलाहाबाद, 2016 • झाल्टे, दंगल, प्रयोजनमूलक हिंदी सिद्धांत और प्रयोग, वाणी प्रकाशन, दिल्ली, 2010 • टंडन, प्रो पूरनचंद्र, आजीविका साधक हिंदी, इंद्रप्रस्थ प्रकाशन, दिल्ली 1998 • तिवारी भोलानाथ एवं श्रीवास्तव रवींद्रनाथ, व्यवहारिक हिंदी सरलीकरण विशेषज्ञ समिति मधुर वाणी प्रकाशन दिल्ली • अरासू, रेव. डॉ. फा. जी. वलन, शुक्ल, अभिलाषा, हिंदी सर्वत्र विद्यते, विश्व हिंदी साहित्य परिषद दिल्ली, संस्करण 2020" • "शुक्ल डॉ. अभिलाषा, अरासू, रेव. डॉ. जी, वलन, हिंदी के विविध आयाम, विश्व हिंदी साहित्य परिषद, दिल्ली, संस्करण 2020" • "शुक्ल डॉ. अभिलाषा, अरासू, रेव. डॉ. जी वलन, विविध रूपा हिंदी, विश्व हिंदी साहित्य परिषद, दिल्ली संस्करण 2021" 	

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भाग अ परिचय -			
कार्यक्रम : प्रमाण पत्र	कक्षा : प्रथम सेमेस्टर	सेमेस्टर : प्रथम	सत्र 2023-2024
विषय: प्रयोजनमूलक हिंदी (Functional Hindi), प्रश्न पत्र: प्रथम (वैकल्पिक)			
1	पाठ्यक्रम का कोड	A1-FHIN1G	
2	पाठ्यक्रम का शीर्षक	हिंदी और विज्ञापन व्यवसाय	
3	पाठ्यक्रम का प्रकार	जेनेरिक इलेक्टिव (Generic Elective)	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए छात्र ने किसी भी संकाय/विषय में कक्षा 12वीं अथवा समकक्ष परीक्षा उत्तीर्ण की हो। (Open for all)	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम (CLO)	<p>आज के वैधीकरण एवं बाजारवाद के दौर में विज्ञापन एक सनकत माध्यम के रूप में उभर कर सामने आया है। विज्ञापन का क्षेत्र अत्यधिक व्यापक एवं बहुआयामी है। न केवल उत्पाद कंपनियों द्वारा वस्तु का प्रचार-प्रसार किया जा रहा है बल्कि जनकल्याण, शैक्षणिक संस्थाओं एवं सूचनाओं के प्रचार-प्रसार में भी विज्ञापनों की महती भूमिका है। हिन्दी आज बाजार की जरूरत बन गयी है। हिंदी बोलने-समझने वालों की संख्या में आशातीत वृद्धि होने के कारण विपणन कंपनियों को अपने उत्पाद बेचने के लिए हिंदी में तैयार विज्ञापन की अत्यंत आवश्यकता है। हिंदी भाषा के माध्यम से विभिन्न जनसंचार माध्यमों में विज्ञापन व्यवसाय द्वारा रोजगार की अपार संभावनाएं हैं। विज्ञापन की अवधारणा आवश्यकता, निर्देश व सिद्धांत, विज्ञापन- लेखन की रचना-प्रक्रिया से विद्यार्थी को परिचित कराना ही इस पाठ्यक्रम के अध्ययन-अध्यापन का प्रयोजन है।</p> <p>पाठ्यक्रम के अध्ययन से</p> <p>1. इस पाठ्यक्रम के अध्ययनोपरांत विद्यार्थी को प्रिंट</p>	

		<p>मीडिया, इलेक्ट्रॉनिक मीडिया, विज्ञापन एजेंसियों व अन्य संस्थाओं में विज्ञापन-लेखन के माध्यम से रोजगार के अवसर उपलब्ध हो सकेंगे।</p> <p>2. विभिन्न प्रकार के विज्ञापनों से संबंधित स्लोगन, गीत, जिंगल-लेखन, तुकांत कविता, रेखाचित्र, बैनर, पोस्टर, रंग संयोजन, कैलेंडर-निर्माण आदि के कौशल का विकास विद्यार्थी में हो सकेगा।</p> <p>3. अपने देश समाज एवं क्षेत्र विशेष के उपभोक्ता की रुचि क्रय-शक्ति एवं वस्तु की मांग से विद्यार्थी विज्ञापन-लेखन के दौरान परिचित होगा, जिससे उसमें विश्लेषण क्षमता का विकास हो सकेगा।</p> <p>4. विज्ञापन को तथ्यात्मक बनाने के लिए विद्यार्थी विभिन्न उत्पाद कंपनियों के उत्पादों की जानकारी प्राप्त करने का प्रयास करेगा जिससे उसमें तुलनात्मक एवं तार्किक विवेचन की क्षमता का विकास होगा, जिससे वह स्वयं का व्यवसाय आरंभ करने के लिए भी प्रेरित हो सकेगा।</p> <p>5. विज्ञापन-लेखन के अभ्यास से विद्यार्थी में कल्पनाशीलता, रचनात्मकता एवं भाषा के विविधता भरे कौशल की अभिवृद्धि होगी।</p>
6	क्रेडिट मान	सैद्धांतिक 04
7	कुल अंक	<p>100</p> <p>सैद्धांतिक मूल्यांकन - 60</p> <p>आंतरिक मूल्यांकन - 40</p>
भाग ब पाठ्यक्रम की विषयवस्तु		
की कुल संख्या प्रायोगिक प्रतिशत घंटे में 3 घंटे प्रति सप्ताह कुल व्याख्यान 60		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	<p>विज्ञापन: अर्थ, परिभाषा एवं विशेषताएं।</p> <p>विज्ञापन का उद्देश्य, आवश्यकता एवं महत्त्व।</p> <p>विज्ञापन और व्यापार का संबंध।</p> <p>विज्ञापन का इतिहास और विकास।</p>	15

	विज्ञापन: कानून और आचार संहिता	
इकाई 2	विज्ञापनों का वर्गीकरण, विज्ञापन के प्रमुख अंग और आधारभूत सिद्धान्त। विज्ञापन निर्माण की प्रविधि प्रारूप निष्पादन, अभिकल्पना (डिजाइन) और अभिविन्यास (ले आउट) । विज्ञापन भाषा की विशिष्टताएँ एवं भाषा संरचना ।	15
इकाई 3	विज्ञापन के विविध माध्यम मुद्रण माध्यम समाचार पत्र, पत्रिकाएँ। श्रव्य माध्यम रेडियो, एफ. एम. रेडियो, मुनादी । दृश्य श्रव्य माध्यम टी.बी. इंटरनेट, मोबाइल, सोशल मीडिया, ई- विज्ञापन - अन्य माध्यम हॉर्डिंग, पोस्टर, बैनर, पर्चे, स्टीकर, प्रदर्शनी आदि।	15
इकाई 4	विज्ञापन के नए संदर्भ: प्रायोजित कार्यक्रम । विज्ञापन का उपभोक्ता बाजार एवं अर्थव्यवस्था पर प्रभाव। हिन्दी विज्ञापनों से जुड़ी प्रमुख एजेन्सियों का परिचय । हिन्दी भाषा के विकास में विज्ञापनों की भूमिका ।	15
सार बिंदु (की बर्ड) / टैग: विज्ञापन, विज्ञापन भाषा, मुद्रित माध्यम, दृश्य-श्रव्य माध्यम, सोशल मीडिया, ई-विज्ञापन, विज्ञापन एजेंसी ले आउट, अभिकल्पना, डिजाइन		
अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री: पाठ पुस्तकें -		
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संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय -			
कार्यक्रम प्रमाण पत्र	कक्षा बी ए	द्वितीय सेमेस्टर	सत्र 2023&- 2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A1-HLIT2T	
2	पाठ्यक्रम का शीर्षक	कार्यालयीन हिंदी एवं भाषा कंप्यूटिंग	
3	पाठ्यक्रम का प्रकार	मुख्य/ गौण	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी ने किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो पात्र हैं।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	<p>1 इस पाठ्यक्रम के माध्यम से विद्यार्थी कार्यालय के कार्यों की मूलभूत जानकारी एवं कार्यशैली से परिचित हो सकेंगे जिससे वे कार्यालयीन कार्य करने में सक्षम होंगे.</p> <p>2. नई तकनीकी के माध्यम से ज्ञान विज्ञान के क्षेत्र में विशेषज्ञता प्राप्त कर सकेंगे.</p> <p>3 भाषा कंप्यूटिंग में दक्षता होगी तथा रोजगार प्राप्ति के अवसर मिलेंगे.</p>	
6	क्रेडिट मान	06	
7	कुल अंक	<p>100</p> <p>सैद्धांतिक मूल्यांकन - 60</p> <p>आंतरिक मूल्यांकन - 40</p>	
भाग ब पाठ्यक्रम की विषयवस्तु			
	कुल व्याख्यान	90	
पाठ्यक्रम			
इकाई	विषय	व्याख्यान की संख्या	
इकाई 1	कार्यालयीन हिंदी का स्वरूप उद्देश्य एवं क्षेत्र		

	<ul style="list-style-type: none"> कार्यालयीन हिंदी का स्वरूप एवं उद्देश्य कार्यालयीन हिंदी तथा सामान्य हिंदी का संबंध एवं अंतर कार्यालयीन कार्यकलाप की सामान्य जानकारी हिंदी के प्रयोजन मूलक संदर्भ कार्यालयीन साहित्यिक वाणिज्य वैज्ञानिक तकनीकी एवं कानूनी जनसंचार माध्यम आदि राजभाषा हिंदी की संवैधानिक स्थिति एवं प्रमुख प्रावधान 	16
इकाई 2	<p>हिंदी के शब्द संसाधन (कंप्यूटर टंकण)</p> <ul style="list-style-type: none"> हिंदी में उपलब्ध सॉफ्टवेयर एवं विभिन्न की-बोर्ड, देवनागरी लिपि के विविध फ़ॉण्ट्स, यूनिकोड, हिंदी स्लाइड, पी.पी.टी., पोस्टर निर्माण, स्पीच टू टेक्स्ट एवं टेक्स्ट टू स्पीच, हिंदी शॉर्टकट्स का परिचय, हिंदी से संबंधित वेबसाइट, ईमेल, इंटरनेट पर उपलब्ध पत्र-पत्रिकाएँ, दृश्य श्रव्य सामग्री, ई पुस्तकालय, सरकारी तथा गैर सरकारी चैनल, आभासी कक्षाएँ 	18
इकाई 3	<p>कार्यालयीन हिंदी में प्रयुक्त पारिभाषिक शब्दावली</p> <ul style="list-style-type: none"> शब्दावली निर्माण के सिद्धांत कार्यालयीन हिंदी की पारिभाषिक शब्दावली प्रशासनिक, विधि संबंधी एवं वाणिज्यिक पारिभाषिक शब्दावली पदनाम एवं अनुभाग 	16
इकाई 4	<p>कार्यालयीन हिंदी पत्राचार</p> <ul style="list-style-type: none"> आवेदन पत्र शासकीय एवं अर्ध शासकीय पत्र कार्यालय आदेश परिपत्र अधिसूचना कार्यालयीन जापन विजापन निविदा संकल्प प्रेस विज्ञप्ति एवं अन्य कार्यालयीन पत्र बैठक का कार्यवृत्त समाचार लेखन प्रारूपण, टिप्पण, संक्षेपण, प्रतिवेदन एवं हिंदी का 	20

	<p>मानकीकरण</p> <ul style="list-style-type: none"> • प्रारूपण का अर्थ, सामान्य परिचय, प्रारूपण लेखन की पद्धति • टिप्पण का अर्थ, सामान्य परिचय, टिप्पण लेखन की पद्धति, टिप्पण और टिप्पणी में अंतर • संक्षेपण का अर्थ एवं संक्षेपण पद्धति, पल्लवन का अर्थ, पल्लवन के सिद्धांत, पल्लवन और निबंध लेखन में अंतर • प्रतिवेदन का अर्थ, सामान्य परिचय एवं प्रयोग 	
इकाई 5	<p>कंप्यूटर एवं इंटरनेट में हिंदी भाषा एवं देवनागरी लिपि के अनुप्रयोग</p> <ul style="list-style-type: none"> • कंप्यूटर में हिंदी भाषा के विकास का इतिहास • हिंदी का मानकीकरण रूप • ब्लॉगिंग एवं सोशल मीडिया पर हिंदी लेखन कौशल – फेसबुक, यूट्यूब एवं अन्य प्लेटफार्म • ई-गवर्नेंस • विराम चिन्ह, अशुद्धि – संशोधन एवं प्रूफ – शोधन • व्यावहारिक अभ्यास विभिन्न प्रकार के कार्यालय पत्र ब्लॉगिंग पोस्टर ईमेल एवं अन्य 	20

अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री:

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2023&2024

भाग अ परिचय -			
कार्यक्रम प्रमाण पत्र	कक्षा बी ए	द्वितीय सेमेस्टर	सत्र 2023 2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A1-HLIT2T	
2	पाठ्यक्रम का शीर्षक	कार्यालयीन हिंदी एवं भाषा कंप्यूटिंग	
3	पाठ्यक्रम का प्रकार	इलेक्टिव	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी में किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो पात्र हैं।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	<p>1 इस पाठ्यक्रम के माध्यम से विद्यार्थी कार्यालय के कार्यों की मूलभूत जानकारी एवं कार्यशैली से परिचित हो सकेंगे जिससे वे कार्यालयीन कार्य करने में सक्षम होंगे.</p> <p>2. नई तकनीकी के माध्यम से ज्ञान विज्ञान के क्षेत्र में विशेषज्ञता प्राप्त कर सकेंगे.</p> <p>3 भाषा कंप्यूटिंग में दक्षता होगी तथा रोजगार प्राप्ति के अवसर मिलेंगे.</p>	
6	क्रेडिट मान	04	
7	कुल अंक	<p>100</p> <p>सैद्धांतिक मूल्यांकन - 60</p> <p>आंतरिक मूल्यांकन - 40</p>	
भाग ब पाठ्यक्रम की विषयवस्तु			
पाठ्यक्रम			
इकाई	विषय	व्याख्यान की संख्या	

इकाई 1	<p>कार्यालयीन हिंदी का स्वरूप उद्देश्य एवं क्षेत्र</p> <p>1.1 कार्यालयीन हिंदी का स्वरूप एवं उद्देश्य</p> <p>1.2 कार्यालयीन हिंदी तथा सामान्य हिंदी का संबंध एवं अंतर</p> <p>1.3 कार्यालयीन कार्यकलाप की सामान्य जानकारी</p> <p>1.4 हिंदी के प्रयोजन मूलक संदर्भ कार्यालयीन साहित्यिक वाणिज्य वैज्ञानिक तकनीकी एवं कानूनी जनसंचार माध्यम आदि राजभाषा हिंदी की संवैधानिक स्थिति एवं प्रमुख प्रावधान</p>	15
इकाई 2	<p>हिंदी के शब्द संसाधन (कंप्यूटर टंकण)</p> <p>1.1 हिंदी में उपलब्ध सॉफ्टवेयर एवं विभिन्न की-बोर्ड, देवनागरी लिपि के विविध फॉण्ट्स, यूनिकोड, हिंदी स्लाइड, पी.पी.टी., पोस्टर निर्माण, स्पीच टू टेक्स्ट एवं टेक्स्ट टू स्पीच, हिंदी शॉर्टहैंड का परिचय</p> <p>1.2 हिंदी से संबंधित वेबसाइट, ईमेल, इंटरनेट पर उपलब्ध पत्र-पत्रिकाएँ, दृश्य श्रव्य सामग्री, ई पुस्तकालय, सरकारी तथा गैर सरकारी चैनल, आभासी कक्षाएँ</p>	15
इकाई 3	<p>1 कार्यालयीन हिंदी पत्राचार</p> <p>1.1 आवेदन पत्र</p> <p>1.2 शासकीय एवं अर्ध शासकीय पत्र</p> <p>1.3 कार्यालय आदेश</p> <p>1.4 परिपत्र</p> <p>1.5 अधिसूचना</p> <p>1.6 कार्यालयीन ज्ञापन</p> <p>1.7 विज्ञापन</p> <p>1.8 निविदा</p> <p>1.9 संकल्प</p> <p>1.10 प्रेस विज्ञप्ति एवं अन्य कार्यालयीन पत्र</p> <p>1.11 बैठक का कार्यवृत्त</p> <p>1.12 समाचार लेखन</p> <p>2 प्रारूपण, टिप्पण, संक्षेपण, प्रतिवेदन एवं हिंदी का मानकीकरण</p> <p>2.1 प्रारूपण का अर्थ, सामान्य परिचय, प्रारूपण लेखन की पद्धति</p> <p>2.2 टिप्पण का अर्थ, सामान्य परिचय, टिप्पण लेखन की पद्धति, टिप्पण और टिप्पणी में अंतर</p> <p>2.3 संक्षेपण का अर्थ एवं संक्षेपण पद्धति, पल्लवन का अर्थ, पल्लवन</p>	15

	के सिद्धांत, पल्लवन और निबंध लेखन में अंतर 2.4 प्रतिवेदन का अर्थ, सामान्य परिचय एवं प्रयोग	
इकाई 4	1 कंप्यूटर एवं इंटरनेट में हिंदी भाषा एवं देवनागरी लिपि के अनुप्रयोग 1.1 कंप्यूटर में हिंदी भाषा के विकास का इतिहास 1.2 हिंदी का मानकीकरण रूप 1.3 ब्लॉगिंग एवं सोशल मीडिया पर हिंदी लेखन कौशल – फेसबुक, यूट्यूब एवं अन्य प्लेटफार्म 1.4 ई-गवर्नेंस 1.5 विराम चिन्ह, अशुद्धि – संशोधन एवं प्रूफ - शोधन 1.6 व्यावहारिक अभ्यास विभिन्न प्रकार के कार्यालय पत्र ब्लॉगिंग पोस्टर ईमेल एवं अन्य	15

अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री:

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- 7 सागर, रामचंद्र सिंह, कार्यालय कार्यविधि, आत्माराम एंड संस, नई दिल्ली 1963
- 8 शर्मा, चंद्रपाल, कार्यालयीन हिंदी की प्रकृति, समता प्रकाशन दिल्ली 1991
- 9 प्रजा पाठमाला, राजभाषा विभाग, गृह मंत्रालय, भारत सरकार, नई दिल्ली
- 10 झालटे, दंगल, प्रयोजनमूलक हिंदी: सिद्धांत और प्रयोग, वाणी प्रकाशन, नई दिल्ली 2016 पंचम संस्करण
- 11 सोनटक्के, डॉ. माधव, प्रयोजनमूलक हिंदी प्रयुक्ति और अनुवाद, वाणी प्रकाशन, नई दिल्ली
- 12 भाटिया, कैलाश चंद्र, प्रयोजनमूलक हिंदी प्रक्रिया और स्वरूप, तक्षशिला प्रकाशन, नई दिल्ली 2005

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)
2023&2024

भाग अ परिचय -			
कार्यक्रम प्रमाण पत्र	कक्षा प्रथम वर्ष	द्वितीय सेमेस्टर	सत्र 2023&- 2024
विषय: प्रयोजनमूलक हिंदी			
1	पाठ्यक्रम का कोड	A1-FHIN2T	
2	पाठ्यक्रम का शीर्षक	प्रयोजनमूलक हिंदी % कार्यालयी प्रयोग	
3	पाठ्यक्रम का प्रकार	कोर कोर्स- मुख्य/ गौण	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी में किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो पात्र हैं।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	<p>प्रयोजनमूलक हिंदी एक कार्यात्मक एवं व्यवहारिक हिंदी से संबंधित पाठ्यक्रम है. वैश्वीकरण के युग में विश्व मंच पर हिंदी की स्वीकार्यता में आशातीत वृद्धि हुई है. जिसके कारण आज हिंदी का क्षेत्रफल भारत की सीमाओं तक ही सीमित नहीं है कि हर क्षेत्र में चाहे सरकारी कार्यालयों कारपोरेट जगत जनसंचार माध्यम के विपक्ष हो अथवा स्कूल कॉलेजों में पढ़ाई का माध्यम सभी जगह हिंदी माध्यम से कार्य करने वाले कुशल व्यक्ति की महती आवश्यकता है. इसी आवश्यकता को दृष्टिगत रखते हुए एवं कार्यात्मक हिंदी का पाठ्यक्रम प्रयोजनमूलक हिंदी के रूप में तैयार किया गया है.</p> <p>पाठ्यक्रम के अध्ययन से</p> <p>8. विद्यार्थी हिंदी के परंपरागत अध्ययन और साहित्यिक हिंदी से इतर हिंदी के प्रयोजनमूलक और व्यवहारिक पक्ष को सरलता से समझ सकेगा.</p> <p>9. दैनिक जीवन के विविध क्षेत्रों शिक्षा व्यवसाय प्रशासन विधि एवं कला जगत में प्रयुक्त होने वाले हिंदी के व्यवहारिक प्रयोग का ज्ञान विद्यार्थी को</p>	

		<p>हो सकेगा.</p> <p>10. भारत में राजभाषा संबंधी संवैधानिक प्रावधानों राष्ट्रभाषा और राजभाषा में अंतर और त्रिभाषा सूत्र को विद्यार्थी भली-भांति समझ सकेगा.</p> <p>11. हिंदी प्रयोग में होने वाली अशुद्धियों के सुधार का अभ्यास होगा जिससे विद्यार्थी का शुद्ध हिंदी लिखने का अभ्यास बढ़ेगा.</p> <p>12. पारिभाषिक शब्दावली से परिचित होकर विद्यार्थी उचित पारिभाषिक शब्दों का प्रयोग कर अपने व्यवसायिक हिंदी को परिष्कृत कर सकेगा.</p> <p>13. शिक्षा, व्यवसाय, प्रशासनिक एवं कला के क्षेत्र में विद्यार्थी द्वारा मानक हिंदी के शब्दों का सुगम व सटीक प्रयोग करने से ज्ञान में वृद्धि होगी.</p> <p>14. कला के व्यापक क्षेत्र में विद्यमान अनेक घटकों जैसे सिनेमा टीवी और विज्ञापन आदि के लिए विभिन्न विधाओं में बाजार की मांग के अनुरूप हिंदी लेखन का व्यवहारिक ज्ञान विद्यार्थी के लिए रोजगार उपलब्ध कराने में सहायक होगा.</p>
6	क्रेडिट मान	06
7	कुल अंक	100 सैद्धांतिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40
भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या 90		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	कार्यालय हिंदी अर्थ स्वरूप एवं परिभाषा कार्यालय की कार्य पद्धति और भाषा कार्यालय परिचय कार्य पद्धति एवं उपयोगिता	18
इकाई 2	पत्र-लेखन और प्रकार । कार्यालयी पत्रों का स्वरूप व महत्व । कार्यालयी पत्र लेखन प्रविधि विभिन्न अंग व चरण ।	18

	आवेदन पत्र लेखन ।	
इकाई 3	कार्यालयी शब्दावली एवं अनुप्रयोग । कार्यालयी पत्र :- 1 प्रारूपण-लेखन व विशेषताएँ । टिप्पण जापन परिपत्र आदेश अधिसूचना । 3 प्रेस विज्ञप्ति व प्रतिवेदन । 4 बैठक का कार्यवृत्त समाचार लेखन ।	18
इकाई 4	व्यावसायिक पत्र- अर्थ स्वरूप एवं विशेषताएँ । वाणिज्यिक पत्र- अर्थ स्वरूप एवं विशेषताएँ । पूछताछ सम्बन्धी पत्र शिकायती पत्र निविदा सूचना कोटेशन बिल प्रारूप । प्रतिलिपि लेखन एवं विज्ञापन संरचना ।	18
इकाई 5	संक्षेपण और पल्लवन : अर्थ, स्वरूप एवं विशेषताएँ । संक्षेपण : अर्थ, स्वरूप, विशेषताएँ एवं प्रक्रिया । पल्लवन : अर्थ, स्वरूप, विशेषताएँ एवं प्रक्रिया ।	18

अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री:

पाठ पुस्तकें -

	<p>1 अंडाल डॉ. प.प., प्रशासनिक हिंदी प्रयोग और संभावनाएं, वाणी प्रकाशन, दिल्ली, 2007</p> <p>2 कुलश्रेष्ठ, अरविंद, राजभाषा नीति, संपादक कृष्ण कुमार गोस्वामी, केंद्रीय हिंदी संस्थान नई दिल्ली</p> <p>3 गुप्ता, गार्गी, पारिभाषिक शब्दावली की विकास यात्रा, संपा., भारतीय अनुवाद परिषद नई दिल्ली, 1986</p> <p>4 गोदरेज, विनोद, प्रयोजनमूलक हिंदी, वाणी प्रकाशन, इलाहाबाद, 2016</p> <p>5 झाल्टे, दंगल, प्रयोजनमूलक हिंदी सिद्धांत और प्रयोग, वाणी प्रकाशन, दिल्ली, 2010</p> <p>6 टंडन, प्रो पूरनचंद, आजीविका साधक हिंदी, इंद्रप्रस्थ प्रकाशन, दिल्ली 1998</p> <p>7 तिवारी भोलानाथ एवं श्रीवास्तव रवींद्रनाथ, व्यवहारिक हिंदी सरलीकरण विशेषज्ञ समिति मधुर वाणी प्रकाशन दिल्ली</p>	
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संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय -			
कार्यक्रम प्रमाण पत्र	कक्षा बी ए	द्वितीय सेमेस्टर	सत्र 2023 2024
विषय: प्रयोजनमूलक हिंदी			
1	पाठ्यक्रम का कोड	A1-FHIN2T	
2	पाठ्यक्रम का शीर्षक	प्रयोजनमूलक हिंदी % कार्यालयी प्रयोग	
3	पाठ्यक्रम का प्रकार	इलेक्टिव	
4	पूर्वापेक्षा	इस कोर्स का अध्ययन करने के लिए विद्यार्थी में किसी भी विषय से कक्षा बारहवीं प्रमाण पत्र डिप्लोमा किया हो पात्र है।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां कोर्स लर्निंग आउटकम	<p>प्रयोजनमूलक हिंदी एक कार्यात्मक एवं व्यावहारिक हिंदी से संबंधित पाठ्यक्रम है. वैश्वीकरण के युग में विश्व मंच पर हिंदी की स्वीकार्यता में आशातीत वृद्धि हुई है. जिसके कारण आज हिंदी का क्षेत्रफल भारत की सीमाओं तक ही सीमित नहीं है कि हर क्षेत्र में चाहे सरकारी कार्यालयों कारपोरेट जगत जनसंचार माध्यम के विपक्ष हो अथवा स्कूल कॉलेजों में पढ़ाई का माध्यम सभी जगह हिंदी माध्यम से कार्य करने वाले कुशल व्यक्ति की महती आवश्यकता है. इसी आवश्यकता को दृष्टिगत रखते हुए एवं कार्यात्मक हिंदी का पाठ्यक्रम प्रयोजनमूलक हिंदी के रूप में तैयार किया गया है.</p> <p>पाठ्यक्रम के अध्ययन से</p> <ol style="list-style-type: none">1. विद्यार्थी हिंदी के परंपरागत अध्ययन और साहित्यिक हिंदी से इतर हिंदी के प्रयोजनमूलक और व्यावहारिक पक्ष को सरलता से समझ सकेगा.	

		<ol style="list-style-type: none"> 2. दैनिक जीवन के विविध क्षेत्रों शिक्षा व्यवसाय प्रशासन विधि एवं कला जगत में प्रयुक्त होने वाले हिंदी के व्यवहारिक प्रयोग का ज्ञान विद्यार्थी को हो सकेगा. 3. भारत में राजभाषा संबंधी संवैधानिक प्रावधानों राष्ट्रभाषा और राजभाषा में अंतर और त्रिभाषा सूत्र को विद्यार्थी भली-भांति समझ सकेगा. 4. हिंदी प्रयोग में होने वाली अशुद्धियों के सुधार का अभ्यास होगा जिससे विद्यार्थी का शुद्ध हिंदी लिखने का अभ्यास बढ़ेगा. 5. पारिभाषिक शब्दावली से परिचित होकर विद्यार्थी उचित पारिभाषिक शब्दों का प्रयोग कर अपने व्यवसायिक हिंदी को परिष्कृत कर सकेगा. 6. शिक्षा, व्यवसाय, प्रशासनिक एवं कला के क्षेत्र में विद्यार्थी द्वारा मानक हिंदी के शब्दों का सुगम व सटीक प्रयोग करने से ज्ञान में वृद्धि होगी. 7. कला के व्यापक क्षेत्र में विद्यमान अनेक घटकों जैसे सिनेमा टीवी और विज्ञापन आदि के लिए विभिन्न विधाओं में बाजार की मांग के अनुरूप हिंदी लेखन का व्यवहारिक ज्ञान विद्यार्थी के लिए रोजगार उपलब्ध कराने में सहायक होगा.
6	क्रेडिट मान	04
7	कुल अंक	100 सैद्धांतिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40
भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या 60		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	कार्यालय हिंदी अर्थ स्वरूप एवं परिभाषा कार्यालय की कार्य पद्धति और भाषा कार्यालय परिचय कार्य पद्धति एवं उपयोगिता	15

इकाई 2	<p>कार्यालयी शब्दावली एवं अनुप्रयोग । कार्यालयी पत्र :- 1 पारूपण-लेखन व विशेषताएँ । 2 टिप्पण जापन परिपत्र आदेश अधिसूचना । 3 प्रेस विज्ञप्ति व प्रतिवेदन बैठक का कार्यवृत्त, समाचार लेखन</p>	15
इकाई 3	<p>व्यावसायिक पत्र- अर्थ स्वरूप एवं विशेषताएँ । वाणिज्यिक पत्र- अर्थ स्वरूप एवं विशेषताएँ । पूछताछ सम्बन्धी पत्र शिकायती पत्र निविदा सूचना कोटेशन बिल प्रारूप । प्रतिनिधि लेखन एवं विज्ञापन संरचना</p>	15
इकाई 4	<p>संक्षेपण और पल्लवन : अर्थ, स्वरूप एवं विशेषताएँ । संक्षेपण : अर्थ, स्वरूप, विशेषताएँ एवं प्रक्रिया । पल्लवन : अर्थ, स्वरूप, विशेषताएँ एवं प्रक्रिया ।</p>	15
<p>अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ संसाधन/ पाठ सामग्री: पाठ पुस्तकें -</p>		
	<p>1 अंडाल डॉ. प.प., प्रशासनिक हिंदी प्रयोग और संभावनाएं, वाणी प्रकाशन, दिल्ली, 2007 2 कुलश्रेष्ठ, अरविंद, राजभाषा नीति, संपादक कृष्ण कुमार गोस्वामी, केंद्रीय हिंदी संस्थान नई दिल्ली 3 गुप्ता, गार्गी, पारिभाषिक शब्दावली की विकास यात्रा, संपा., भारतीय अनुवाद परिषद नई दिल्ली, 1986 4 गोदरेज, विनोद, प्रयोजनमूलक हिंदी, वाणी प्रकाशन, इलाहाबाद, 2016 5 झाल्टे, दंगल, प्रयोजनमूलक हिंदी सिद्धांत और प्रयोग, वाणी प्रकाशन, दिल्ली, 2010 6 टंडन, प्रो पूरनचंद, आजीविका साधक हिंदी, इंद्रप्रस्थ प्रकाशन, दिल्ली 1998 7 तिवारी भोलानाथ एवं श्रीवास्तव रवींद्रनाथ, व्यवहारिक हिंदी सरलीकरण विशेषज्ञ समिति मधुर वाणी प्रकाशन दिल्ली</p>	

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय			
कार्यक्रम: डिप्लोमा	कक्षा : बी.ए.	सेमेस्टर: तृतीय	सत्र: 2023-2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A2-HLIT1T	
2	पाठ्यक्रम का शीर्षक	हिन्दी गद्य	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/ ...)	कोर कोर्स मेजर /माइनर	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने किसी भी विषय/संकाय में अध्ययन किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	1. विद्यार्थी हिन्दी गद्य-साहित्य एवं प्रमुख रचनाओं से परिचित होंगे। 2. विद्यार्थियों में साहित्य अध्ययन से संवेदनशीलता एवं मानवीय गुणों का विकास होगा। 3. साहित्य क्षेत्र में सर्जनात्मक लेखन एवं समीक्षा के प्रति प्रेरित होंगे। उन्हें रचनाओं के प्रकाशन एवं अध्यापन के क्षेत्र में रोजगार प्राप्ति के अवसर प्राप्त होंगे।	
6	क्रेडिट मान 100	06 Theory	
7	कुल अंक	100 अंक सैद्धांतिक मूल्यांकन - 70 अंक आंतरिक मूल्यांकन - 30 अंक	
भाग ब पाठ्यक्रम की विषयवस्तु			

व्याख्यान की कुल संख्या (90) :- (L85+TO5) व्याख्यान प्रति सप्ताह 2 घंटे		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	<p>आधुनिक हिन्दी गद्य साहित्य की पृष्ठभूमि एवं उदय के कारण :</p> <p>1 आधुनिक हिन्दी गद्य साहित्य की सामाजिक सांस्कृतिक पृष्ठभूमि</p> <p>2 हिन्दी गद्य के उद्भव के कारण</p> <p>3 हिन्दी उपन्यास का स्वरूप और विकास। प्रमुख प्रवृत्तियाँ एवं रचनाकार </p> <p>4 रामगढ़ की रानी – व्याख्या एवं समीक्षा।</p>	16
इकाई 2	<p>हिन्दी कहानी : स्वरूप और विकास</p> <p>1 स्वरूप और विकास</p> <p>2 प्रमुख हिन्दी कहानियाँ – व्याख्या एवं समीक्षा</p> <p>3 कहानियाँ –</p> <p>उसने कहा था – चंद्रधर शर्मा गुलेरी</p> <p>पंच परमेश्वर – प्रेमचंद</p> <p>पुरस्कार - जयशंकर प्रसाद</p> <p>वापसी – उषा प्रियंवदा</p>	18
इकाई 3	<p>हिन्दी नाट्य साहित्य : स्वरूप और विकास</p> <p>1 हिन्दी नाटक : स्वरूप और विकास</p> <p>2 हिन्दी एकांकी : स्वरूप और विकास</p> <p>3 नाटक : लहरों के राजहंस - मोहन राकेश (व्याख्या एवं समीक्षा)</p> <p>4 एकांकी (व्याख्या एवं समीक्षा)</p> <p>। दीपदान - डॉ. रामकुमार वर्मा</p> <p>॥ टूटते हुए- सुरेश चन्द्र शुक्ल (चन्द्र)</p> <p>॥॥ व्यवहार - सेठ गोविंद दास</p>	16
इकाई 4	<p>हिन्दी निबंध : स्वरूप और विकास</p> <p>1. हिन्दी निबंध:स्वरूप</p> <p>2. हिन्दी निबंध का उद्भव एवं विकास, प्रमुख निबंधकारों का परिचय व प्रवृत्तियाँ</p> <p>3 प्रमुख निबंध (व्याख्या एवं समीक्षा)</p> <p>L मित्रता - आचार्य रामचन्द्र शुक्ल</p> <p>॥ अशोक के फूल- आचार्य हजारी प्रसाद द्विवेदी</p> <p>॥॥ मेरे राम का मुकुट भीग रहा है- आचार्य विद्यानिवास मिश्र</p>	20
इकाई	हिन्दी की अन्य गद्य विधाएँ: स्वरूप और विकास	

5	<p>1 संस्मरण : सुभद्राकुमारी चौहान - महादेवी वर्मा (पथ के साथी संग्रह से)</p> <p>2 यात्रा वृत्तांत - सौन्दर्य की नदी नर्मदा (अंश- ओंकारेश्वर से खलघाट)</p> <p>अमृतलाल बेंगड़, मध्य प्रदेश हिन्दी ग्रंथ अकादमी, भोपाल</p> <p>3 व्यंग्य- भोलाराम का जीव- हरिशंकर परसाई</p> <p>4 जीवनी - उत्तर योगी श्री अरविन्द (अंश- मनुष्य प्रकृति की सर्वोच्च प्रयोगशाला) - शिवप्रसाद सिंह, लोकभारती प्रकाशन, इलाहाबाद</p> <p>5 आत्मकथा- क्या भूलूँ क्या याद करूँ - (अंश- श्यामा प्रसंग, पृ. 169 से 174 तक) हरिवंशराय बच्चन, प्रकाशन- राजपाल एण्ड संस, कश्मीरी</p> <p>गेट, दिल्ली</p> <p>6 डायरी - कठिन समय में - रमेशचन्द्र शाह (अंश- दिनांक(25.04.2010)</p> <p>किताबघर, नई दिल्ली</p> <p>ट्यूटोरियल</p> <ul style="list-style-type: none"> • गद्य रचनाओं का वाचन एवं रचनात्मक लेखन • निबंध, कहानी एवं अन्य गद्य विधाओं का नाट्य रूपांतरण एवं मंचन। मंच सज्जा, पात्र वेशभूषा। 	20
सार बिंदु (की वर्ड) टैग: गद्य साहित्य की विधाएँ, अवधारणा पृष्ठभूमि, समीक्षा, व्याख्या		
भाग स- अनुशंसित अध्ययन संसाधन		
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन		
<p>अनुशंसित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:</p> <p>पाठ्य पुस्तकें -</p> <ol style="list-style-type: none"> 1 तिवारी रामचंद्र, हिन्दी निबंध और निबंधकार, विश्वविद्यालय प्रकाशन वाराणासी, 2007 2 सिंह बच्चन, आधुनिक हिन्दी साहित्य का इतिहास, लोक भारती प्रकाशन, प्रयागराज, 2019 3 शुक्ल रामचंद्र, हिन्दी साहित्य का इतिहास, विश्वविद्यालय प्रकाशन, वाराणासी, 1992 4 तिवारी, रामचंद्र, हिन्दी गद्य का इतिहास, लोक भारती प्रकाशन प्रयागराज 5 सिंह नामवर आधुनिक साहित्य की प्रवृत्तियाँ, राजकमल प्रकाशन, नयी दिल्ली 2018 6 चतुर्वेदी, रामस्वरूप, हिन्दीगद्य: विन्यास और विकास, लोक भारती प्रकाशन, प्रयागराज 2018 7 वर्मा, वृंदावनलाल रामगढ़ की रानी प्रभात प्रकाशन आसिफ अली रोड नई दिल्ली 8 दस एकांकी, श्रीराम मेहरा एंड कंपनी, आगरा 9 वर्मा, डॉ रामकुमार, आठ एकांकी नाटक, स्रोत पुस्तकालय ई 10 हरिशचंद्र भारतेन्दु, अंधेर नगरी, वाणी प्रकाशन, नयी दिल्ली 		

- 11 प्रसाद जयशंकर, ध्रुवस्वामिनी, वाणी प्रकाशन, नयी दिल्ली
- 12 गुप्ता सोमनाथ, हिंदी नाटक साहित्य का इतिहास, इंद्रा चंद्र नारंग, इलाहाबाद, तीसरा संस्करण 1951
- 13 ओझा, डॉ दशरथ, हिंदी नाटक उद्भव एवं विकास, राजपाल एंड संस, दिल्ली
- 14 रस्तोगी, गिरीश हिन्दी नाटक का आत्मसंघर्ष लोकभारती, इलाहाबाद
- 15 त्रिपाठी सत्यवती, आधुनिक हिन्दी नाटकों में प्रयोगधर्मिता, राधाकृष्ण प्रकाशन, नयी दिल्ली
- 16 किशोर ब्रजराज हिन्दी नाटक और रंगमंच जनप्रिय प्रकाशन
- 17 रस्तोगी गिरीश समकालीन हिन्दी नाटककार, राजकमल प्रकाशन, नयी दिल्ली
- 18 कुमार सिद्धनाथ हिन्दी एकांकी की शिल्प विधि का विकास, साहित्य भवन लिमिटेड, इलाहाबाद
- 19 महेन्द्र एकांकीकर और एकांकी रामचरण वाणी प्रकाशन, नयी दिल्ली
- 20 महेन्द्र डॉ रामचरण हिन्दी एकांकी उदय और विकास, साहित्य प्रकाशन दिल्ली
- 21 बिसारिया, डॉ पुनीत निबंध निकष, शब्द सेतु प्रकाशन, नयी दिल्ली, 2009
- 22 बिसारिया पुनीत निबंध संग्रह, श्री नटराज प्रकाशन, नयी दिल्ली 2007
- 23 मिश्र कृष्णगोपाल "हिन्दी साहित्य और समीक्षा" प्रकाशन के के पब्लिकेशन नई दिल्ली

2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक

1. www.wepidivya.org
2. www.egyankosh.ac.in
3. www.youtube.com
4. <https://epgp.inflibnet.ac.in>
5. hindiwi.org
6. <https://swayam.gov.in>

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय			
कार्यक्रम: डिप्लोमा	कक्षा :	सेमेस्टर: तृतीय	सत्र: 2023-2024
	बी.ए.		
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A2-HLIT1T	
2	पाठ्यक्रम का शीर्षक	हिन्दी गद्य	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/ ...)	इलेक्टिव	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने किसी भी विषय/संकाय में अध्ययन किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	1. विद्यार्थी हिन्दी गद्य-साहित्य एवं प्रमुख रचनाओं से परिचित होंगे। 2. विद्यार्थियों में साहित्य अध्ययन से संवेदनशीलता एवं मानवीय गुणों का विकास होगा। 3. साहित्य क्षेत्र में सर्जनात्मक लेखन एवं समीक्षा के प्रति प्रेरित होंगे। उन्हें रचनाओं के प्रकाशन एवं अध्यापन के क्षेत्र में रोजगार प्राप्ति के अवसर प्राप्त होंगे।	
6	क्रेडिट मान 100	06 Theory	
7	कुल अंक	100 अंक सैद्धांतिक मूल्यांकन - 70 अंक आंतरिक मूल्यांकन - 30 अंक	
भाग ब पाठ्यक्रम की विषयवस्तु			

व्याख्यान की कुल संख्या (90) :- (L85+T05) व्याख्यान प्रति सप्ताह 2 घंटे		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	<p>आधुनिक हिन्दी गद्य साहित्य की पृष्ठभूमि एवं उदय के कारण :</p> <p>1 आधुनिक हिन्दी गद्य साहित्य की सामाजिक सांस्कृतिक पृष्ठभूमि</p> <p>2 हिन्दी गद्य के उद्भव के कारण</p> <p>3 हिन्दी उपन्यास का स्वरूप और विकास। प्रमुख प्रवृत्तियाँ एवं रचनाकार </p> <p>4 रामगढ़ की रानी – व्याख्या एवं समीक्षा।</p>	15
इकाई 2	<p>हिन्दी कहानी : स्वरूप और विकास</p> <p>1 स्वरूप और विकास</p> <p>2 प्रमुख हिन्दी कहानियाँ – व्याख्या एवं समीक्षा</p> <p>3 कहानियाँ –</p> <p>उसने कहा था – चंद्रधर शर्मा गुलेरी</p> <p>पंच परमेश्वर – प्रेमचंद</p> <p>पुरस्कार - जयशंकर प्रसाद</p> <p>वापसी – उषा प्रियंवदा</p>	15
इकाई 3	<p>हिन्दी नाट्य साहित्य : स्वरूप और विकास</p> <p>1 हिन्दी नाटक : स्वरूप और विकास</p> <p>2 हिन्दी एकांकी : स्वरूप और विकास</p> <p>3 नाटक : लहरों के राजहंस - मोहन राकेश (व्याख्या एवं समीक्षा)</p> <p>4 एकांकी (व्याख्या एवं समीक्षा)</p> <p>I दीपदान - डॉ. रामकुमार वर्मा</p> <p>II टूटते हुए- सुरेश चन्द्र शुक्ल (चन्द्र)</p> <p>III व्यवहार - सेठ गोविंद दास</p>	15
इकाई 4	<p>हिन्दी निबंध : स्वरूप और विकास</p> <p>1. हिन्दी निबंध:स्वरूप</p> <p>2. हिन्दी निबंध का उद्भव एवं विकास, प्रमुख निबंधकारों का परिचय व प्रवृत्तियाँ</p> <p>3 प्रमुख निबंध (व्याख्या एवं समीक्षा)</p> <p>L मित्रता - आचार्य रामचन्द्र शुक्ल</p> <p>II अशोक के फूल- आचार्य हजारी प्रसाद द्विवेदी</p> <p>III मेरे राम का मुकुट भीग रहा है- आचार्य विद्यानिवास मिश्र</p>	15

सार बिंदु (की वर्ड) टैग: गद्य साहित्य की विधाएँ, अवधारणा पृष्ठभूमि, समीक्षा, व्याख्या

भाग स- अनुशासित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशासित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

पाठ्य पुस्तकें -

- 1 तिवारी रामचंद्र, हिन्दी निबंध और निबंधकार, विश्वविद्यालय प्रकाशन वाराणासी, 2007
- 2 सिंह बच्चन, आधुनिक हिन्दी साहित्य का इतिहास, लोक भारती प्रकाशन, प्रयागराज, 2019
- 3 शुक्ल रामचंद्र, हिन्दी साहित्य का इतिहास, विश्वविद्यालय प्रकाशन, वाराणासी, 1992
- 4 तिवारी, रामचंद्र, हिन्दी गद्य का इतिहास, लोक भारती प्रकाशन प्रयागराज
- 5 सिंह नामवर आधुनिक साहित्य की प्रवृत्तियाँ, राजकमल प्रकाशन, नयी दिल्ली 2018
- 6 चतुर्वेदी, रामस्वरूप, हिन्दीगद्य: विन्यास और विकास, लोक भारती प्रकाशन, प्रयागराज 2018
- 7 वर्मा, वृंदावनलाल रामगढ़ की रानी प्रभात प्रकाशन आसिफ अली रोड नई दिल्ली
- 8 दस एकांकी, श्रीराम मेहरा एंड कंपनी, आगरा
- 9 वर्मा, डॉ रामकुमार, आठ एकांकी नाटक, स्रोत पुस्तकालय ई
- 10 हरिशचंद्र भारतेन्दु, अंधेर नगरी, वाणी प्रकाशन, नयी दिल्ली
- 11 प्रसाद जयशंकर, ध्रुवस्वामिनी, वाणी प्रकाशन, नयी दिल्ली
- 12 गुप्ता सोमनाथ, हिन्दी नाटक साहित्य का इतिहास, इंद्रा चंद्र नारंग, इलाहाबाद, तीसरा संस्करण 1951
- 13 ओझा, डॉ दशरथ, हिन्दी नाटक उद्भव एवं विकास, राजपाल एंड संस, दिल्ली
- 14 रस्तोगी, गिरीश हिन्दी नाटक का आत्मसंघर्ष लोकभारती, इलाहाबाद
- 15 त्रिपाठी सत्यवती, आधुनिक हिन्दी नाटकों में प्रयोगधर्मिता, राधाकृष्ण प्रकाशन, नयी दिल्ली
- 16 किशोर ब्रजराज हिन्दी नाटक और रंगमंच जनप्रिय प्रकाशन
- 17 रस्तोगी गिरीश समकालीन हिन्दी नाटककार, राजकमल प्रकाशन, नयी दिल्ली
- 18 कुमार सिद्धनाथ हिन्दी एकांकी की शिल्प विधि का विकास, साहित्य भवन लिमिटेड, इलाहाबाद
- 19 महेन्द्र एकांकीकर और एकांकी रामचरण वाणी प्रकाशन, नयी दिल्ली
- 20 महेन्द्र डॉ रामचरण हिन्दी एकांकी उदय और विकास, साहित्य प्रकाशन दिल्ली
- 21 बिसारिया, डॉ पुनीत निबंध निकष, शब्द सेतु प्रकाशन, नयी दिल्ली, 2009
- 22 बिसारिया पुनीत निबंध संग्रह, श्री नटराज प्रकाशन, नयी दिल्ली 2007
- 23 मिश्र कृष्णगोपाल "हिन्दी साहित्य और समीक्षा" प्रकाशन के के पब्लिकेशन नई दिल्ली

2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक

1. www.wepidivya.org
2. www.egyankosh.ac.in
3. www.youtube.com
4. <https://epgp.inflibnet.ac.in>
5. hindiwi.org
6. <https://swayam.gov.in>

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय -			
कार्यक्रम: डिप्लोमा		कक्षा : बी.ए.	सेमेस्टर: तृतीय सत्र: 2023-2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A2-HLIT2G	
2	पाठ्यक्रम का शीर्षक	भाषा कम्प्यूटिंग	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/ ...)	जेनेरिक इलेक्टिव (सामान्य वैकल्पिक)	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने किसी भी विषय/संकाय में अध्ययन किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	1. इस कोर्स के माध्यम से विद्यार्थी नई तकनीकों के माध्यम से ज्ञान के विज्ञान-क्षेत्र में विशेषता प्राप्त कर सकेंगे।	
6	क्रेडिट मान 100	06 Theory	
7	कुल अंक	100 अंक सैद्धांतिक मूल्यांकन - 60 अंक आंतरिक मूल्यांकन - 40 अंक	
भाग ब पाठ्यक्रम की विषयवस्तु			
व्याख्यान की कुल संख्या (90) :- (L85+T05) व्याख्यान प्रति सप्ताह 2 घंटे			

इकाई	विषय	व्याख्यान की संख्या
इकाई 1	<p>कम्प्यूटर का विकास और हिन्दी :</p> <p>कम्प्यूटर का परिचय और विभिन्न अंग</p> <p>कम्प्यूटर की विकास यात्रा</p> <p>कम्प्यूटर में हिन्दी एवं देवनागरी लिपि का आरंभ और विकास</p> <p>हिन्दी के विभिन्न की बोर्ड, सॉफ्टवेयर, यूनीकोड, टेक्स्ट टू स्पीच एंड स्पीच टू टेक्स्ट</p>	18
इकाई 2	<p>हिन्दी भाषा और प्रौद्योगिकी:</p> <p>इन्टरनेट का स्वरूप एवं संपर्क उपकरणों का परिचय</p> <p>इन्टरनेट पर हिन्दी भाषा</p> <p>वेब डिजायनिंग में हिन्दी भाषा</p> <p>वेब डिजायनिंग में हिन्दी का अनुप्रयोग</p> <p>पी.पी.टी. स्लाइड एवं पोस्टर निर्माण।</p>	15
इकाई 3	<p>हिन्दी भाषा कम्प्यूटर और ई गवर्नेस</p> <p>हिन्दी के प्रमुख वेब पोर्टल और वेबसाइड</p> <p>राजभाषा हिन्दी के प्रसार में कम्प्यूटर एवं इन्टरनेट की भूमिका</p> <p>ई गवर्नेस की भूमिका</p>	15
इकाई 4	<p>हिन्दी भाषा शिक्षण और कम्प्यूटिंग</p> <p>हिन्दी भाषा शिक्षण और ई लॉगिंग, हिन्दी शिक्षण के लिये प्रमुख सॉफ्टवेयर</p> <p>सरकारी और गैर सरकारी संस्थाओं में कम्प्यूटिंग</p> <p>वाणिज्य एवं व्यवसाय के क्षेत्र में हिन्दी कम्प्यूटिंग</p>	18
इकाई 5	<p>हिन्दी कम्प्यूटिंग के विविध आयाम</p> <p>हिन्दी में ई मेल भेजना एवं प्राप्त करता इन्टरनेट पर हिन्दी पत्र-पत्रिकाएँ, टेलीग्राम, व्हाट्सएप्प और एस. एम. एस.</p> <p>हिन्दी के समक्ष चुनौतियाँ और संभावनाएँ</p> <p>न्यू मीडिया और हिन्दी भाषा</p> <p>ट्यूटोरियल के माध्यम से अभ्यास कार्य</p> <p>एम. एस. वर्ड का परिचय एवं प्रयोग कम्प्यूटर फाइल बनाना</p> <p>पीडीएफ फाइल बनाना</p>	24

आडियो और विडियो के माध्यम से शिक्षण सामाग्री का निर्माण
सार बिंदु (की वर्ड) टैग: गद्य साहित्य की विधाएँ, अवधारणा पृष्ठभूमि, समीक्षा, व्याख्या
भाग स- अनुशंसित अध्ययन संसाधन
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन
अनुशंसित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री: पाठ्य पुस्तकें - 1. श्रीवास्तव, गोपनीय "कम्प्यूटर का इतिहास और कार्यविधि" सामयिक प्रकाशन, नयी दिल्ली 2. हरिमोहन, कम्प्यूटर और हिन्दी" तक्षशिला प्रकाशन, नयी दिल्ली 3. शुक्ल, सौरभ, नए जमाने की पत्रकारिता विजडम विलेज पब्लिकेशन्स, दिल्ली 4. कुमार, सुरेश, इन्टरनेट पत्रकारिता, तक्षशिला प्रकाशन, नयी दिल्ली 5. संजय, द्वैदी, नए समय का संवाद: सोशल नेटवर्किंग "नेहा पब्लिशर्स एंड डिस्ट्रीब्यूटर्स, नई दिल्ली 6. मिश्र, कृष्ण बिहारी, हिन्दी पत्रकारिता और कानून" कनिष्क पब्लिशर्स, नई दिल्ली 2009 7. सिंह, अजय कुमार " इलेक्ट्रानिक पत्रकारिता" लोक भारती प्रकाशन, इलाहाबाद 2017 8. वैदिक, अजय कुमार "हिन्दी पत्रकारिता के विभिन्न आयाम" " 9. दीक्षित, सूर्यप्रसाद, भाषा प्रौद्योगिकी एवं भाषा प्रबंधन" किताब पर प्रकाशन, नई दिल्ली, 2012 10. प्रसाद, विनोद कुमार, भाषा और प्रौद्योगिकी" वाणी प्रकाशन नई दिल्ली 11. नॉटियल, जयंतीप्रसाद, बैंको में दि भाषा कम्प्यूटीकरण सुरभि प्रकाशन, नई दिल्ली 2008 12. चौधरी, सुभाष भाषा प्रौद्योगिकी, डी. पी. एस. मल्लिशिंग हाउस, नई दिल्ली 2019 13. प्रसाद, धनजी, हिन्दी का संगणकीय व्याकरण" राजकमल प्रकाशन नई दिल्ली 2019 14. मटिया, फैलाश चन्द्र एवं चतुर्वेदी मातीतील" हिन्दी भाषा : विकास और स्वरूप " ग्रंथ अकादमी नई दिल्ली, 2009, 2. अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक 1. www.wikipidiya.org 2. www.egyankosh.air 3. www.youtube.com/it 4. https://epgp.inflibnet.ac.in 6. hindiwi.org 6. kavitakosh.org 7. https://swayam.gov.in/
अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:
भाग द- अनुशंसित मूल्यांकन विधियां:
अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60
कोई टिप्पणी/सुझाव		

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023-2024

भाग अ परिचय -			
कार्यक्रम पत्रोपाधि (डिप्लोमा पाठ्यक्रम)	कक्षा : बी.ए.	सेमेस्टर: तृतीय	सत्र: 2023-2024
विषय: प्रयोजनमूलक हिंदी (Functional Hindi)			
1	पाठ्यक्रम का कोड	A2-FHINIT	
2	पाठ्यक्रम का शीर्षक	अनुवाद: सिद्धांत और प्रविधि	
3	पाठ्यक्रम का प्रकार	कोर कोर्स मेजर /माइनर	
4	पूर्वपक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ स्नातक प्रथम वर्ष अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	भावाभिव्यक्ति एवं आपसी-विचार विमर्श के सशक्त माध्यम के रूप में भाषा का वैशिष्ट्य सर्वविदित है। एक भाषा में प्रकट भाव व विचार को दूसरी भाषा में परिवर्तित करने की प्रक्रिया अनुवाद प्रविधि को जन्म देती है। दो भिन्न भाषा बोलने वाले व्यक्तियों को परस्पर संबाद करने के लिए अनुवाद की जरूरत होती है। अतः अनुवाद का संबंध दो भाषाओं से है। पर्यटन व्यवसाय से जुड़े गाइड अनुवाद के द्वारा ही स्वदेशी या विदेशी लोगों के बीच संपर्क स्थापित करते हैं। धार्मिक और ललित साहित्य के क्षेत्र में अनुवाद की परंपरा प्राचीनकाल से है। आज रामायण, महाभारत, बाइबिल आदि धर्म ग्रंथों के अन्य भाषा संस्करण अनुवाद से ही सुलभ हैं। इसी प्रकार बांग्ला, तमिल,	

		<p>तेलुगू तथा अंग्रेजी आदि भाषाओं का साहित्य भी हम आसानी से पढ़ सकते हैं। वैश्वीकरण व संचार क्रांति के युग में अनुवाद की भूमिका को अधिक बढ़ा दिया है। बाजारवाद अनुवादक की आवश्यकता और महत्व को अधिक स्थान दे रहा है। सभी जगह अनुवाद कार्य करने वाले कुशल व्यक्ति की महती आवश्यकता है। इसी जरूरत को ध्यान में रखते हुए अनुवाद की प्रविधि को समझने हेतु यह पाठ्यक्रम निर्मित किया गया है।</p> <p>पाठ्यक्रम के अध्ययन से -</p> <p>1 विद्यार्थी शैक्षणिक संस्थानों में अध्यापन के क्षेत्र में, राजभाषा अधिकारी के रूप में, पर्यटन उद्योग, होटल प्रबंधन इत्यादि में रोजगार प्राप्त कर सकता है।</p> <p>2 विद्यार्थी सरकारी विभागों में अनुवादक, न्यायालय में दस्तावेज -अनुवादक, सूचना विभाग, संचार माध्यमों में भाषा-अनुवादक की आवश्यकता पूर्ति कर सकेगा।</p> <p>3 विद्यार्थी को पर्यावरण, उद्योग, रेडियो, टीवी समाचार, गैर सरकारी संगठनों, व्यापारिक प्रतिष्ठानों एवं राजनीतिक गतिविधियों आदि में बतौर भाषण-लेखक एवं अनुवादक के रूप में कार्य मिलने के अवसर प्राप्त हो सकेंगे।</p> <p>4 वैश्वीकरण के युग में, बाजारवाद के कारण बहुराष्ट्रीय कम्पनियों को अपने उत्पाद के प्रचार-प्रसार एवं मार्केटिंग हेतु अनुवादकों की आवश्यकता की पूर्ति कर सकेगा।</p> <p>5 विद्यार्थी को पत्रकारिता के विविध पक्षों, प्रकाशन के क्षेत्र में पुस्तकों के अनुवाद और प्रतिवेदन आदि निर्माण के अवसर उपलब्ध होंगे।</p>
6	क्रेडिट मान	सैद्धान्तिक - 6
7	कुल अंक	<p>100</p> <p>सैद्धान्तिक मूल्यांकन - 60</p> <p>आंतरिक मूल्यांकन - 40</p>

MAJOR TH-1

भाग ब - पाठ्यक्रम की विषयवस्तु	
व्याख्यान की कुल संख्या- ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 3 घण्टे प्रति सप्ताह (L-T.P.3-0.0)	कुल व्याख्यान : 90

पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	1 अनुवाद: अर्थ, स्वरूप, प्रकृति और क्षेत्र। 2 अनुवाद की आवश्यकता एवं महत्व । 3 हिंदी की प्रयोजनीयता और अनुवाद कार्य। 4 आधुनिक तकनीक, संचार माध्यम और अनुवाद ।	18
इकाई 2	1 अनुवाद के सिद्धांत और समस्याएं। 2 अनुवाद विज्ञान और भाषा: स्रोतभाषा एवं लक्ष्य भाषा। 3 अनुवाद की प्रविधि: विभिन्न चरण-विश्लेषण, अंतरण एवं पुनर्गठन। 4 अनुवाद के भेद: शाब्दिक अनुवाद, भावानुवाद, छाया अनुवाद, सारानुवाद, आशु अनुवाद, मशीनी अनुवाद।	18
इकाई 3	1 अनुवाद के आयाम: साहित्यिक अनुवाद, विज्ञानपरक अनुवाद, विधिक अनुवाद, वाणिज्यिक अनुवाद। 2 अनुवाद की भूमिका के तीन पक्ष: पाठक की भूमिका (अर्थ ग्रहण), द्विभाषिक की भूमिका (अर्थांतरण की प्रक्रिया) एवं रचयिता की भूमिका अर्थ सम्प्रेषण की प्रक्रिया। 3 प्रशासनिक एवं कार्यालयीन पत्रों का अनुवाद।	18
इकाई 4	1. वैज्ञानिक-तकनीकी शब्दावली का अनुवाद, मुहावरों/लोकोक्तियों का अनुवाद। 2. संक्षिप्ताक्षरों तथा कूटपदों का अनुवाद, आंचलिक शब्दावली का अनुवाद। 3. व्यंजनापरक, लाक्षणिक पद-प्रयोगों का अनुवाद। 4. वाणिज्य, वित्त, विधि क्षेत्र का अनुवाद, कार्यालय- नार्मों का अनुवाद।	18
इकाई 5	1 अनुवाद कला और सृजन 2 सर्जनात्मक साहित्य के अनुवाद और तकनीकी अनुवाद में अंतर 3 अनुवादक की अर्हता और सफल अनुवादक के आवश्यक गुण । 4 दुभाषिया: प्रविधि एवं भाषान्तरण: दुभाषिया (इंटरप्रीटर) की अर्हता व गुण 5 हिन्दी अनुवाद का भविष्य ।	18
सार बिंदु (की बर्ड) टैग - अनुवाद, अनुवाद प्रविधि, संचार माध्यम, दुभाषिया, भाषान्तरण, अनुवाद कला, आशु अनुवाद, मशीनी अनुवाद, स्रोतभाषा, लक्ष्यभाषा।		

भाग स- अनुशंसित अध्ययन संसाधन

1 पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :

- 1 आनंद, इंद्रनाथ - " सरल अनुवाद शिक्षा" - मल्होत्रा ब्रदर दिल्ली -1955
- 2 तिवारी, डॉ. भोलानाथ - "अनुवाद की व्यावहारिक समस्याएं" - शब्दकार, दिल्ली -सं.1978
- 3 तिवारी, डॉ. भोलानाथ - "अनुवाद विज्ञान " - शब्दकार, दिल्ली -सं.1972
- 4 पालीवाल, डॉ. रीता रानी, अनुवाद प्रक्रिया ललित दिल्ली. सं. 1982
- 5 पांडे, हेमचन्द्र- " अनुवाद शास्त्र: व्यवहार से सिद्धांत की ओर"- तक्षशिला प्रकाशन, नई दिल्ली, 2008
- 6 भाटिया, कैलाश चंद्र -"अनुवाद सिद्धान्त और प्रयोग" -तक्षशिला प्रकाशन, नई दिल्ली से 2008
- 7 शास्त्री चारुदेव अनुवाद कला - मोतीलाल बनारसीदास वाराणसी सं. 1956
- 8 सक्सेना, प्रदीप- "अनुवाद सैद्धांतिकी"- आधार प्रकाशन, पंचकुला, सं-1999
- 9 सिंह, सूरजभान- " प्रयोजनमूलक भाषा और अनुवाद"- अहमदाबाद, सं-2003
- 10 सिंहल, सुरेश - " सृजनात्मक साहित्य और अनुवाद"- प्रकाशन, नई दिल्ली सं-1998
- 11 हरिमोहन डॉ. - "अनुवाद विज्ञान और संप्रेषण"- तक्षशिला पब्लिकेशन, दिल्ली सं-2014

1 अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र :

1. <https://ndi.jitkco.ac.in/>
2. <https://cpustakalay.com>
3. <https://hindivishwa.org/>
4. https://www.youtube.com/embed/Gia_UGbExMZE
5. <https://uesmoocs.inflibnet.ac.in>
6. <https://www.swavunambha.gov.in/>
7. <https://www.youtube.com/embed/MEJH7GG8x107>
8. <http://eth.mibhasha.gov.in/pdf/chapter3.pdf>
9. <http://egyankosh.ac.in/bitstream/123456789/49314/1/Block-1.pdf>
10. http://span.inflibnet.ac.in/spupdate/uploads/epencontent/5000018HI/P001757/M073494/FIL_506596312HND_PS_M30_Anuvaad.pdf

अनुशंसित मूल्यांकन विधियां

अनुशंसित सतत मूल्यांकन विधियां

अधिकतम अंक- 100

सतत व्यापक मूल्यांकन- 40

मुख्य परीक्षा- 60

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन

क्लास टेस्ट

सतत व्यापक मूल्यांकन (CCE)	असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60
कोई टिप्पणी/सुझाव		

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023-2024

भाग अ परिचय -			
कार्यक्रम पत्रोपाधि (डिप्लोमा पाठ्यक्रम)	कक्षा : बी.ए.	सेमेस्टर: तृतीय	सत्र: 2023-2024
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3	पाठ्यक्रम का प्रकार	इलेक्टिव	
4	पूर्वपक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ स्नातक प्रथम वर्ष अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	भावाभिव्यक्ति एवं आपसी-विचार विमर्श के सशक्त माध्यम के रूप में भाषा का वैशिष्ट्य सर्वविदित है। एक भाषा में प्रकट भाव व विचार को दूसरी भाषा में परिवर्तित करने की प्रक्रिया अनुवाद प्रविधि को जन्म देती है। दो भिन्न भाषा बोलने वाले व्यक्तियों को परस्पर संबाद करने के लिए अनुवाद की जरूरत होती है। अतः अनुवाद का संबंध दो भाषाओं से है। पर्यटन	

		<p>व्यवसाय से जुड़े गाइड अनुवाद के द्वारा ही स्वदेशी या विदेशी लोगों के बीच संपर्क स्थापित करते हैं। धार्मिक और ललित साहित्य के क्षेत्र में अनुवाद की परंपरा प्राचीनकाल से है। आज रामायण, महाभारत, बाइबिल आदि धर्म ग्रंथों के अन्य भाषा संस्करण अनुवाद से ही सुलभ हैं। इसी प्रकार बांग्ला, तमिल, तेलुगू तथा अंग्रेजी आदि भाषाओं का साहित्य भी हम आसानी से पढ़ सकते हैं। वैश्वीकरण व संचार क्रांति के युग में अनुवाद की भूमिका को अधिक बढ़ा दिया है। बाजारवाद अनुवादक की आवश्यकता और महत्व को अधिक स्थान दे रहा है। सभी जगह अनुवाद कार्य करने वाले कुशल व्यक्ति की महती आवश्यकता है। इसी जरूरत को ध्यान में रखते हुए अनुवाद की प्रविधि को समझने हेतु यह पाठ्यक्रम निर्मित किया गया है।</p> <p>पाठ्यक्रम के अध्ययन से -</p> <p>1 विद्यार्थी शैक्षणिक संस्थानों में अध्यापन के क्षेत्र में, राजभाषा अधिकारी के रूप में, पर्यटन उद्योग, होटल प्रबंधन इत्यादि में रोजगार प्राप्त कर सकता है।</p> <p>2 विद्यार्थी सरकारी विभागों में अनुवादक, न्यायालय में दस्तावेज -अनुवादक, सूचना विभाग, संचार माध्यमों में भाषा-अनुवादक की आवश्यकता पूर्ति कर सकेगा।</p> <p>3 विद्यार्थी को पर्यावरण, उद्योग, रेडियो, टीवी समाचार, गैर सरकारी संगठनों, व्यापारिक प्रतिष्ठानों एवं राजनीतिक गतिविधियों आदि में बतौर भाषण-लेखक एवं अनुवादक के रूप में कार्य मिलने के अवसर प्राप्त हो सकेंगे।</p> <p>4 वैश्वीकरण के युग में, बाजारवाद के कारण बहुराष्ट्रीय कम्पनियों को अपने उत्पाद के प्रचार-प्रसार एवं मार्केटिंग हेतु अनुवादकों की आवश्यकता की पूर्ति कर सकेगा।</p> <p>5 विद्यार्थी को पत्रकारिता के विविध पक्षों, प्रकाशन के क्षेत्र में पुस्तकों के अनुवाद और प्रतिवेदन आदि निर्माण के अवसर उपलब्ध होंगे।</p>
6	क्रेडिट मान	सैद्धान्तिक - 6
7	कुल अंक	<p>100</p> <p>सैद्धान्तिक मूल्यांकन - 60</p>

आंतरिक मूल्यांकन - 40

MAJOR TH-1

भाग ब - पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 3 घण्टे प्रति सप्ताह (L-T.P.3-0.0)

कुल व्याख्यान : 90

पाठ्यक्रम

इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	1 अनुवाद: अर्थ, स्वरूप, प्रकृति और क्षेत्र। 2 अनुवाद की आवश्यकता एवं महत्व। 3 हिंदी की प्रयोजनीयता और अनुवाद कार्य। 4 आधुनिक तकनीक, संचार माध्यम और अनुवाद।	18
इकाई 2	1 अनुवाद के सिद्धांत और समस्याएं। 2 अनुवाद विज्ञान और भाषा: स्रोतभाषा एवं लक्ष्य भाषा। 3 अनुवाद की प्रविधि: विभिन्न चरण-विश्लेषण, अंतरण एवं पुनर्गठन। 4 अनुवाद के भेद: शाब्दिक अनुवाद, भावानुवाद, छायानुवाद, सारानुवाद, आशु अनुवाद, मशीनी अनुवाद।	18
इकाई 3	1 अनुवाद के आयाम: साहित्यिक अनुवाद, विज्ञानपरक अनुवाद, विधिक अनुवाद, वाणिज्यिक अनुवाद। 2 अनुवाद की भूमिका के तीन पक्ष: पाठक की भूमिका (अर्थ ग्रहण), द्विभाषिक की भूमिका (अर्थांतरण की प्रक्रिया) एवं रचयिता की भूमिका अर्थ सम्प्रेषण की प्रक्रिया। 3 प्रशासनिक एवं कार्यालयीन पत्रों का अनुवाद।	18
इकाई 5	1 अनुवाद कला और सृजन 2 सर्जनात्मक साहित्य के अनुवाद और तकनीकी अनुवाद में अंतर 3 अनुवादक की अर्हता और सफल अनुवादक के आवश्यक गुण। 4 दुभाषिया: प्रविधि एवं भाषान्तरण: दुभाषिया (इंटरप्रीटर) की अर्हता व गुण 5 हिन्दी अनुवाद का भविष्य।	18
सार बिंदु (की बर्ड) टैग - अनुवाद, अनुवाद प्रविधि, संचार माध्यम, दुभाषिया, भाषान्तरण, अनुवाद कला, आशु अनुवाद, मशीनी अनुवाद, स्रोतभाषा, लक्ष्यभाषा।		

भाग स- अनुशंसित अध्ययन संसाधन

1 पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :

- 1 आनंद, इंद्रनाथ - " सरल अनुवाद शिक्षा" - मल्होत्रा ब्रदर दिल्ली -1955
- 2 तिवारी, डॉ. भोलानाथ - "अनुवाद की व्यावहारिक समस्याएं" - शब्दकार, दिल्ली -सं.1978
- 3 तिवारी, डॉ. भोलानाथ - "अनुवाद विज्ञान " - शब्दकार, दिल्ली -सं.1972
- 4 पालीवाल, डॉ. रीता रानी, अनुवाद प्रक्रिया ललित दिल्ली. सं. 1982
- 5 पांडे, हेमचन्द्र- " अनुवाद शास्त्र: व्यवहार से सिद्धांत की ओर"- तक्षशिला प्रकाशन, नई दिल्ली, -2008
- 6 भाटिया, कैलाश चंद्र -"अनुवाद सिद्धान्त और प्रयोग" -तक्षशिला प्रकाशन, नई दिल्ली से 2008
- 7 शास्त्री चारुदेव अनुवाद कला - मोतीलाल बनारसीदास वाराणसी सं. 1956
- 8 सकसेना, प्रदीप- "अनुवाद सैद्धांतिकी"- आधार प्रकाशन, पंचकुला, सं-1999
- 9 सिंह, सूरजभान- " प्रयोजनमूलक भाषा और अनुवाद"- अहमदाबाद, सं-2003
- 10 सिंहल, सुरेश - " सृजनात्मक साहित्य और अनुवाद"- प्रकाशन, नई दिल्ली सं-1998
- 11 हरिमोहन डॉ. - "अनुवाद विज्ञान और संप्रेषण"- तक्षशिला पब्लिकेशन, दिल्ली सं-2014

1 अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र :

1. <https://ndi.jitkco.ac.in/>
2. <https://cpustakalay.com>
3. <https://hindivishwa.org/>
4. https://www.youtube.com/embed/Gia_UGbExMZE
5. <https://uesmoocs.inflibnet.ac.in>
6. <https://www.swavunambha.gov.in/>
7. <https://www.youtube.com/embed/MEJH7GG8x107>
8. <http://eth.mibhasha.gov.in/pdf/chapter3.pdf>
9. <http://egyankosh.ac.in/bitstream/123456789/49314/1/Block-1.pdf>
10. http://span.inflibnet.ac.in/spupdate/uploads/epencontent/5000018HI/P001757/M073494/FIL_506596312HND_PS_M30_Anuvaad.pdf

अनुशंसित मूल्यांकन विधियां

अनुशंसित सतत मूल्यांकन विधियां

अधिकतम अंक- 100

सतत व्यापक मूल्यांकन- 40 मुख्य परीक्षा- 60

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60
कोई टिप्पणी/सुझाव		

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023-2024

भाग अ - परिचय -			
कार्यक्रम	: प्रमाण पत्र	सेमेस्टर: तृतीय	सत्र: 2023-2024
1	पाठ्यक्रम का कोड	V1-OFM-OPPT	
2	पाठ्यक्रम का शीर्षक	कार्यालय प्रक्रिया और व्यवहार	
3	पाठ्यक्रम का प्रकार	व्यावसायिक	
4	पूर्वपेक्षा (Prerequisite)	सभी संकाय के विद्यार्थियों के लिए उपलब्ध	
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	1. पाठ्यक्रम के सफल समापन पर, छात्र सक्षम होंगे 2. कार्यालय अभिलेख रक्षण, अभिलेख प्रबंधन और नस्तिकरण (फाइलिंग) को समझने में। 3. कार्यालय प्रारूपों, पंजियों एवं डाक प्रबंधन को समझने में। 4. कार्यालय के बजट एवं अंकेक्षण प्रणाली को समझने में। 5. वृत्ति कर, माल एवं सेवा कर, आयकर, भविष्य निधि एवं बीमा जैसी विभिन्न कटौतियों की प्रक्रिया और अभिलेख रक्षण को	

		समझने में।•
6	अपेक्षित रोजगार /कैरियर के अवसर	6. आधुनिक कार्यालय में कार्यालय सहायक के अवसर
6	क्रेडिट मान	4
	कुल अंक	100 सैद्धांतिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40

भाग ब - पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या+प्रेक्टिकल (प्रति सप्ताह घंटे में) व्याख्यान-1 घंटे / प्रायोगिक अवधि -1 प्रायोगिक घंटा		
व्याख्यान/ प्रेक्टिकल की कुल संख्या: 1-30hrs/P-30hrs		
पाठ्यक्रम		
माँड्यूल	विषय	घंटे
1	<p>कार्यालय अभिलेख प्रबंधन एवं नस्तिकरण-</p> <p>अभिलेखों से आशय एवं प्रकार, अभिलेख प्रबंधन एवं रक्षण के सिद्धांत एवं उद्देश्य, अभिलेख प्रणाली के आवश्यक तत्व, अभिलेख रक्षण का केंद्रीयकरण एवं विकेंद्रीयकरण, अभिलेख प्रबंधन प्रक्रिया, अभिलेख प्रबंधन के अवयव।</p> <p>नस्तिकरण - आशय एवं महत्व, अच्छे नस्तिकरण एवं अनुक्रमणीकरण (इंडेक्सिंग) की विशेषताएं, नस्तिकरण की विधियां, नस्तियों का वर्गीकरण, नस्तिकरण प्रणाली के लाभ-दोष, कागज रहित कार्यालय की अवधारणा, अभिलेखों का अंकीकरण (डिजिटिकरण) एवं पुनः प्राप्ति, पुराने अभिलेखों की प्रतिधारण, छटाई तथा विनिष्टीकरण</p> <p>सार बिंदु (कीवर्ड)/टैग: अभिलेखप्रबंधन, अभिलेख रक्षण, केंद्रीयकरण एवं विकेंद्रीयकरण, नस्तिकरण, अनुक्रमणीकरण, अंकीकरण ।</p>	10
2	<p>कार्यालय के प्रारूप एवं पंजियां:</p> <p>प्रारूप- परिचय, आशय एवं महत्व, प्रारूपों के उपयोग के लाभ-हानि, प्रारूपों के प्रकार, प्रारूपों की डिज़ाइन को प्रभावित करने वाले घटक, प्रारूप डिज़ाइन के सिद्धांत, स्कंध पंजी में सामग्री का अभिलेख एवं</p>	10

	<p>प्रबंधन। डाक प्रबंधन- डाक सेवाओं से आशय, महत्व एवं उद्देश्य, आवक एवं जावक प्रक्रिया, दस्तावेज भेजना, डाक एवं कोरियर सेवाओं का उपयोग करते हुए कार्यालयीन दस्तावेजों का प्रेषण, डाक प्रबंधन का केंद्रीयकरण एवं विकेंद्रीयकरण।</p> <p>सार बिंदु (कीवर्ड)/टैग : कार्यालय प्रारूप, स्कंध पंजी, आवक, जावक, दस्तावेज, डाक प्रबंधन</p>	
3	<p>कार्यालय बजट एवं अंकेक्षण : कार्यालय बजट - अवधारणा, आवश्यकता, कार्यालय बजट के प्रकार, मासिक, त्रैमासिक, अर्ध वार्षिक एवं वार्षिक बजट, बजट के आवश्यक तत्व, आंकलन-नियोजित एवं गैर-नियोजित खर्च, आवर्ती एवं अनावर्ती खर्च, बजट तैयारी के पूर्व आवश्यकताएँ, बजट नियंत्रण।</p> <p>अंकेक्षण: परिभाषा, महत्व एवं प्रक्रिया, प्रमाणक से आशय, प्रमाणक के प्रकार, प्रमाणीकरण का महत्व, सत्यापन, आशय, कार्यालय सम्पत्तियों के सत्यापन की प्रक्रिया, कार्यालय संपत्ति एवं उपभोग्य सामग्री की पंजी, उपभोग्य सामग्री एवं स्थाई सम्पत्तियों का संधारण एवं निस्तारण।</p> <p>सार बिंदु (कीवर्ड)/ टैग : बजट, अंकेक्षण, प्रमाणक, आवर्ती खर्च, अनावर्ती खर्च, नियोजित खर्च, गैर-नियोजित खर्च, उपभोग्य सामग्री ।</p>	10
	भाग, स. अनुशंसित अध्ययन संसाधन	
	प्रायोगिक पाठ्यक्रम	
1	छात्र एक आधुनिक कार्यालय के साथ इंटर्न होगा और कार्यालय रिकॉर्ड प्रबंधन और नस्तिकरण, कार्यालय बजट और लेखा परीक्षा के व्यावहारिक पहलुओं को समझेगा और कार्यालय प्रपत्रों और रजिस्ट्रों के बुनियादी स्तर का व्यावहारिक ज्ञान प्राप्त करेगा।	30
2	छात्र व्यावसायिक कर कटौती, माल और सेवाकर, आयकर, भविष्य निधि और बीमा, सेवा रिकॉर्ड, वित्तीय और कानूनी रिकॉर्ड से संबंधित कार्यालय द्वारा संधारित किये जाने वाले विशेष रिकॉर्ड्स का व्यावहारिक बुनियादी ज्ञान प्राप्त करेगा।	30
	Project/ Field trip: Visit to a modern office	
	पाठ्यपुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन	

अनुशंसित सहायक पुस्तकें / ग्रन्थ/अन्य पाठ्य संसाधन / पाठ्य सामग्री:

- 1) Chopra, R. K. and Gauri, Priyanki, Office Management, Himalaya Publishing House, Mumbai.
- 2) V Balchandran and V Chandrasekaran, Office Management, Tata McGraw Hill, New Delhi
- 3) Ghosh, P.K. "Office Management", Sultan Chand and Sons, New Delhi
- 4) Duggal, Balraj, Office Management and Commercial Correspondence, Kitab Mahal, New Delhi Higher Education

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम: <https://onlinecourses.swavam2.ac.in/cec21mg24/preview>

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय -			
कार्यक्रम डिप्लोमा	कक्षा: बी.ए.	सेमेस्टर: चतुर्थ	सत्र: 2023-2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A2-HLIT2T	
2	पाठ्यक्रम का शीर्षक	अनुवाद विज्ञान	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/वोकेशनल/ ...)	कोर कोर्स मेजर /माइनर	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए छात्र ने किसी भी विषय / संकाय में अध्ययन किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	1 विद्यार्थियों में अनुवाद कौशल का विकास होगा। 2 भारतीय एवं विश्व भाषां साहित्य के अनुवाद क्षेत्र में रोजगार के अवसर प्राप्त होंगे। 3 वैश्विक प्रतिस्पर्धात्मक वातावरण के साथ सामंजस्य बनाने में सक्षम होंगे।	
6	क्रेडिट मान	06	
7	कुल अंक	100 अंक सैद्धांतिक मूल्यांकन - 70 अंक	

आंतरिक मूल्यांकन - 30 अंक		
भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या (90) -ट्यूटोरियल- L85-T05: व्याख्यान प्रति सप्ताह 2 घंटे		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	अनुवाद की अवधारणा एवं क्षेत्र: 1 अनुवाद: परिभाषा, स्वरूप एवं महत्व 2 अनुवाद के प्रकार - शब्दानुवाद, भावानुवाद, आशु अनुवाद एवं द्विभाषी प्रविधि, दुभाषिण के गुण 3 अनुवादक के गुण 4 अच्छे अनुवाद की विशेषताएँ 5 अनुवाद के क्षेत्र 6 रोजगार की संभावनाएँ	16
इकाई 2	अनुवाद की प्रक्रिया 1 स्रोत भाषा और लक्ष्य भाषा के अर्थान्तरण की प्रक्रिया, अनुदित पाठ का पुनर्गठन और अर्थ सम्प्रेषण की प्रक्रिया 2 अनुवाद एवं समतुल्यता का सिद्धांत	18
इकाई 3	अनुवाद के उपकरण एवं अनुवाद का सामाजिक सांस्कृतिक संदर्भ 1 शब्दकोश 2 थिसॉरस 3 पारिभाषिक कोश 4 विश्वकोश, कंप्यूटर, इंटरनेट 5 समाज, संस्कृति एवं अनुवाद के अन्तः संबंध	16
इकाई 4	विभिन्न क्षेत्रों में अनुवाद की समस्याएँ एवं समाधान: 1. कार्यालयीन अनुवाद 2. वाणिज्यिक अनुवाद 3. वैज्ञानिक एवं तकनीकी अनुवाद 4. साहित्यिक अनुवाद एवं तकनीकी अनुवाद में अंतर 5. जन संचार माध्यम एवं विज्ञापन का अनुवाद।	20
इकाई 5	A अनुवाद का सम्पादन, मूल्यांकन और समीक्षा 1 सम्पादन 2 मूल्यांकन और समीक्षा	20

	<p>B ट्यूटोरियल:</p> <p>गद्यानुवाद - किसी अनुच्छेद का अनुवाद कार्यालयीन वाक्यों एवं पारिभाषिक शब्दावली का अनुवाद</p>	
<p>1 सार बिंदु (की वर्ड) टिम: अनुवाद विज्ञान, स्रोत मग लक्ष्य भाषा, अर्यान्तरण, समतुल्यता, थिसॉरस, पुनरीक्षण आदि</p>		
<p>भाग स- अनुशंसित अध्ययन संसाधन</p>		
<p>पाठ्य पुस्तक, संदर्भ पुस्तकें, अन्य संसाधन</p>		
<p>अनुशंसित सहायक पुस्तकें/ग्रन्थ/पाठ्य संसाधन/पाठ्य सामग्री</p> <p>संदर्भ ग्रन्थ</p> <ol style="list-style-type: none"> 1 गोपीनाथन, जी, अनुवाद सिद्धान्त और प्रयोग, लोकभारती प्रकाशन, इलाहाबाद 2 गोपीनाथन, जी, कंदस्वामी, एस "अनुवाद की समस्याएँ लोकभारती प्रकाशन, इलाहाबाद 3 तिवारी, भोलानाथ, भाषा विज्ञान कोश" ज्ञानमंडल लिमिटेड वाराणसी 1964 4 समीर डॉ नारायण अनुवाद की प्रक्रिया: तकनीक और समस्या लोकभारती नई दिल्ली 5 विनय चंद्रन, डॉ एम.एस. "अनुवाद" लोकभारती प्रकाशन इलाहाबाद 6 समीर डॉs नारायण 'अनुवाद और उत्तर-आधुनिक अवधारणाएँ लोकभारती प्रकाशन] नई दिल्ली <p>2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक</p> <ol style="list-style-type: none"> 1. www.wikipidiya.org 2. www.egyankosh.ac.in <p>अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम: shamducation</p> <ol style="list-style-type: none"> 3 www.youtube.com 4. https://epgp.inflibnet.ac.in 5. hindiwl.org 6. https://swayam.gov.in/ 		

<p>भाग द- अनुशंसित मूल्यांकन विधियां:</p>		
<p>अनुशंसित सतत मूल्यांकन विधियाँ अधिकतम अंक 100 सतत व्यापक मूल्यांकन (CCE) अंक: 30 मुख्य परीक्षा (ME) अंक: 70</p>		
<p>आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)</p>	<p>क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)</p>	<p>कुल अंक :40</p>

आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60
कोई टिप्पणी/सुझाव		

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)
2023&2024

भाग अ परिचय -			
कार्यक्रम डिप्लोमा	कक्षा: बी.ए.	सेमेस्टर: चतुर्थ	सत्र: 2023-2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A2-HLIT2T	
2	पाठ्यक्रम का शीर्षक	अनुवाद विज्ञान	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/वोकेशनल/ ...)	इलेक्टिव	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए छात्र ने किसी भी विषय / संकाय में अध्ययन किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	1 विद्यार्थियों में अनुवाद कौशल का विकास होगा। 2 भारतीय एवं विश्व भाषां साहित्य के अनुवाद क्षेत्र में रोजगार के अवसर प्राप्त होंगे। 3 वैश्विक प्रतिस्पर्धात्मक वातावरण के साथ सामंजस्य बनाने में सक्षम होंगे।	
6	क्रेडिट मान	06	
7	कुल अंक	100 अंक	
		सैद्धांतिक मूल्यांकन - 60 अंक	

आंतरिक मूल्यांकन - 40 अंक		
भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या (90) -ट्यूटोरियल- L85-T05: व्याख्यान प्रति सप्ताह 2 घंटे		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	अनुवाद की अवधारणा एवं क्षेत्र: 1 अनुवाद: परिभाषा, स्वरूप एवं महत्व 2 अनुवाद के प्रकार - शब्दानुवाद, भावानुवाद, आशु अनुवाद एवं द्विभाषी प्रविधि, दुभाषिण के गुण 3 अनुवादक के गुण 4 अच्छे अनुवाद की विशेषताएँ 5 अनुवाद के क्षेत्र 6 रोजगार की संभावनाएँ	16
इकाई 2	अनुवाद की प्रक्रिया 3 स्रोत भाषा और लक्ष्य भाषा के अर्थान्तरण की प्रक्रिया, अनुदित पाठ का पुनर्गठन और अर्थ सम्प्रेषण की प्रक्रिया 4 अनुवाद एवं समतुल्यता का सिद्धांत	18
इकाई 3	अनुवाद के उपकरण एवं अनुवाद का सामाजिक सांस्कृतिक संदर्भ 6 शब्दकोश 7 थिसॉरस 8 पारिभाषिक कोश 9 विश्वकोश, कंप्यूटर, इंटरनेट 10 समाज, संस्कृति एवं अनुवाद के अन्तः संबंध	16
इकाई 4	विभिन्न क्षेत्रों में अनुवाद की समस्याएँ एवं समाधान: 1. कार्यालयीन अनुवाद 2. वाणिज्यिक अनुवाद 3. वैज्ञानिक एवं तकनीकी अनुवाद 4. साहित्यिक अनुवाद एवं तकनीकी अनुवाद में अंतर 5. जन संचार माध्यम एवं विज्ञापन का अनुवाद।	20
1 सार बिंदु (की वर्ड) टिम: अनुवाद विज्ञान, स्रोत मग लक्ष्य भाषा, अर्थान्तरण, समतुल्यता, थिसॉरस, पुनरीक्षण आदि		

भाग स- अनुशंसित अध्ययन संसाधन
पाठ्य पुस्तक, संदर्भ पुस्तकें, अन्य संसाधन
अनुशंसित सहायक पुस्तकें/ग्रन्थ/पाठ्य संसाधन/पाठ्य सामग्री
संदर्भ ग्रन्थ
1 गोपीनाथन, जी, अनुवाद सिद्धान्त और प्रयोग, लोकभारती प्रकाशन, इलाहाबाद
2 गोपीनाथन, जी, कंदस्वामी, एस "अनुवाद की समस्याएँ लोकभारती प्रकाशन, इलाहाबाद
3 तिवारी, भोलानाथ, भाषा विज्ञान कोश" जानमंडल लिमिटेड वाराणसी 1964
4 समीर डॉ नारायण अनुवाद की प्रक्रिया: तकनीक और समस्या लोकभारती नई दिल्ली
5 विनय चंद्रन, डॉ एम.एस. "अनुवाद" लोकभारती प्रकाशन इलाहाबाद
6 समीर डॉs नारायण 'अनुवाद और उत्तर-आधुनिक अवधारणाएँ लोकभारती प्रकाशन] नई दिल्ली
2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक
1. www.wikipidiya.org
2. www.egyankosh.ac.in
अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम: shamducation
3 www.youtube.com
4. https://epgp.inflibnet.ac.in 5. hindiwl.org 6. https://swayam.gov.in/

भाग द- अनुशंसित मूल्यांकन विधियां:		
अनुशंसित सतत मूल्यांकन विधियाँ		
अधिकतम अंक 100		
सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60		
आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60
कोई टिप्पणी/सुझाव		

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

भाग अ परिचय -			
कार्यक्रम डिप्लोमा	कक्षा: बी.ए.	सेमेस्टर: चतुर्थ	सत्र: 2023-2024
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A2-HLIT1G	
2	पाठ्यक्रम का शीर्षक	नाट्य लेखन एवं रंगमंच	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/वोकेशनल/ ...)	जेनेरिक इलेक्टिव (सामान्य वैकल्पिक)	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए छात्र ने किसी भी विषय / संकाय में अध्ययन किया हो, पात्र है।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<ol style="list-style-type: none">1. विद्यार्थियों को संस्कृत एवं हिन्दी नाट्य साहित्य एवं रंगमंच कला का ज्ञान पास होगा।2. अभिव्यक्ति कौशल संवाद कला, वक्तृत्व कला का विकास कर सकेंगे।3. नाट्य लेखन, पटकथा लेखन, संवाद लेखन एवं अभिनय "में रोजगार की संभावनाएँ ।	

		4. "राष्ट्रीय एवं सांस्कृतिक ऐक्य के भाव का विकास होगा।
6	क्रेडिट मान	06
7	कुल अंक	100 अंक सैद्धांतिक मूल्यांकन - 60 अंक आंतरिक मूल्यांकन - 30 अंक
भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या (90) -ट्यूटोरियल- L85-T05: व्याख्यान प्रति सप्ताह 2 घंटे		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान की संख्या
इकाई 1	नाट्य साहित्य एवं रंगमंच की अवधारणा 1. नाट्य साहित्य अर्थ, परिभाषा एवं प्रकार 2. रंगमंच की अवधारणा एवं प्रकार 3. नाटक एवं रंगमंच का अंतः संबंध	15
इकाई 2	नाट्य लेखन का इतिहास और हिन्दी नाट्य परंपरा 1. संस्कृत नाट्य परम्परा 2 हिन्दी नाट्य परम्परा 3 लोक नाट्य परम्परा	15
इकाई 3	नाट्य लेखन प्रविधि 1. वस्तुविधा 2. पात्र परिकल्पना 3. परिस्थिति योजना 4. संवाद लेखन का वैशिष्ट्य 5. रंग निर्देशों की उपयोगिता	16
इकाई 4	हिन्दी रंगमंच की विकास यात्रा एवं हिन्दी रंगमंच की विविध शैलियाँ: 01. स्वातंत्र्य पूर्व हिन्दी रंगमंच 02. स्वातंत्र्योत्तर हिन्दी रंगमंच a- बीसवीं शताब्दी का हिन्दी रंग b - इक्कीसवीं शताब्दी का 'हिन्दी' रंगमंच c- जबलपुर के स्थानीय रंगमंच का इतिहास एवं प्रमुख नाट्य	18

	<p>कमी</p> <p>03. हिन्दी रंगमंच की प्रमु 3.1 शैलीबद्ध स्टाईल 3.2 यथार्थवादी 3.3 एब्सर्ड 3.4 लोक शैली</p>	
इकाई 5	<p>रंगमंच एवं अभिनय 1 अभिनय 2 रंग स्थापत्य 3. रंग सज्जा 4. ध्वनि एवं प्रकाश 5. संगीत 6. रूप सज्जा एवं वेशभूषा 7. रंग शिल्प एवं निर्देशन</p> <p>ट्यूटोरियल-</p> <ul style="list-style-type: none"> • नाटकों एवं एकांकियों का अभिनय । • कहानी का नाट्य रूपांतर । • समसामयिक विषय पर स्वतंत्र नाट्य लेखन एवं मंचन 	24
<p>1 सार बिंदु (की वर्ड) टिम: अनुवाद विज्ञान, स्रोत मग लक्ष्य भाषा, अर्यान्तरण, समतुल्यता, थिसॉरस, पुनरीक्षण आदि</p>		
<p>भाग स- अनुशांसित अध्ययन संसाधन</p>		
<p>पाठ्य पुस्तक, संदर्भ पुस्तकें, अन्य संसाधन</p>		
<p>अनुशांसित सहायक पुस्तकें/ग्रन्थ/पाठ्य संसाधन/पाठ्य सामग्री</p> <p>संदर्भ ग्रन्थ</p> <p>1 जैन नेमिचन्द्र, रंगदर्शन राधाकृष्ण प्रकाशन प्रा. लि. नई दिल्ली सिंह, डॉ बच्चन, हिन्दी नाटक राधाकृष्ण प्रकाशन प्रा. लि. नई दिल्ली कुमार, डॉ. सिद्धनाथ "रेडियो नाटक की कला राधाकृष्ण प्रकाशन प्रा. लि. नई दिल्ली तनेजा, डॉ. जयदेव, मोहन राकेश: रंगशिल्प और प्रदर्शन, राधाकृष्ण प्रकाशन प्रा. लि. नई दिल्ली दिल्ली गौतम, विकल, हिन्दी नाटक रंग शिल्प दर्शन" वाणी प्रकाशन नई दिल्ली 2014</p>		

खुशलानी, डॉ. भारत "बदलते परिवेश के एकाँकी राजमंगल प्रकाशन अलीगढ़ उत्तर प्रदेश
द्विवेदी, हज़ारिप्रसाद द्विवेदी, पृथ्वीनाथ नाट्यशास्त्र की भारतीय परंपरा और दशरूपक
राजकमल प्रकाशन

नई दिल्ली

| परिहार, नीतू 'हिन्दी नाट्य साहित्य और रंगमंच "हिमांशु पब्लिकेशन नई दिल्ली | पांडे, डॉ.
रामजी भारतीय नाट्य सिद्धान्त: उद्भव और विकास बिहार राष्ट्रभाषा परिषद पटना

मिश्र, ज्योतीश्वर "स्वतंत्रयोतर हिन्दी नाटक : मूल्य संक्रमण लोकभारती प्रकाशन नई दिल्ली

12 अनुशंसित डिजिटल प्लेटफॉर्म, वेब लिंक

1. www.wikipidiva.org

2. www.egyankosh.ac.in

3. www.youtube.com

4. <https://épgp.inflibnet.ac.in>

5. hindiwi.org 6. kavitakosh.org

7. <https://swayam.gov.in/>

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. वस्तुनिष्ठ अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 60

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023-2024

भाग अ परिचय -			
कार्यक्रम पत्रोपाधि (डिप्लोमा पाठ्यक्रम)	कक्षा : बी.ए.	सेमेस्टर: चतुर्थ	सत्र: 2023-2024
विषय: प्रयोजनमूलक हिंदी			
1	पाठ्यक्रम का कोड	A2-FHIN2T	
2	पाठ्यक्रम का शीर्षक	हिंदी और कम्प्यूटर अनुप्रयोग	
3	पाठ्यक्रम का प्रकार	कोर कोर्स मेजर /माइनर	
4	पूर्वापेक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ स्नातक प्रथम वर्ष अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<p>इक्कीसवीं सदी में कम्प्यूटर का भारत में आगमन किसी आश्चर्यजनक घटना से कम नहीं है। कम्प्यूटर के कल्पनातीत अनुप्रयोग जीवन के प्रत्येक क्षेत्र में सुगमता उपलब्ध करा रहे हैं। वर्तमान संचार क्रांति के युग में प्रत्येक लिखित अभिव्यक्ति कागज-कलम से डिजिटल स्वरूप में परिवर्तित होकर कम्प्यूटर आश्रित हो गई है। कम्प्यूटर के अभाव में गतिशील जीवन की कल्पना निरर्थक है। इसीलिए आज साक्षरता अभियान के स्थान पर डिजिटल साक्षरता की महती आवश्यकता है। बीते दशकों में भारत में कम्प्यूटर ने तो अपने पैर खूब पसारे किंतु हिंदी को इसका समुचित लाभ लेने में भाषा संबंधी अनेक कठिनाईयों का सामना करना पड़ा। बाजार की जरूरत ने आज कम्प्यूटर में हिंदी में कामकाज करने की अनेक सुविधाएं उपलब्ध करा दी हैं। हिंदी से जुड़े सभी कार्य अब कम्प्यूटर पर सुविधापूर्वक किये जा सकते हैं। यूनिकोड फोण्ट तकनीक से कम्प्यूटर, इंटरनेट, वेबसाइट ई-मेल, सोशल मीडिया आदि सभी पर हिंदी में कार्य करने की सुविधा सहज उपलब्ध है। इस क्षेत्र में हिंदी के विद्यार्थी के लिए रोजगार की अनेक संभवानाएं मौजूद हैं। इसका ध्येय विद्यार्थियों को हिन्दी व कम्प्यूटर अनुप्रयोगों का</p>	

		<p>ज्ञान देकर रोजगार हेतु तैयार करना है। पाठ्यक्रम के अध्ययन से -</p> <p>1 विद्यार्थी कम्प्यूटर-तकनीक का ज्ञान लेकर हिंदी में कार्य करने में सक्षम होगा तथा कम्प्यूटर में हिंदी से संबंधित सॉफ्टवेयरों से परिचित होकर उनके संचालन में दक्षता प्राप्त कर सकेगा।</p> <p>2 विद्यार्थी कार्यालयी कार्य, गणनाओं, टेबूलेशन, विज्ञापन, ग्राफिक्स, प्रकाशन, कंपोजिंग, वेब डिजाइनिंग, चार्ट आदि कार्य को कुशलतापूर्वक करके रोजगार पा सकेगा।</p> <p>3 विद्यार्थी को हिंदी भाषा और कम्प्यूटर अनुप्रयोगों के साहचर्य से मीडिया, जनसंचार माध्यमों, दृश्य-श्रव्य साधनों एवं पत्रकारिता के क्षेत्र में रोजगार के अनेक अवसर उपलब्ध होंगे।</p> <p>4 सृजनात्मक एवं रचनात्मक अभिरुचि के विद्यार्थी अपने सृजन को कम्प्यूटर तकनीक व इंटरनेट के माध्यम से प्रकाशित प्रसारित कर आजीविकोपार्जन कर सकेगा।</p> <p>5 जिज्ञासु प्रवृत्ति के विद्यार्थी विभिन्न उपयोगी वेबसाइट्स की सर्फिंग कर अपने लिये रोजगार के अन्य अवसरों की खोज आसानी से कर सकेंगे।</p>
6	क्रेडिट मान	सैद्धान्तिक 4
7	कुल अंक	<p>100</p> <p>सैद्धान्तिक मूल्यांकन - 60</p> <p>आंतरिक मूल्यांकन - 40</p>

भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 2 घंटे प्रति सप्ताह (L-T-P : 20-0) कुल व्याख्यान: 60		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	<p>कम्प्यूटर का परिचय एवं विकास:</p> <p>1 अर्थ, स्वरूप, परिभाषा एवं इतिहास।</p> <p>2 कम्प्यूटर के मुख्य भाग एवं प्रणाली।</p>	15

	3 कम्प्यूटर में डाटा प्रविष्टि, स्मृति (मेमोरी), सूचना संग्रहण । 4 इनपुट डिवाइस, आउटपुट डिवाइस, कम्प्यूटर मुद्रण । 5 कम्प्यूटर में हिंदी का आरम्भ और विकास ।	
इकाई 2	कम्प्यूटर में हिन्दी के विभिन्न अनुप्रयोग: 1 ऑकड़ा संसाधन, शब्द संसाधन, फॉण्ट प्रबंधन। 2 टाइपिंग टूल: नोटपैड, माइक्रोसॉफ्ट आफिस, पेज मेकर आदि। 3 एम. एस. ऑफिस एवं गूगल टूल्स: परिचय एवं विविध प्रयोग। 4 हिंदी फॉण्ट का अनुप्रयोग: यूनिकोड से पूर्व एवं उसके पश्चात। 5 हिंदी फोण्ट पद्धति, परिचय एवं प्रकार। 6 हिंदी कुंजीपटल (की-बोर्ड) संरचना एवं प्रकार।	15
इकाई 3	कम्प्यूटर एवं हिंदी के विविध आयाम: 1 ऑनलाइन सेवाएं और हिंदी। 2 ई-लर्निंग और हिंदी। 3 ई-गवर्नेंस एवं हिंदी। 4 हिंदी ई-पत्रिकाएँ, ब्लॉगलेखन, विकीपीडिया-लेखन। 5 कम्प्यूटर और हिंदी विज्ञापन-लेखन।	15
इकाई 4	भाषा और सूचना प्रौद्योगिकी: 1. कम्प्यूटर और भारतीय भाषाएँ 2. कम्प्यूटर और हिंदी: चुनौतियाँ एवं समाधान 3. हिंदी के विभिन्न सॉफ्टवेयर । 4. कम्प्यूटर अनुवाद । 5. हिंदी वेब डिजाइनिंग, हिंदी वेबसाइट्स और हिंदी ई-पोर्टल।	15
सार बिंदु की बर्द) टैग: कम्प्यूटर, ई-लर्निंग, टाइपिंग टूल, इनपुट डिवाइस, आउटपुट डिवाइस यूनिकोड फॉट, एम.एस.आफिस, पेज मेकर, सॉफ्टवेयर, हिंदी वेबसाइट्स हिंदी ई-पोर्टल		

MAJOR/MINOR - TH

भाग स- अनुशंसित अध्ययन संसाधन	
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन	
अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :	
1 कुमार, योगेश एम. एस.ऑफिस, टी. बालाजी पब्लिकेशन, दिल्ली, सं. 2017	
2 जैन, डॉ. संजय कुमार-"प्रयोजनमूलक कामकाजी हिंदी एवं कम्प्यूटिंग" -पुस्तक सदन भोपाल, सं. 2005	
3 पटेल, योगेश-" कम्प्यूटर को जाने", बी एंड एस पब्लिशर्स, दिल्ली।	
4 पटेल, योगेश-" एम.एस. एक्सेल" बी एंड एस पब्लिशर्स, दिल्ली।	

5 दाधीचि, बालेंदु शर्मा, तकनीकी सुलझनें", ई प्रकाशक 504, पार्क रॉयल सेक्टर-56, गुरुग्राम सं.2012

6 मल्होत्रा, डॉ. विजय कुमार, -"कम्प्यूटर के भाषिक अनुप्रयोग" - वाणी प्रकाशन, दिल्ली सं.2007

7 शर्मा सी.के.व हेमंत -"सूचना प्रौद्योगिकी"- एटलांटिक प्रकाशन, दिल्ली, सं-2006

8 श्रीवास्तव, एस.एस. -"कम्प्यूटर शिक्षण" आशा पब्लिशिंग कंपनी, आगरा, सं-2010

9 हरिमोहन डॉ. "कम्प्यूटर और हिन्दी", तक्षशिला प्रकाशन, नईदिल्ली सं. 2009

10 म.प्र.हिन्दी-ग्रंथ अकादमी द्वारा प्रकाशित पुस्तकें

अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र :

1. hops://ndt.iitkapac.in/

2. http://iengu.ac.in/eGyankosh

3. Mtps://hindivishwa.org/

4. http://www.balendu.com/

5. http://balendu.com/labs/madhyam/index.htm

6. tatp://halendy.com/labsaparsth/index.html

7. stps://sites.google.com/site/narakasisrkampyutara para-hindi-ka-prayoga-yunikodassure-hindi

phonta-mem-antara

8. htp://chti.raibhasha.co.in/

9. https://mantra-maibhasha.rb-nni.in/

10. http://chti.raibhasha.gov.in/29600221

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधिया: अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	कक्षा उपस्थिति क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): दस वस्तुनिष्ठ (बहुविकल्पीय) अनुभाग (ब): चार लघु उत्तरीय प्रश्न (प्रत्येक 200 शब्द) अनुभाग (स): चार दीर्घ उत्तरीय प्रश्न (प्रत्येक 500 शब्द)	कुल अंक 60

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023-2024

भाग अ परिचय -			
कार्यक्रम पत्रोपाधि (डिप्लोमा पाठ्यक्रम)	कक्षा : बी.ए.	सेमेस्टर: चतुर्थ	सत्र: 2023-2024
विषय: प्रयोजनमूलक हिंदी (Functional Hindi), (प्रायोगिक)			
1	पाठ्यक्रम का कोड	A2-FHIN2P	
2	पाठ्यक्रम का शीर्षक	हिंदी और कम्प्यूटर अनुप्रयोग (प्रायोगिक)	
3	पाठ्यक्रम का प्रकार	मुख्य विषय (Major) / गौण (Minor) / वैकल्पिक (Elective)	
4	पूर्वापेक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ स्नातक प्रथम वर्ष अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की उपलब्धियाँ (कोर्स लर्निंग आउटकम) (CLO)	<p>शिक्षण-अधिगम की प्रक्रिया में सुनी-सुनाई बात की तुलना में करके देखने में अधिगम अधिक प्रभावी रूप से देखा गया है। 'आओ करके सीखें' का सिद्धांत स्थायी स्मृति में अभिवृद्धि करता है। कम्प्यूटर जैसे विषय के शिक्षण-उद्देश्यों की अधिकाधिक प्रतिपूर्ति के लिए आवश्यक है कि प्रायोगिक अभ्यास के माध्यम में शिक्षण-अधिगम की प्रक्रिया को पूर्णता प्रदान की जाये। कम्प्यूटर की कार्य-पद्धति और संचालन की आधारभूत जानकारी के साथ-साथ विद्यार्थी हिंदी के अनुप्रयोगों का साक्षात् प्रयोगशाला में समुचित अभ्यास कर सके, इस प्रयोजन से पाठ्यक्रम का यह भाग प्रायोगिक रूप में रखा गया है।</p> <p>पाठ्यक्रम के प्रायोगिक अभ्यास से विद्यार्थी-</p> <ol style="list-style-type: none"> 1. नवीन फोल्डर बनाकर नामकरण एवं सुरक्षित(सेव) करने और बंद करने की विधि से परिचित होगा। 2. फाइल एवं फोल्डर का नाम परिवर्तन स्थानान्तरण (ट्रांसफर), प्रतिलिपिकरण (कॉपी) और खोज (सर्च) रिसाइकिलबिन से फाइल एवं फोल्डर की पुनः प्राप्ति आदि का अभ्यास कर सकेगा। 3. कुंजियों के लघु रूप (शॉर्टकट की) का ज्ञान एवं उनके प्रयोग का अभ्यास कर सकेगा। 	

		<p>4. ई-मेल खाता बनाना, ई-मेल भेजना प्राप्त करना, वेब ब्राउज़र, सर्च इंजिन एवं वेबसाइट सर्फिंग आदि का अभ्यास कर सकेगा।</p> <p>5. माइक्रोसॉफ्ट वर्ड पर टंकण व अन्य कार्य, माइक्रोसॉफ्ट एक्सेल में टेबुलेशन/वर्कशीट तैयार करना, माइक्रोसॉफ्ट पावर पाइंट में स्लाइड बनाकर प्रस्तुतीकरण करने का अभ्यास कर सकेगा।</p> <p>6. यूनिकोड तकनीक एवं हिंदी यूनिकोड फॉण्ट के प्रचलित प्रकारों का परिचय प्राप्त कर यूनिकोड फॉण्ट के माध्यम से हिंदी में टंकण करने का अभ्यास करेगा।</p>
6	क्रेडिट मान	प्रायोगिक - 2
7	कुल अंक	<p>100</p> <p>सैद्धांतिक मूल्यांकन - 60</p> <p>आंतरिक मूल्यांकन - 40</p>

भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 1 घंटे प्रति सप्ताह (LT-P : 0-0-1) कुल प्रायोगिक : 60		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	<p>1 नई फाइल एवं फोल्डर बनाना, हिन्दी में नामकरण एवं सुरक्षित (सेव) करने और बंद करने की विधि।</p> <p>2 फाइल एवं फोल्डर का नाम परिवर्तन स्थानान्तरण (ट्रांसफर), प्रतिलिपिकरण (कॉपी) और खोज (सर्च) आदि।</p> <p>3 रिसाइकिलबिन में फाइल एवं फोल्डर की पुनः प्राप्ति।</p> <p>4 हिन्दी कुंजियों के लघु रूप (शॉर्टकट की)।</p> <p>5 ई-मेल खाता बनाना, हिन्दी में ई-मेल भेजना-प्राप्त करना, वेब ब्राउज़र, सर्च इंजिन एवं वेबसाइट सर्फिंग आदि का अभ्यास ।</p>	30
इकाई 2	<p>1 माइक्रोसॉफ्ट वर्ड पर हिन्दी में कार्य करने का अभ्यास ।</p> <p>2 माइक्रोसॉफ्ट एक्सेल में टेबुलेशन/वर्कशीट तैयार करना ।</p> <p>3 माइक्रोसॉफ्ट पावरपाइंट पर हिन्दी में स्लाइड बनाकर प्रस्तुतीकरण करना।</p>	30

	<p>4 यूनिकोड तकनीक का परिचय, हिंदी यूनिकोड फॉण्ट के प्रचलित प्रकारों का परिचय।</p> <p>5 यूनिकोड फॉण्ट के माध्यम से हिंदी में टंकण करने का अभ्यास ।</p>	
<p>सार बिंदु (की बर्ड)/ टैग: कम्प्यूटर, फोल्डर, माइक्रोसॉफ्ट वर्ड, माइक्रोसॉफ्ट एक्सल, टेबुलेशन, वर्कशीट, पावर पाइंट, बेव ब्राउज़र, सर्च इंजिन</p>		
<p>भाग स- अनुशंसित अध्ययन संसाधन</p>		
<p>पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन</p>		
<p>अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :</p>		
<p>1 कुमार, योगेश एम. एस.ऑफिस, टी. बालाजी पब्लिकेशन, दिल्ली, सं. 2017</p> <p>2 जैन, डॉ. संजय कुमार-"प्रयोजनमूलक कामकाजी हिंदी एवं कम्प्यूटिंग" -पुस्तक सदन भोपाल, सं. 2005</p> <p>3 पटेल, योगेश-" कम्प्यूटर को जाने", बी एंड एस पब्लिशर्स, दिल्ली।</p> <p>4 पटेल, योगेश-" एम.एस. एक्सेल" बी एंड एस पब्लिशर्स, दिल्ली।</p> <p>5 दाधीचि, बालेंदु शर्मा, तकनीकी सुलझनें", ई प्रकाशक 504, पार्क रॉयल सेक्टर-56, गुरुग्राम सं.2012</p> <p>6 मल्होत्रा, डॉ. विजय कुमार, -"कम्प्यूटर के भाषिक अनुप्रयोग" -वाणी प्रकाशन, दिल्ली सं.2007</p> <p>7 शर्मा सी.के.व हेमंत -"सूचना प्रौद्योगिकी"- एटलांटिक प्रकाशन, दिल्ली, सं-2006</p> <p>8 श्रीवास्तव, एस.एस. -"कम्प्यूटर शिक्षण" आशा पब्लिशिंग कंपनी, आगरा, सं-2010</p> <p>9 हरिमोहन डॉ. "कम्प्यूटर और हिन्दी", तक्षशिला प्रकाशन, नईदिल्ली सं. 2009</p> <p>10 म.प्र.हिन्दी-ग्रंथ अकादमी द्वारा प्रकाशित पुस्तकें</p>		
<p>अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र :</p>		
<p>1. hops://ndl.iitkapac.in/</p> <p>2. http://www.balendu.sam/</p> <p>3. bmp://tualsndu.com/labs/madhyam/index.litin</p> <p>4. http://balendu.com/fb/persbfindex.html</p> <p>5. Anoshindivishwa.tw</p> <p>6. hms://chti.nibhasha.nov.in/</p> <p>7. https://mantrmecaibhasha.rh-naiin/</p> <p>8. http://chti.mubhasha.gov.in/79600771</p>		
<p>भाग द- अनुशंसित मूल्यांकन विधियां:</p>		
<p>अनुशंसित सतत मूल्यांकन विधिया: अधिकतम अंक 100</p>		

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60		
आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	प्रायोगिक कक्षा में प्रश्नोत्तरी प्रायोगिक कक्षा में उपस्थिति असाइनमेंट/ प्रायोगिक कौशल/ मौखिकी	कुल अंक :40
आंकलन: मुख्य परीक्षा (बाह्य मूल्यांकन) समय 03.00 घंटे	प्रायोगिक मौखिकी प्रायोगिक रिकॉर्ड फाईल टेबल वर्क/प्रायोगिक कार्य	कुल अंक 60
कोई टिप्पणी/सुझाव		

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023-2024

भाग अ परिचय -			
कार्यक्रम पत्रोपाधि (डिप्लोमा पाठ्यक्रम)	कक्षा : बी.ए.	सेमेस्टर: चतुर्थ	सत्र: 2023-2024
विषय: प्रयोजनमूलक हिंदी			
1	पाठ्यक्रम का कोड	A2-FHIN2T	
2	पाठ्यक्रम का शीर्षक	हिंदी और कम्प्यूटर अनुप्रयोग	
3	पाठ्यक्रम का प्रकार	इलेक्टिव	
4	पूर्वापेक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ स्नातक प्रथम वर्ष अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की उपलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	इक्कीसवीं सदी में कम्प्यूटर का भारत में आगमन किसी आश्चर्यजनक घटना से कम नहीं है। कम्प्यूटर के कल्पनातीत अनुप्रयोग जीवन के प्रत्येक क्षेत्र में सुगमता उपलब्ध करा रहे हैं। वर्तमान संचार क्रांति के युग में	

प्रत्येक लिखित अभिव्यक्ति कागज-कलम से डिजिटल स्वरूप में परिवर्तित होकर कम्प्यूटर आश्रित हो गई है। कम्प्यूटर के अभाव में गतिशील जीवन की कल्पना निरर्थक है। इसीलिए आज साक्षरता अभियान के स्थान पर डिजिटल साक्षरता की महती आवश्यकता है। बीते दशकों में भारत में कम्प्यूटर ने तो अपने पैर खूब पसारे किंतु हिंदी को इसका समुचित लाभ लेने में भाषा संबंधी अनेक कठिनाईयों का सामना करना पड़ा। बाजार की जरूरत ने आज कम्प्यूटर में हिंदी में कामकाज करने की अनेक सुविधाएं उपलब्ध करा दी हैं। हिंदी से जुड़े सभी कार्य अब कम्प्यूटर पर सुविधापूर्वक किये जा सकते हैं। यूनिकोड फोण्ट तकनीक से कम्प्यूटर, इंटरनेट, वेबसाइट ई-मेल, सोशल मीडिया आदि सभी पर हिंदी में कार्य करने की सुविधा सहज उपलब्ध है। इस क्षेत्र में हिंदी के विद्यार्थी के लिए रोजगार की अनेक संभवानाएं मौजूद हैं। इसका ध्येय विद्यार्थियों को हिन्दी व कम्प्यूटर अनुप्रयोगों का ज्ञान देकर रोजगार हेतु तैयार करना है।

पाठ्यक्रम के अध्ययन से -

1 विद्यार्थी कम्प्यूटर-तकनीक का ज्ञान लेकर हिंदी में कार्य करने में सक्षम होगा तथा कम्प्यूटर में हिंदी से संबंधित सॉफ्टवेयरों से परिचित होकर उनके संचालन में दक्षता प्राप्त कर सकेगा।

2 विद्यार्थी कार्यालयी कार्यों, गणनाओं, टेब्लेशन, विज्ञापन, ग्राफिक्स, प्रकाशन, कंपोजिंग, वेब डिजाइनिंग, चार्ट आदि कार्यों को कुशलतापूर्वक करके रोजगार पा सकेगा।

3 विद्यार्थी को हिंदी भाषा और कम्प्यूटर अनुप्रयोगों के साहचर्य से मीडिया, जनसंचार माध्यमों, दृश्य-श्रव्य साधनों एवं पत्रकारिता के क्षेत्र में रोजगार के अनेक अवसर उपलब्ध होंगे।

4 सृजनात्मक एवं रचनात्मक अभिरुचि के विद्यार्थी अपने सृजन को कम्प्यूटर तकनीक व इंटरनेट के माध्यम से प्रकाशित प्रसारित कर आजीविकोपार्जन कर सकेगा।

5 जिज्ञासु प्रवृत्ति के विद्यार्थी विभिन्न उपयोगी वेबसाइट्स की सर्फिंग कर अपने लिये रोजगार के अन्य अवसरों की

		खोज आसानी से कर सकेंगे।
6	क्रेडिट मान	सैद्धान्तिक 4
7	कुल अंक	100 सैद्धान्तिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40

भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 2 घंटे प्रति सप्ताह (L-T-P : 20-0) कुल व्याख्यान: 60		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	कम्प्यूटर का परिचय एवं विकास: 1 अर्थ, स्वरूप, परिभाषा एवं इतिहास। 2 कम्प्यूटर के मुख्य भाग एवं प्रणाली। 3 कम्प्यूटर में डाटा प्रविष्टि, स्मृति (मेमोरी), सूचना संग्रहण। 4 इनपुट डिवाइस, आउटपुट डिवाइस, कम्प्यूटर मुद्रण। 5 कम्प्यूटर में हिंदी का आरम्भ और विकास।	15
इकाई 2	कम्प्यूटर में हिन्दी के विभिन्न अनुप्रयोग: 1 ऑकड़ा संसाधन, शब्द संसाधन, फॉण्ट प्रबंधन। 2 टाइपिंग टूल: नोटपैड, माइक्रोसॉफ्ट आफिस, पेज मेकर आदि। 3 एम. एस. ऑफिस एवं गूगल टूल्स: परिचय एवं विविध प्रयोग। 4 हिंदी फॉण्ट का अनुप्रयोग: यूनीकोड से पूर्व एवं उसके पश्चात। 5 हिंदी फोण्ट पद्धति, परिचय एवं प्रकार। 6 हिंदी कुंजीपटल (की-बोर्ड) संरचना एवं प्रकार।	15
इकाई 3	कम्प्यूटर एवं हिंदी के विविध आयाम: 1 ऑनलाइन सेवाएं और हिंदी। 2 ई-लर्निंग और हिंदी। 3 ई-गवर्नेंस एवं हिंदी। 4 हिंदी ई-पत्रिकाएँ, ब्लॉगलेखन, विकीपीडिया-लेखन। 5 कम्प्यूटर और हिंदी विज्ञापन-लेखन।	15
सार बिंदु की बर्ड) टैग: कम्प्यूटर, ई-लर्निंग, टाइपिंग टूल, इनपुट डिवाइस, आउटपुट डिवाइस		

यूनीकोड फॉन्ट, एम.एस.आफिस, पेज मेकर, सॉफ्टवेयर, हिंदी वेबसाइट्स हिंदी ई-पोर्टल

भाग स- अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :

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- 2 जैन, डॉ. संजय कुमार-"प्रयोजनमूलक कामकाजी हिंदी एवं कम्प्यूटिंग" -पुस्तक सदन भोपाल, सं. 2005
- 3 पटेल, योगेश-" कम्प्यूटर को जाने", बी एंड एस पब्लिशर्स, दिल्ली।
- 4 पटेल, योगेश-" एम.एस. एक्सेल" बी एंड एस पब्लिशर्स, दिल्ली।
- 5 दाधीचि, बालेंदु शर्मा, तकनीकी सुलझनें", ई प्रकाशक 504, पार्क रॉयल सेक्टर-56, गुरुग्राम सं.2012
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- 7 शर्मा सी.के.व हेमंत -"सूचना प्रौद्योगिकी"- एटलांटिक प्रकाशन, दिल्ली, सं-2006
- 8 श्रीवास्तव, एस.एस. -"कम्प्यूटर शिक्षण" आशा पब्लिशिंग कंपनी, आगरा, सं-2010
- 9 हरिमोहन डॉ. "कम्प्यूटर और हिन्दी", तक्षशिला प्रकाशन, नईदिल्ली सं. 2009
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अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र :

1. hops://ndt.iitkapac.in/
2. <http://iengu.ac.in/eGyankosh>
3. [Mtps://hindivishwa.org/](https://hindivishwa.org/)
4. <http://www.balendu.com/>
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8. <http://chti.raibhasha.co.in/>
9. <https://mantra-maibhasha.rb-nni.in/>
10. <http://chti.raibhasha.gov.in/29600221>

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधिया: अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 मुख्य परीक्षा (ME) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	कक्षा उपस्थिति क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :40
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): दस वस्तुनिष्ठ (बहुविकल्पीय) अनुभाग (ब): चार लघु उत्तरीय प्रश्न (प्रत्येक 200 शब्द) अनुभाग (स): चार दीर्घ उत्तरीय प्रश्न (प्रत्येक 500 शब्द)	कुल अंक 60
कोई टिप्पणी/सुझाव		

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

MAJOR-2/MINOR/ELECTIVE PR

भाग अ परिचय -			
कार्यक्रम पत्रोपाधि (डिप्लोमा पाठ्य क्रम)	कक्षा : बी.ए.	सेमेस्टर: चतुर्थ	सत्र: 2023-24
विषय: प्रयोजनमूलक हिंदी (Functional Hindi), प्रश्न पत्र :द्वितीय (प्रायोगिक)			
1	पाठ्यक्रम का कोड	A2-FHIN2P	
2	पाठ्यक्रम का शीर्षक	हिंदी और कम्प्यूटर अनुप्रयोग (प्रायोगिक)	
3	पाठ्यक्रम का प्रकार	मुख्य विषय (Major) प्रश्न पत्र - द्वितीय / गौण (Minor) / वैकल्पिक (Elective)	
4	पूर्वापेक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ स्नातक प्रथम वर्ष अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन	शिक्षण-अधिगम की प्रक्रिया में सुनी-सुनाई बात की तुलना	

	<p>की उपलब्धियां (कोर्स लर्निंग आउटकम) (CLO)</p>	<p>में करके देखने में अधिगम अधिक प्रभावी रूप से देखा गया है। 'आओ करके सीखें' का सिद्धांत स्थायी स्मृति में अभिवृद्धि करता है। कम्प्यूटर जैसे विषय के शिक्षण-उद्देश्यों की अधिकाधिक प्रतिपूर्ति के लिए आवश्यक है कि प्रायोगिक अभ्यास के माध्यम में शिक्षण-अधिगम की प्रक्रिया को पूर्णता प्रदान की जाये। कम्प्यूटर की कार्य-पद्धति और संचालन की आधारभूत जानकारी के साथ-साथ विद्यार्थी हिंदी के अनुप्रयोगों का साक्षात् प्रयोगशाला में समुचित अभ्यास कर सके, इस प्रयोजन से पाठ्यक्रम का यह भाग प्रायोगिक रूप में रखा गया है।</p> <p>पाठ्यक्रम के प्रायोगिक अभ्यास से विद्यार्थी-</p> <ol style="list-style-type: none"> 1. नवीन फोल्डर बनाकर नामकरण एवं सुरक्षित(सेव) करने और बंद करने की विधि से परिचित होगा। 2. फाइल एवं फोल्डर का नाम परिवर्तन स्थानान्तरण (ट्रांसफर), प्रतिलिपिकरण (कॉपी) और खोज (सर्च) रिसाइकिलबिन से फाइल एवं फोल्डर की पुनः प्राप्ति आदि का अभ्यास कर सकेगा। 3. कुंजियों के लघु रूप (शॉर्टकट की) का ज्ञान एवं उनके प्रयोग का अभ्यास कर सकेगा। 4. ई-मेल खाता बनाना, ई-मेल भेजना प्राप्त करना, बेव ब्राउज़र, सर्च इंजिन एवं बेवसाइट सर्फिंग आदि का अभ्यास कर सकेगा। 5. माइक्रोसॉफ्ट वर्ड पर टंकण व अन्य कार्य, माइक्रोसॉफ्ट एक्सेल में टेबुलेशन/वर्कशीट तैयार करना, माइक्रोसॉफ्ट पावर पाइंट में स्लाइड बनाकर प्रस्तुतीकरण करने का अभ्यास कर सकेगा। 6. यूनीकोड तकनीक एवं हिंदी यूनीकोड फॉण्ट के प्रचलित प्रकारों का परिचय प्राप्त कर यूनीकोड फॉण्ट के माध्यम से हिंदी में टंकण करने का अभ्यास करेगा।
6	क्रेडिट मान	2
7	कुल अंक	<p>100</p> <p>सैद्धांतिक मूल्यांकन - 60</p> <p>आंतरिक मूल्यांकन - 40</p>

भाग ब पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 1 घंटे प्रति सप्ताह (LT-P : 0-0-1) कुल प्रायोगिक : 60		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	<p>1 नई फाइल एवं फोल्डर बनाना, हिन्दी में नामकरण एवं सुरक्षित (सेव) करने और बंद करने की विधि।</p> <p>2 फाइल एवं फोल्डर का नाम परिवर्तन स्थानांतरण (ट्रांसफर), प्रतिलिपिकरण (कॉपी) और खोज (सर्च) आदि।</p> <p>3 रिसाइकिलबिन में फाइल एवं फोल्डर की पुनः प्राप्ति।</p> <p>4 हिन्दी कुंजियों के लघु रूप (शॉर्टकट की)।</p> <p>5 ई-मेल खाता बनाना, हिन्दी में ई-मेल भेजना-प्राप्त करना, बेव ब्राउजर, सर्च इंजिन एवं बेवसाइट सर्फिंग आदि का अभ्यास ।</p>	30
इकाई 2	<p>1 माइक्रोसॉफ्ट वर्ड पर हिन्दी में कार्य करने का अभ्यास ।</p> <p>2 माइक्रोसॉफ्ट एक्सेल में टेबुलेशन/वर्कशीट तैयार करना ।</p> <p>3 माइक्रोसॉफ्ट पावरपाइंट पर हिन्दी में स्लाइड बनाकर प्रस्तुतीकरण करना।</p> <p>4 यूनिकोड तकनीक का परिचय, हिंदी यूनिकोड फॉण्ट के प्रचलित प्रकारों का परिचय।</p> <p>5 यूनिकोड फॉण्ट के माध्यम से हिंदी में टंकण करने का अभ्यास ।</p>	30
सार बिंदु (की बर्ड)/ टैग: कम्प्यूटर, फोल्डर, माइक्रोसॉफ्ट वर्ड, माइक्रोसॉफ्ट एक्सेल, टेबुलेशन, वर्कशीट, पावर पाइंट, बेव ब्राउजर, सर्च इंजिन		
भाग स- अनुशंसित अध्ययन संसाधन		
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन		
अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :		
<p>1 कुमार, योगेश एम. एस.ऑफिस, टी. बालाजी पब्लिकेशन, दिल्ली, सं. 2017</p> <p>2 जैन, डॉ. संजय कुमार-"प्रयोजनमूलक कामकाजी हिंदी एवं कम्प्यूटिंग" -पुस्तक सदन भोपाल, सं. 2005</p> <p>3 पटेल, योगेश-" कम्प्यूटर को जानें", बी एंड एस पब्लिशर्स, दिल्ली।</p> <p>4 पटेल, योगेश-" एम.एस. एक्सेल" बी एंड एस पब्लिशर्स, दिल्ली।</p>		

- 5 दाधीचि, बालेंदु शर्मा, तकनीकी सुलझनें", ई प्रकाशक 504, पार्क रॉयल सेक्टर-56, गुरुग्राम सं.2012
- 6 मल्होत्रा, डॉ. विजय कुमार, -"कम्प्यूटर के भाषिक अनुप्रयोग" - वाणी प्रकाशन, दिल्ली सं.2007
- 7 शर्मा सी.के.व हेमंत -"सूचना प्रौद्योगिकी"- एटलांटिक प्रकाशन, दिल्ली, सं-2006
- 8 श्रीवास्तव, एस.एस. -"कम्प्यूटर शिक्षण" आशा पब्लिशिंग कंपनी, आगरा, सं-2010
- 9 हरिमोहन डॉ. "कम्प्यूटर और हिन्दी", तक्षशिला प्रकाशन, नईदिल्ली सं. 2009
- 10 म.प्र.हिन्दी-ग्रंथ अकादमी द्वारा प्रकाशित पुस्तकें

अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र :

1. <https://ndl.iitkapac.in/>
2. <http://www.balendu.sam/>
3. <http://tualsndu.com/labs/madhyam/index.litin>
4. <http://balendu.com/fb/persbfindex.html>
5. Anoshindivishwa.tw
6. hms://chti.nibhasha.nov.in/
7. <https://mantrmecaibhasha.rh-naaiin/>
8. <http://chti.mubhasha.gov.in/79600771>

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियां:

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40 विश्वविद्यालयीन परीक्षा (UE) अंक: 60

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	प्रायोगिक कक्षा में प्रश्नोत्तरी प्रायोगिक कक्षा में उपस्थिति असाइनमेंट/ प्रायोगिक कौशल/ मौखिकी	कुल अंक :40
आंकलन: विश्वविद्यालयीन परीक्षा (बाह्य मूल्यांकन) समय 03.00 घंटे	प्रायोगिक मौखिकी प्रायोगिक रिकॉर्ड फाईल टेबल वर्क/प्रायोगिक कार्य	कुल अंक 60

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

भाग अ- परिचय -		
कार्यक्रम : डिप्लोमा		सेमेस्टर: चतुर्थ सत्र: 2023-2024
1	पाठ्यक्रम का कोड	V2-OFM-OPPT
2	पाठ्यक्रम का शीर्षक	कार्यालय प्रक्रियाएं और प्रथाएं
3	पाठ्यक्रम का प्रकार	वोकेशनल
4	पूर्वपेक्षा (Prerequisite)	आवश्यक नहीं
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	<p>पाठ्यक्रम के अंत में छात्र निम्न में सक्षम होंगे:-</p> <ul style="list-style-type: none"> • कार्यालय की अवधारणा को समझना, कार्यालय प्रबंधक की भूमिका समझना। • संगठनात्मक चार्ट और नियमावली के बीच अंतर करना • सचिवीय गतिविधियों को स्वतंत्र रूप से प्रबंधित करें जैसे ऑनलाइन और ऑफलाइन कार्यालय फॉर्म भरना, मेल हैंडलिंग, फाइलिंग और इंडेक्सिंग, स्टेशनरी का प्रबंधन आदि। • प्रभावी ढंग से संवाद करें और संचार सेवाओं को स्वतंत्र रूप से संभालें मौखिक और लिखित संचार, बाधाएं, टेलीफोन शिष्टाचार का पालन करना। • विभिन्न प्रकार की कार्यालय मशीनों को संभालना और संचालित करना। • विभिन्न प्रकार के व्यवसाय और सरकार का मसौदा तैयार करना। पत्र तैयार करना। • बैठकों से संबंधित विभिन्न शब्दों को समझें और बैठकें आयोजित करना। • बैंकों द्वारा प्रदान की जाने वाली विभिन्न सेवाओं की पहचान करना।
		इस कोर्स को करने के बाद छात्र विभिन्न प्रकार के कार्यों को संभालने में दक्ष हो जाते हैं। एक आधुनिक कार्यालय में स्वतंत्र

		रूप से प्रशासनिक प्रक्रियाएं, बुनियादी पत्राचार का मसौदा तैयार करना, संभालना, ई-मेल का काम, कुछ कार्यालय उपकरण आदि संभालना। नौकरी के विभिन्न अवसर उपलब्ध हैं, जैसे निजी सचिव, फ्रंट ऑफिस सहायक, कार्यालय कार्यकारी, कार्यकारी सहायक, प्रशासनिक पेशेवर आदि।
6	क्रेडिट मान	4
	कुल अंक	100 सैद्धांतिक मूल्यांकन - 60 आंतरिक मूल्यांकन - 40

भाग ब – पाठ्यक्रम की विषयवस्तु		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	सचिवालय अभ्यास का परिचय:- अर्थ, महत्व, प्रकार और कर्तव्य, सचिव का प्रोफाइल बदलना, सचिव की योग्यताएं और गुण, समय प्रबंधन, अर्थ और महत्व	6
इकाई 2	कार्यालय प्रपत्र और लेखन सामग्री:- कार्यालय प्रपत्र- अर्थ, महत्व और कार्यालय प्रपत्रों के लाभ, कार्यालय प्रपत्रों का कंप्यूटरीकरण, प्रपत्र डिजाइनिंग के सिद्धांत, कार्यालय स्टेशनरी, स्टेशनरी खरीदने के तरीके, खरीद प्रक्रिया, भंडारण स्टेशनरी, स्टेशनरी की खपत पर नियंत्रण, स्टॉक रजिस्टर का रखरखाव का भौतिक सत्यापन भंडार	6
इकाई 3	संचार अर्थ, महत्व और संचार के प्रकार, संचार प्रक्रिया के तत्व, संचार के तरीके, मौखिक(मौखिक और लिखित) , गैर मौखिक प्रभावी संचार के लक्षण, संचार के लिए बाधाएं टेलीफोन शिष्टाचार	8
इकाई 4	पत्राचार-व्यापार और सरकार: व्यावसायिक पत्राचार - अर्थ, महत्व और आवश्यक व्यावसायिक पत्र के भाग, व्यावसायिक पत्रों के प्रकार, पूछताछ पत्र, आदेश देने के लिए कोटेशन पत्र, आदेश का निष्पादन, समायोजन पत्र। एक व्यावसायिक पत्र का प्रदर्शन इंडेंटेड स्टाइल, फुल ब्लॉक स्टाइल, सेमी	10

	ब्लॉक स्टाइल, जॉब एप्लीकेशन लिखना और सरकारी पत्राचार, आधिकारिक पत्र, अर्ध-आधिकारिक पत्र, जापन, अधिसूचना, कार्यालय आदेश, परिपत्र, पृष्ठांकन	
	व्यावहारिक(प्राैक्टिकल)	30

कार्यालय और पर्यावरण प्रबंधन

1 उपरोक्त वर्णित दौरे के दौरान, छात्रों को कार्यालय के लेआउट, कार्यालय के पर्यावरण पहलुओं, कर्मचारियों को प्रदान की जाने वाली भौतिक सुविधाओं आदि का निरीक्षण करना चाहिए।

2 कार्यालय का दौरा किया जा रहा है मैं बदलते परिदृश्य को छात्रों द्वारा देखा जाना चाहिए और परियोजना रिपोर्ट में उनके विचार प्रस्तुत किए जायें।

कार्यालय प्रपत्र और लेखन सामग्री

3 छात्रों को विभिन्न प्रकार के फॉर्म भरने का अभ्यास करना चाहिए - ऑफलाइन और ऑनलाइन। (कम से कम पांच अलग-अलग प्रकार के फॉर्म)

4 छात्रों को बिन कार्ड, स्टेशनरी मांग पर्ची, स्टेशनरी जारी करने और स्टॉक रजिस्टर में प्रविष्टियां करने का अभ्यास करना चाहिए।

संचार

5 गैर-मौखिक संचार के विभिन्न पहलुओं पर छात्रों द्वारा भूमिका निभाना।

6 कॉल करते और कॉल रिसीव करते समय टेलीफोन को संभालने और टेलीफोन शिष्टाचार का पालन करने का अभ्यास।

कार्यालय मशीनें

7 छात्रों को विभिन्न कार्यालय मशीनों जैसे फोटो कॉपियर, फैक्स, फ्रैंकिंग मशीन, लैपटॉप, कंप्यूटर आदि पर अभ्यास करना चाहिए।

पत्राचार व्यापार और सरकार

8 छात्रों की पूछताछ, कोटेशन, आदेश देना, आदेश का निष्पादन और समायोजन पत्र आदि जैसे विभिन्न प्रकार के व्यावसायिक पत्रों के प्रारूपण और टाइपिंग का अभ्यास करना चाहिए।

9 छात्रों को रिज्यूमे की तैयारी का अभ्यास करना चाहिए और ऑनलाइन नौकरी के आवेदन फॉर्म भरने चाहिए। (कम से कम दो आवेदन पत्र ऑनलाइन)

10 छात्रों को जापन, अधिसूचना, पृष्ठांकन, परिपत्र, आधिकारिक और अर्ध-आधिकारिक पत्रों के प्रारूपों और प्रत्येक के उपयोग का ज्ञान प्राप्त करना चाहिए।

संत अलायंसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023-2024

आधार पाठ्यक्रम प्रथम प्रश्नपत्र -हिन्दी भाषा

भाग अ परिचय -			
कार्यक्रम यूजी लेवल डिग्री	कक्षा: बी.ए./ बी.कॉम./ बी.एस.सी./ बी.एच.एस.सी./ बी.सी.ए./ बी.बी.ए.	तृतीय वर्ष	सत्र 2023-24
विषय: आधार पाठ्यक्रम			
1	पाठ्यक्रम का कोड	X3-FCEA1T	
2	पाठ्यक्रम का शीर्षक	भाषा और संस्कृति	
3	पाठ्यक्रम का प्रकार	आधार पाठ्यक्रम	
4	कोर्स अपेक्षित	स्नातक द्वितीय वर्ष उत्तीर्ण किसी भी विषय समूह से।	
5	कोर्स अधिगम उपलब्धि (लर्निंग आउटकम) (CLO)	1 इस पाठ्यक्रम के अध्ययन से विद्यार्थी हिंदी के प्रसिद्ध रचनाकार एवं उनकी रचनाओं से परिचित हो सकेंगे। 2 पठित रचनाओं के माध्यम से विद्यार्थी देश की सभ्यता एवं संस्कृति से परिचित हो सकेंगे। 3 पाठ्यक्रम के अध्ययन से विद्यार्थियों के व्यक्तित्व का बहुमुखी विकास होगा एवं रोजगार के अवसर उपलब्ध होंगे। 4 विशिष्ट शब्दावली (बीज शब्द/की वर्ड) से परिचित करवाते हुए बोध के स्तर को विकसित करना।	
6	क्रेडिट मान	02 क्रेडिट	
7	सैद्धांतिक अंक	50 अंक	
8	उत्तीर्ण अंक	17 अंक	
9	समय	2 घंटा	

व्याख्यान की कुल संख्या वर्ष में अधिकतम 30 घंटे		
¼भाग-बी) कोर्स सामग्री		
पाठ्यक्रम		
इकाई	विषय	व्याख्यान घंटा
1	1 भवानी प्रसाद मिश्र : परिचय पाठ : सतपुड़ा के जंगल 2 उषा प्रियंवदा : परिचय पाठ : वापसी 3 विवेकानन्द पाठ : शिकागो व्याख्यान	10
2	1 विद्यानिवास मिश्र : परिचय पाठ : ऑगन का पंछी 2 महात्मा गाँधी पाठ : आत्मकथा के अंश 3 विश्व के प्रमुख धर्म।	10
3	1 वाक्य रचना एवं अशुद्धि शोधन 2 अनुवाद : अर्थ एवं प्रकार 3. बीज शब्द (Key Words / अवधारणा मूलक शब्द) लोकतन्त्र, समरसता, कला, साहित्य, अध्यात्म।	10

(भाग-स)

अनुशंसित अध्ययन संसाधन

क्र.	पाठ्यपुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन
1	महात्मा गाँधी: सत्य के साथ मेरे प्रयोग, प्रभात प्रकाशन, नई दिल्ली
2	विश्व के प्रमुख धर्म: जी.आर.सिंह
3	वासुदेव नन्दन प्रसाद आधुनिक हिन्दी व्याकरण और रचना, भारती भवन, पटना, बिहार
4	हिन्दी ज्ञान कोश
5	उषा प्रियंवदा : वापसी
6	अनुशंसित विजिटल प्लेटफॉर्म न लिंक
	1. book.google.com >books
	2. http://kavitakosh.org >भवानीप्रसाद मिश्र
	3. भवानीप्रसाद मिश्र - Wikipedia
	4. http://m.youtube.com watch

5. http://nibandhbhari.com avidya-nivasamishar
6. http://onlinetreenotes.com वापसी
7. http://hi.m.wikipedia/wiki > उषा प्रियंबदा
8. http://swayam.gov.in

भाग द - अनुशंसित मूल्यांकन विधियां	
1	सतत समय मूल्यांकन (CCE) नहीं होगा।
2	परीक्षा ओ. एम. आर. शीट माध्यम से होगी।

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ परिचय -			
कार्यक्रम: उपाधि (डिग्री)	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A3-HLIT1D	
2	पाठ्यक्रम का शीर्षक	काव्यांग विवेचन एवं जनपदीय भाषा-साहित्य (बुन्देली /मालवी/बघेली) (प्रश्न पत्र 1)	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/माइनर ...)	डिसिप्लिन स्पेसिफिक इलेक्टिव (सैद्धांतिक) समूह अ	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने हिन्दी साहित्य विषय का अध्ययन डिप्लोमा में किया हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे: 1. विद्यार्थी काव्य के प्रमुख अंगों का अध्ययन कर काव्य को भली-भाँति समझ सकेंगे। 2. जनपदीय भाषा एवं साहित्य का ज्ञान प्राप्त कर सकेंगे। 3. जनपदीय भाषा साहित्य के माध्यम से भारतीय संस्कृति	

		की विविधता से परिचित होंगे। 4. विद्यार्थी जनपदीय भाषा कौशल में पारंगत होंगे। 5. क्षेत्रीय भाषाओं, बोलियों के साहित्य को संगीतबद्ध करना, नाट्यरूपांतर करना आदि के माध्यम से स्वयं के व्यावसायिक कला मंच स्थापित कर सकेंगे, देश-विदेश में प्रस्तुतियाँ दे सकेंगे।
6	क्रेडिट मान	06
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- प्रायोगिक (प्रति सप्ताह घंटे में L-3): L-3-T-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा/व्याख्यान) 90
इकाई 1	काव्यशास्त्रीय अवधारणाएँ: <ul style="list-style-type: none"> • काव्य लक्षण • काव्य प्रयोजन • काव्य हेतु 	18
इकाई 2	काव्य के प्रमुख अंग: <ul style="list-style-type: none"> • रस विवेचन • अलंकार (प्रमुख अलंकार- उपमा, उत्प्रेक्षा, रूपक, यमक, श्लेष, अनुप्रास) • शब्द शक्ति • काव्य गुण (प्रसाद, माधुर्य, ओज) • छन्द - दोहा, सोरठा, चौपाई, कवित्त, सवैया 	18
इकाई 3	<ul style="list-style-type: none"> • जनपदीय-भाषा : (बुन्देली/मालवी/बघेली) • जनपदीय भाषा का भौगोलिक क्षेत्र विस्तार • जनपदीय भाषा (बुन्देली/मालवी/बघेली) की ऐतिहासिक पृष्ठभूमि 	

	<ul style="list-style-type: none"> • जनपदीय भाषा का इतिहास • जनपदीय भाषा साहित्य का इतिहास 	18
इकाई 4	<p>जनपदीय भाषा के प्रतिनिधि रचनाकार एवं रचनाएँ-</p> <p>अ- बुन्देली भाषा और इतिहास प्रमुख कवि - व्याख्या एवं समीक्षा</p> <ol style="list-style-type: none"> 1 जगनिक - आल्ह खण्ड अंश-"सुमिरन करके नारायण को....." 2 ईसुरी- वंदना - सुमिरन करो शारदा माता 3 भक्तिपरक फार्गे-हमखो कोउ रजउ की सानी, दूजी नाँइ दिखानी । 4 प्रकृतिपरक फार्गे - अब रित आई बसंत बहारन 5 लोक जीवन की चौकड़ियाँ - हंसा उड़ चल देख बिराने सरवर जात सुखाने <p>[3] संतोष सिंह बुन्देला -</p> <ol style="list-style-type: none"> 1. ऐसी जौ बुन्देलखण्ड है, सौ नौने से नौनौ। 2. मिठौआ है ई कुआँ को नीर । 3. लगा रओ कुकरा कबसें टेर 4. हमारे रमटेरा की तान 5. सरग तरइयाँ कीनें गिन लई <p>4 माधव शुक्ल मनोज-</p> <ol style="list-style-type: none"> 1. बड़ी रसीली को गई राते 2. नीके बसंती आ गये दिन 3. फागुन आ गओ 4. कब से देखूँ बाठ पिया की 5. अंगना के फूल खिला जइयो <p>5 पूरनचंद श्रीवास्तव</p> <ol style="list-style-type: none"> 1. कारी बदरिया 2. बिसराम घरी भर कर लो जू 	18
इकाई 5	<p>जनजातीय भाषा साहित्य</p> <ol style="list-style-type: none"> 1. जन जातीय भाषा साहित्य संग्रह (लिखित/वीडियो) 2. किसी भी जन जातीय भाषा-साहित्य का अनुवाद 	18

	<p>"हसदेव बचावो -ऊषाकिरण आत्राम (गोंडी कविता)"</p> <p>3. जन जातीय भाषा साहित्य का भाषिक सौन्दर्य</p> <p>4. जन जातीय भाषा साहित्य के अन्तर्गत संस्कृति का अध्ययन</p> <p>5 जन जातीय भाषा साहित्य और संगीत</p>	
व्यावहारिक ज्ञान	<p>(किन्ही 2 पर कार्य करें)</p> <p>संबंधित क्षेत्र के प्रकाशित लोक साहित्य का संग्रह</p> <p>अनुवाद</p> <p>समीक्षा</p> <p>लोकगीतों को मौलिक रूप से संगीतबद्ध करना।</p> <p>वाचन, सस्वर प्रस्तुति।</p>	
की वर्ड: काव्यशास्त्र चौकड़िया फाग लोक साहित्य लोक संस्कृति		
भाग स- अनुशंसित अध्ययन संसाधन		
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन		
<p>अनुशंसित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:</p> <p>1 शर्मा, डॉ. शैलेंद्र कुमार, चौहान, डॉ दिलीप कुमार, "मालवी भाषा और साहित्य" मध्य प्रदेश हिन्दी ग्रंथ अकादमी, भोपाल</p> <p>2 शुक्ल, त्रिभुवन नाथ, डॉ कामिनी, परमार, डॉ बहादुर सिंह बुन्देली भाषा और साहित्य</p> <p>3 हंस, डॉ कृष्ण लाल, बुन्देली और क्षेत्रीय रूप, हिन्दी साहित्य सम्मेलन प्रयाग, प्रथम संस्करण 1976ई.</p> <p>4 शुक्ल, दुर्गाचरण, बुन्देली एक भाषा वैज्ञानिक अध्ययन, कला परिषद टिकमगढ़, प्रथम संस्करण 1976 ई.</p> <p>5 शर्मा, डॉ रमेश, लोक साहित्य, बेनी माधव प्रकाशन वाराणसी, प्रथम संस्करण 1969 ई.</p> <p>6 शर्मा, डॉ सत्येंद्र प्रधान, उषा, बघेली भाषा और साहित्य, मध्य प्रदेश हिन्दी ग्रंथ अकादमी भोपाल</p> <p>7 मिश्र, डॉ भगीरथ, काव्यशास्त्र, विश्वविद्यालय प्रकाशन गोरखपुर, 1963</p> <p>8 सिंह, डॉ योगेंद्र प्रताप, "भारतीय काव्यशास्त्र, लोक भारती प्रकाशन इलाहाबाद, 1997 ई.</p> <p>9 चन्द्रगुप्त, डॉ सुरेश, आधुनिक हिन्दी कवियों के काव्य सिद्धान्त, हिन्दी साहित्य संसार दिल्ली, प्रथम संस्करण 1960</p> <p>10 त्रिपाठी, राममूर्ति, साहित्य शास्त्र के प्रमुख पक्ष, वाणी प्रकाशन, नई दिल्ली</p> <p>11 वाजपेयी, नन्ददुलारे, रीति और शैली, वाणी प्रकाशन, नई दिल्ली</p> <p>12 तोमर, टीकमसिंह, बघेली भाषा और साहित्य, बिहार राष्ट्र भाषा परिषद पटना</p> <p>13 शुक्ल, भगवती प्रसाद, बघेली भाषा और साहित्य, साहित्य भवन इलाहाबाद, प्रथम संस्करण 1971 ई.</p> <p>14 शर्मा, डॉ शैलेन्द्र, शब्द-शक्ति संबंधी भारतीय और पाश्चात्य अवधारणा तथा हिन्दी काव्य शास्त्र, नेशनल पब्लिशिंग हाउस, नई दिल्ली</p> <p>15 गुप्ता, डॉ सरोज, प्रामाणिक वृहद बुन्देली शब्दकोश, उत्तर प्रदेश भाषा संस्थान, लखनऊ</p> <p>16 शर्मा, डॉ शैलेन्द्र, मालवा का लोक माच एवं अन्य विधाएं, अंकुर मंच, उज्जैन</p>		

17 मध्य प्रदेश हिन्दी ग्रंथ अकादमी से प्रकाशित पुस्तकें

2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक

1. www.eshiksha.mp.gov.in

2. [http://www.abmcollegejamshedpur.ac.in/pdfs/studymaterials/B.A.HINDI\(Hen%27](http://www.abmcollegejamshedpur.ac.in/pdfs/studymaterials/B.A.HINDI(Hen%27)

3. [CC-6%20Unit-21.pdf](http://www.abmcollegejamshedpur.ac.in/pdfs/studymaterials/B.A.HINDI(Hen%27)

3. <https://old.amu.ac.in/emp/studym/99994856.pdf>

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30

मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. अति लघु प्रश्न अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ परिचय -			
कार्यक्रम: उपाधि (डिग्री)	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A3-HLIT2D	
2	पाठ्यक्रम का शीर्षक	जनसंचार माध्यम : सिद्धांत और अनुप्रयोग (प्रश्न पत्र 2)	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/माइनर ...)	डिसिप्लिन स्पेसिफिक इलेक्टिव (सैद्धांतिक) समूह अ	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने हिन्दी साहित्य विषय का अध्ययन डिप्लोमा में किया हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे: 1. यह एक रोजगारोन्मुखी पाठ्यक्रम है जो विद्यार्थियों को जन संचार माध्यम में कौशल प्राप्त करने एवं रोजगार प्राप्त करने में सहयोगी होगा।	

		2. विद्यार्थी महत्वपूर्ण व्यक्तियों के साक्षात्कार लेने में सक्षम होंगे। 3. विद्यार्थियों को पत्रकारिता के सामाजिक और राष्ट्रीय दायित्व का बोध होगा।
6	क्रेडिट मान	06
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- प्रायोगिक (प्रति सप्ताह घंटे में): L3--I-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा/व्याख्यान) 90
इकाई 1	जनसंचार की अवधारणा और विविध आयाम <ul style="list-style-type: none"> जनसंचार माध्यम परिभाषा, स्वरूप एवं चुनौतियाँ। जनसंचार माध्यमों का स्वरूप - प्रिंट (मुद्रण), श्रव्य, दृश्य-श्रव्य, इंटरनेट। 	18
इकाई 2	प्रिंट पत्रकारिता (मुद्रण) समाचार-अवधारणा समाचार स्रोत एवं क्षेत्र <ul style="list-style-type: none"> समाचार संग्रह पद्धति और लेखन प्रक्रिया समाचार का वर्गीकरण -खोजी, व्याख्यापरक एवं अनुवर्तन समाचार संवाददाता की भूमिका सम्पादकीय लेखन, स्तम्भ लेखन एवं फीचर लेखन मुद्रण कला : लेआउट एवं पृष्ठसज्जा 	18
इकाई 3	पत्रकारिता प्रबंधन <ul style="list-style-type: none"> विज्ञापन विक्रय एवं वितरण प्रेसवार्ता एवं साक्षात्कार 	18
इकाई 4	दृश्य-श्रव्य माध्यम: इलेक्ट्रॉनिक मीडिया की पत्रकारिता <ul style="list-style-type: none"> समाचार संकलन (दृश्य श्रव्य माध्यम के लिए) संपादन प्रस्तुतिकरण की प्रक्रिया टेलीविजन, धारावाहिक, टेलीड्रामा, टेलीफिल्म, डाक्यूड्रामा दृश्य-श्रव्य माध्यम के लिए विज्ञापन निर्माण लेखन एवं प्रस्तुति 	18

	<ul style="list-style-type: none"> • प्रेस वार्ता एवं साक्षात्कार 	
इकाई 5	<ul style="list-style-type: none"> • न्यू मीडिया/वेब मीडिया • न्यू मीडिया वेब मीडिया का आशय एवं विविध रूप • न्यू मीडिया वेब मीडिया में समाचार लेखन, सम्पादन एवं प्रस्तुतीकरण • समाचार लेखन एवं सम्पादन • न्यू मीडिया का सामाजिक एवं सांस्कृतिक पक्ष और प्रभाव • प्रेस एवं मीडिया संबंधी प्रमुख कानून एवं आचार संहिता 	18
व्यावहारिक ज्ञान	<ul style="list-style-type: none"> • प्रिंट/ रेडियो/ इलेक्ट्रॉनिक/ न्यूमीडिया संबंधित समाचार लेखन एवं प्रस्तुतीकरण • फिल्म समीक्षा • जबलपुर में हिंदी पत्रकारिता का संक्षिप्त इतिहास 	

की वर्ड : जनसंचार माध्यम, पत्रकारिता प्रबंधन, न्यू मीडिया एवं वेब मीडिया

भाग स- अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

पाठ्य पुस्तकें -

- 1 हरिमोहन, आधुनिक जनसंचार और हिन्दी, तक्षशिला प्रकाशन, नई दिल्ली
- 2 द्विवेदी, संजय, नए समय का संवाद : सोशल नेटवर्किंग, नेहा पब्लिशिंग अँड डिस्ट्रीबूटर्स, नई दिल्ली
- 3 शुक्ल, सौरभ, नए जमाने की पत्रकारिता, विजडम विलेज पब्लिकेशन्स, नई दिल्ली
- 4 श्रीवास्तव, डॉ. राजेश, दृश्य-श्रव्य माध्यम लेखन, कैलाश पुस्तक सदन, भोपाल
- 5 सिंह, अजय कुमार, "इलेक्ट्रॉनिक पत्रकारिता, लोकभारती प्रकाशन, 2014
- 6 जैन, डॉ संजीव कुमार, "प्रयोजनमूलक कामकाजी हिन्दी एवं कम्प्यूटिंग, कैलाश पुस्तक सदन, भोपाल
- 7 द्विवेदी, संजय मीडिया/भूमंडलीकरण और समाज
- 8 परिहार, कालूराम, मीडिया का सामाजिक सरोकार
- 9 पटेल, योगेश, सोशल मीडिया
- 10 मध्य प्रदेश हिन्दी ग्रंथ अकादमी से प्रकाशित पुस्तकें

2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक

1. www.eshiksha.mp.gov.in
2. <https://ignited.in/a/57930>
3. <https://ncert.nic.in/textbook/pdf/kham101.pdf>

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:

भाग द- अनुशंसित मूल्यांकन विधियाँ:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30 मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक 30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70
कोई टिप्पणी/सुझाव		

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ परिचय -			
कार्यक्रम: उपाधि (डिग्री)	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A3-HLIT3D	
2	पाठ्यक्रम का शीर्षक	हिन्दी- राष्ट्रीय काव्य धारा (प्रश्न पत्र 1)	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/माइनर ...)	डिसिप्लिन स्पेसिफिक इलेक्टिव समूह ब	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने हिन्दी साहित्य विषय का अध्ययन डिप्लोमा में किया हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<ul style="list-style-type: none"> विद्यार्थी इस पाठ्यक्रम के अध्ययन से प्राचीन परंपरा एवं आधुनिक संदर्भ में राष्ट्रीय चेतना के अर्थ से सुभिज होंगे। विद्यार्थी इस पाठ्यक्रम के माध्यम से राष्ट्र निर्माण में स्वयं की भूमिका का चयन करने में समर्थ हो सकेंगे। सृजनात्मक क्षमता वाले विद्यार्थी राष्ट्रीय चेतना से युक्त कविता और गीतों का सृजन कर गीत-संगीत एवं फिल्मों में यश एवं अर्थोपार्जन कर सकते हैं। 	

		<ul style="list-style-type: none"> • विद्यार्थी राष्ट्रीय चेतना में साहित्य परंपरा से परिचित हो सकेंगे।
6	क्रेडिट मान	06
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- प्रायोगिक (प्रति सप्ताह घंटे में): L-3-T-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा/व्याख्यान) 90
इकाई 1	राष्ट्र और राष्ट्रीय चेतना की अवधारणा एवं स्वरूप काव्य लक्षण <ul style="list-style-type: none"> • अर्थ परिभाषा • भारतीय प्राचीन वांगमय में राष्ट्र एवं राष्ट्रीय चेतना का स्वरूप • आधुनिक भारतीय एवं पाश्चात्य साहित्य में राष्ट्रीय चेतना संबंधी दृष्टि 	18
इकाई 2	हिन्दी साहित्य के विविध युगों में राष्ट्रीय चेतना का विकास (संक्षिप्त ऐतिहासिक यात्रा)- <ul style="list-style-type: none"> • आदिकालीन युगीन राष्ट्रीय पृष्ठभूमि एवं प्रवृत्तियाँ • मध्यकालीन राष्ट्रीय पृष्ठभूमि एवं प्रवृत्तियाँ • आधुनिक काल की राष्ट्रीय पृष्ठभूमि एवं प्रवृत्तियाँ 	18
इकाई 3	स्वतन्त्रता के पूर्व राष्ट्रीय चेतना का स्वरूप <ul style="list-style-type: none"> • भारतेन्दुयुग से छायावाद तक प्रमुख कवि एवं उनकी रचनाओं में अभिव्यक्त राष्ट्रीय चेतना। • भारतेन्दु (मुकरियाँ) भीतर भीतर सब रस चूसे • मैथिलीशरण गुप्त - मातृभूमि (भारत भारती) • • जयशंकर प्रसाद - हिमाद्रि तुंग श्रृंग से • माखनलाल चतुर्वेदी - कैदी और कोकिला, जवानी 	

	<ul style="list-style-type: none"> • बालकृष्ण शर्मा नवीन - विप्लव गान, कवि कुछ ऐसी तान सुनाओ • सुभद्रा कुमारी चौहान - वीरों का कैसा हो बसंत • सोहनलाल द्विवेदी - वंदना के इन स्वरो में • श्यामनारायण पांडे - हल्दी घाटी • दिनकर - शहीद स्तवन • भवानी प्रसाद तिवारी- क्रम भर है, तमसा का पूर 	18
इकाई 4	<p>स्वातन्त्र्योत्तर हिन्दी राष्ट्रीय काव्यधारा -</p> <ul style="list-style-type: none"> • गिरजा कुमार माथुर - आज विजय • गोपाल सिंह नेपाली - यह स्वतंत्रता का दिया • श्री कृष्ण "सरल" - मैं अमर शहीदों का चारण(क्रांति गंगा काव्य संग्रह) • बलवीर सिंह - बोले रक्त शहीद का • कृष्ण गोपाल मिश्र - सरदार पटेल (कविता संग्रह कसक) 	18
इकाई 5	<p>फिल्मी गीतों में अभिव्यक्त राष्ट्रीय चेतना</p> <ul style="list-style-type: none"> • कवि प्रदीप - आज हिमालय की • प्रेम धवन - छोड़ो कल की बार्ते • नीरज - ए मेरे प्यारे वतन • कैफ़ी आज़मी - कर चले हम फिदा • इंदीवर - हे प्रीत जहां की रीत 	18
व्यावहारिक ज्ञान	<p>स्थानीय रचनाकारों के राष्ट्रीय गीतों का संकलन, सस्वर गायन, कविता पाठ</p> <p>राष्ट्रीयता पर आधारित फिल्मों की समीक्षा</p>	
की वर्ड	राष्ट्रीय चेतना आदि	
भाग स- अनुशंसित अध्ययन संसाधन		
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन		
<p>अनुशंसित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:</p> <p>पाठ्य पुस्तकें -</p> <p>1 चतुर्वेदी, नरेश चंद, "राष्ट्रीय कवितायें", साहित्य निकेतन, कानपुर</p> <p>2 गौतम, सुरेश, "छायावाद का उत्तर राग : राष्ट्रीय सांस्कृतिक काव्य" ,आलोक पर्व प्रकाशन दिल्ली</p> <p>3 पथिक, डॉ देवराज, "मुक्ति बोध के काव्य में राष्ट्रीय चेतना", आशा प्रकाशन, नई दिल्ली</p> <p>4 पथिक, देवराज शर्मा, "हिन्दी की राष्ट्रीय काव्यधारा एक समग्र अनुशीलन", इंद्रप्रस्थ प्रकाशन, दिल्ली</p>		

- 5 पथिक, देवराज शर्मा, "नई कविता में राष्ट्रीय चेतना", कादम्बरी प्रकाशन, दिल्ली
 6 गुप्त, विद्यानाथ, "हिन्दी कविता में राष्ट्रीय भावना", उद्धत भर्ती साहित्य मंदिर, दिल्ली
 7 दरगन, रवीन्द्रनाथ, छायावादी काव्य में राष्ट्रीय सांस्कृतिक चेतना", वाणी प्रकाशन, दिल्ली
 8 कुमार, मुकेश, "हिन्दी कविता में राष्ट्रीय चेतना एवं संस्कृति साहित्य संचय", सोनिया विहार, दिल्ली
 9 चतुर्वेदी, जगदीश, "भारतीय कविता में राष्ट्रीय चेतना", अभिनव प्रकाशन, दिल्ली, स. 1979 ई.
 10 मिश्र, कृष्णगोपाल, "हिन्दी साहित्य और समीक्षा", के. के. पब्लिकेशन, नई दिल्ली
 11 शुक्ल, स्मृति, निकष बतीस, अनुजा बुक्स, दिल्ली
 12 मध्य प्रदेश हिन्दी ग्रंथ अकादेमी भोपाल से प्रकाशित पुस्तकें

2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक

1. www.eshiksha.mp.gov.in
2. <https://drshailendrasharma.blogspot.com/2013/01/blog-post.html>
3. <http://ignited.in/1/a/89038>

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30 मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ परिचय -			
कार्यक्रम: उपाधि (डिग्री)	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A3-HLIT4D	
2	पाठ्यक्रम का शीर्षक	हिन्दी आलोचना (प्रश्न पत्र 2)	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/माइनर ...)	डिसिप्लिन स्पेसिफिक इलेक्टिव (सैद्धांतिक) समूह ब	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने हिन्दी साहित्य विषय का अध्ययन डिप्लोमा में किया हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे 1. विद्यार्थियों में आलोचनात्मक विवेक/समीक्षात्मक दृष्टि का विकास होगा जिससे वह आलोचना लेखन एवं प्रकाशन के क्षेत्र में रोजगार प्राप्त कर सकेंगे। 2. विद्यार्थी भारतीय ज्ञान-विज्ञान को निरपेक्ष रूप से समझ सकेंगे जिससे सामाजिक दायित्व का निर्वाह कर सकेंगे। समाज कल्याण संबंधी क्षेत्र में रोजगार के अवसर प्राप्त कर सकेंगे। 3. विद्यार्थियों में भाषा शिक्षण संस्कारों का विकास होगा जिससे वह रचनात्मकता एवं भाषा के क्षेत्र में नए प्रयोग कर सकेंगे।	
6	क्रेडिट मान	06	
7	कुल अंक	अधिकतम अंक : 30+++70	न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- प्रायोगिक (प्रति सप्ताह घंटे में): L 3-T-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा/व्याख्यान) 90
इकाई 1	आलोचना की अवधारणा एवं स्वरूप <ul style="list-style-type: none"> • आलोचना : शाब्दिक व्युत्पत्ति, अर्थ, परिभाषा स्वरूप एवं प्रकार 	14
इकाई 2	आलोचना का इतिहास तथा सैद्धान्तिक परिचय <ul style="list-style-type: none"> • संस्कृत आलोचना का इतिहास एवं संक्षिप्त परिचय। • हिन्दी आलोचना का संक्षिप्त इतिहास एवं परिचय। 	18
इकाई 3	हिन्दी आलोचना के प्रमुख प्रकार एवं उनका संक्षिप्त परिचय <ul style="list-style-type: none"> • शास्त्रीय • स्वच्छंदतावादी • • मनोविश्लेषणवादी • समाजशास्त्रीय 	18
इकाई 4	हिन्दी आलोचना के अन्य प्रकार एवं उनका संक्षिप्त परिचय <ul style="list-style-type: none"> • मार्क्सवादी • सौन्दर्य शास्त्रीय • शैली वैज्ञानिक • व्यावहारिक समीक्षा 	20
इकाई 5	हिन्दी के प्रमुख आलोचक एवं उनके आलोचना सिद्धान्त । <ul style="list-style-type: none"> • आचार्य रामचन्द्र शुक्ल • आचार्य हजारी प्रसाद द्विवेदी • आचार्य नन्ददुलारे वाजपेयी • • डॉ नगेन्द्र • डॉ नामवर सिंह 	20
व्यावहारिक ज्ञान	<ul style="list-style-type: none"> • कविता कहानी उपन्यास किसी भी एक पर पुस्तक समीक्षा। • विद्वानों द्वारा की गयी समीक्षाओं का अध्ययन । 	

	<ul style="list-style-type: none"> • आचार्य त्रिभुवन नाथ शुक्ल द्वारा लिखित पुस्तक साहित्य शास्त्र के सौ वर्ष की समीक्षा 	
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की वर्ड	आलोचना, स्वच्छंदतावादी, समाजशास्त्री, शास्त्रीय आदि	
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भाग स- अनुशंसित अध्ययन संसाधन		
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पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन		
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अनुशंसित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:		
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- जैन, डॉ. निर्मला, "हिन्दी आलोचना की बीसवी सदी", राधाकृष्ण प्रकाशन।
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- प्रकाश, डॉ राघव, "शैली विज्ञान और भारतीय एवं पाश्चात्य साहित्य शास्त्र", राजस्थान हिन्दी ग्रंथ अकादेमी, जयपुर। •
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- पाण्डेय, मैनेजर, "साहित्य और इतिहास दृष्टि", वाणी प्रकाशन, नई दिल्ली।
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- रंजन, सुधीर, "कविता के प्रस्थान", राजकमल प्रकाशन, नई दिल्ली।
- मध्य प्रदेश हिन्दी ग्रंथ अकादेमी भोपाल से प्रकाशित पुस्तकें

2 अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक

1. www.eshiksha.mp.gov.in

2. <https://egyankosh.ac.in/bitstream/123456789/28044/1/Unit-30.pdf>

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अनुशासित समकक्ष ऑनलाइन पाठ्यक्रम:

भाग द- अनुशासित मूल्यांकन विधियां:

अनुशासित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30 मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ परिचय			
कार्यक्रम: उपाधि (डिग्री)	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A3-HLIT2T	
2	पाठ्यक्रम का शीर्षक	लोक-साहित्य एवं लोक संस्कृति	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/माइनर ...)	माइनर / elective (सैद्धांतिक)	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने हिन्दी साहित्य विषय का अध्ययन डिप्लोमा में किया हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<ul style="list-style-type: none">• विद्यार्थी लोक जीवन शैली से भिन्न होंगे।• लोक साहित्य की विविध विधाओं का अध्ययन कर अपने ज्ञान और अनुभव से शोध कार्य करने में समर्थ होंगे।• लोक कला के क्षेत्र में कौशल विकास कर, रोजगार प्राप्त कर सकेंगे।• लोक गीत, संगीत, नाट्य अभिनय आदि में रुचि	

		रखने वाले विद्यार्थी संगीत नाट्य एवं फिल्म आदि क्षेत्रों में नया प्रयोग करते हुए देश-विदेश में यश एवं अर्थोपार्जन कर सकेंगे।
6	क्रेडिट मान	06
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- प्रायोगिक (प्रति सप्ताह घंटे में): L-3-T-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा / व्याख्यान) 90
इकाई 1	लोक-साहित्य एवं लोक संस्कृति की अवधारणा: <ul style="list-style-type: none"> • -लोक, लोक साहित्य एवं लोक संस्कृति की अवधारणा • लोक वार्ता और लोक संस्कृति, • लोक संस्कृति और साहित्य का अंतःसंबन्ध 	18
इकाई 2	लोक साहित्य के प्रमुख रूप एवं संकलन <ul style="list-style-type: none"> • लोक साहित्य के प्रमुख रूपों का वर्गीकरण लोकगीत, लोकनाट्य, लोक कथा एवं लोक गाथा, • लोक-साहित्य की अध्ययन प्रक्रिया एवं संकलन की समस्याएँ 	18
इकाई 3	लोकगीत एवं लोकनाट्यस्वरूप: प्रकार एवं विशेषताएँ- <ul style="list-style-type: none"> • लोकगीत - अर्थ, परिभाषा एवं प्रकार (संस्कार गीत वृत्त गीत, पर्व गीत, श्रम गीत एवं ऋतु गीत आदि) • लोकनाट्य अवधारणा एवं प्रकार (रामलीला, रासलीला, कीर्तनिया, स्वाँग, यक्षगान, भवाई, नौटंकी, माच, तमाशा, विदेसिया जात्रा आदि का संक्षिप्त परिचय 	18
इकाई 4	लोककथा एवं लोक गाथास्वरूप प्रकार एवं विशेषताएँ- <ul style="list-style-type: none"> • लोककथा अर्थ परिभाषा स्वरूप एवं प्रकार व्रतकथा, परिकथा, नागकथा, बोधकथा आदि। • कथानक रूढ़ियाँ अभिप्राय/ • लोकगाथा, गोपीचन्दभर्थरी नलदमयन्ती आदि। 	

	<ul style="list-style-type: none"> • लोककथाओं एवं गाथाओं का सामाजिक जीवन पर प्रभाव 	18
इकाई 5	<p>लोक संगीत, लोक नृत्य एवं अन्य विधाएँ-</p> <ul style="list-style-type: none"> • लोक संगीत, लोक वाद्य एवं विशिष्ट लोक ध्वनि से आशय, स्वरूप • लोक नृत्य के विविध रूप • मुहावरे कहावतें, पहेलियाँ • मेले एवं हाट • संबंधित क्षेत्र के लोक साहित्य एवं संस्कृति का अध्ययन • संबंधित क्षेत्र की लोक कलाओं, लोक चित्र एवं शिल्प का अध्ययन 	18

व्यावहारिक ज्ञान स्थानीय क्षेत्र के लोक गीत : लोक साहित्य, लोक कलाओं का संकलन अनुवाद एवं प्रस्तुतिकरण लोक कलाकारों से भेंट वार्ता प्रस्तुति।

की वर्ड लोक, लोकसाहित्य, वार्ता लोक गाथा

भाग स- अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:

- उपाध्याय, कृष्णादेव लोक साहित्य की भूमिका साहित्य भवन प्रा.लि. इलाहाबाद
- उपाध्याय, कृष्णादेव लोक संस्कृति की रूपरेखा लोक भर्ती प्रकाशन नई दिल्ली
- तिवारी, डॉ कपिल कथा वार्ता (हिन्दी) आदिवासी लोक कला एवं बोली विकास अकादेमी, भोपाल
- निर्गुणे, वसंत निमाड़ी मुहावरे हिन्दी) आदिवासी लोक कला एवं बोली विकास अकादेमी, भोपाल
- निर्गुणे, वसंत संत सिंगाजी आदिवासी लोक कला एवं बोली विकास अकादेमी, भोपाल
- निर्गुणे, वसंत मध्य प्रदेश की लोक कथाएँ, प्रभात प्रकाशन प्रा.लि.
- दिनकर, रामधारी सिंह, संस्कृति के चार अध्याय, साहित्य अकादेमी नई दिल्ली
- माथुर, जगदीश चन्द्र परम्पराशीत नाट्य राष्ट्रीय नाट्य विद्यालय नई दिल्ली 1956
- गुप्ता, डॉ. सरोज, सुहाने, डॉ संगीता, लोक साहित्य और वैश्वीकरण, अनुभूति पब्लिशर इलाहाबाद
- शर्मा, डॉ शैलेंद्र, मालवा का लोक नाट्य माच एवं अन्य विधाएँ, अंकुर मंच, उज्जैन
- मध्य प्रदेश हिन्दी ग्रंथ अकादेमी भोपाल से प्रकाशित पुस्तकें

अनुशंसित डिजिटल प्लेटफॉर्म / वेब लिंक

www.eshiksha.mo.gov.in

<https://rgu.ac.in/wp-content/uploads/2021/02/Download 600.pdf>

<https://loksahitya.weebly.com/uploads/9/7/2/1/972179/loksahitya.pdf>

भाग द- अनुशासित मूल्यांकन विधियां:

अनुशासित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30 मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	70

कोई टिप्पणी/सुझाव

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ- परिचय			
कार्यक्रम: उपाधि	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A3-HLIT1G	
2	पाठ्यक्रम का शीर्षक	भारतीय साहित्य	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/माइनर ...)	जेनेरिक इलेक्टिव (सैद्धांतिक)	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	सभी के लिए उपलब्ध (open for all)	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे: 1. विद्यार्थी भारतीय भाषाओं एवं उनके साहित्य से परिचित	

		<p>हो सकेंगे।</p> <p>2. भारतीय संस्कृति की विविधता एवं एकता को समझ सकेंगे ।</p> <p>3. विद्यार्थी भाषा कौशल में पारंगत होकर किसी भी एक भारतीय भाषा के साहित्य का अन्य भारतीय भाषा में/ विदेशी भाषा में अनुवाद कर सकेंगे अर्थात अनुवाद के क्षेत्र में रोजगार की अनेक संभावनाएँ हैं।</p> <p>4. विद्यार्थी साहित्य सृजन कर यश एवं धन अर्जन करने में सक्षम होंगे।</p>
6	क्रेडिट मान	06
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- ट्यूटोरियल- प्रायोगिक (प्रति सप्ताह घंटे में): L 3-T-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा/ व्याख्यान) 90
इकाई 1	<p>भारतीय साहित्य का स्वरूप</p> <ul style="list-style-type: none"> • भारतीयता की अवधारणा • • भारतीय साहित्य का स्वरूप 	12
इकाई 2	<p>भारतीय साहित्य के अध्ययन की आवश्यकता एवं समस्याएँ</p> <p>अ- अध्ययन की आवश्यकताएँ</p> <ul style="list-style-type: none"> • भारतीय संस्कृति एवं समाज बोध। • राष्ट्रीय एवं सांस्कृतिक एकता । <p>ब. समस्याएँ</p> <ul style="list-style-type: none"> • भारतीय भाषाओं के ज्ञान का अभाव। • अनूदित साहित्य की अनुपलब्धता 	20

	<ul style="list-style-type: none"> • उपलब्ध साहित्य के प्रति जागरूकता का अभाव। 	
इकाई 3	<p>भारतीय साहित्य और संस्कृति का अंतःसंबन्ध</p> <ul style="list-style-type: none"> • भारतीय साहित्य के स्रोतों में एकता। • भारतीय साहित्य में वैचारिक एवं भावनात्मक एकता। • सामाजिक जीवन शैली और साहित्य। • भारतीय साहित्य और संस्कृति । 	20
इकाई 4	<p>भारतीय भाषाओं का काव्य (व्याख्या एवं समीक्षा)</p> <ul style="list-style-type: none"> • सीताकान्त महापात्र (ओड़िया) - सांझ सवेरा (लोट आने का समय काव्य संग्रह से अनुवादक डॉ राजेंद्र प्रसाद मिश्र भारतीय ज्ञानपीठ प्रकाशन) • सुब्रमण्यम भारती (तमिल) चमक रहा उत्तुंग हिमालय (अनुवादक अनिल जय विजय) • उमाशंकर जोशी (गुजराती)- हंपी के खंडहर भले हैं ऊँचे श्रृंग (निशीथ एवं अन्य कवितार्ये) रूपांतर रघुवीर चौधरी, भोला भाई पटेल भारतीय ज्ञानपीठ प्रकाशन 	20
इकाई 5	<p>भारतीय भाषाओं के गद्य साहित्य का अध्ययन</p> <ul style="list-style-type: none"> • हय बदन (नाटक- गिरीश कर्नाड) • • कहानियाँ- पाषाणी रवींद्र नाथ टैगोर • • गंगाधर गाडगिल (मराठी) - घुन लगे लोग (कहानी संग्रह- सीधी रेखा, भारतीय ज्ञानपीठ नई दिल्ली) 	18
व्यावहारिक ज्ञान	पाठ्यक्रम के अंतर्गत रचनाओं से किसी एक रचना की समीक्षा	

कीवर्ड: भारतीयता, भारतीय साहित्य, सांस्कृतिक चेतना आदि

भाग स- अनुशासित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशासित सहायक पुस्तकें ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

- त्रिपाठी, राम छबीला, भारतीय साहित्य, वाणी प्रकाशन, नई दिल्ली
- डॉ नगेंद्र, भारतीय साहित्य का समेकित इतिहास, दिल्ली विश्वविद्यालय प्रकाशन
- मिश्र, राजेंद्र, भारतीय साहित्य की अवधारणा, तक्षशिला प्रकाशन, इंदौर •
- शर्मा, रामविलास, भारतीय साहित्य के इतिहास की समस्याएँ, वाणी प्रकाशन, नई दिल्ली
- मध्य प्रदेश हिन्दी ग्रंथ अकादेमी भोपाल से प्रकाशित पुस्तकें

अनुशासित डिजिटल प्लेटफॉर्म /वेब लिंक

www.eshiksha.mp.gov.in

<http://mdudde.net/books/MA/MA-hindi/2nd-year/Bhartiya%20Shitya-final.pdf>

<https://htips.in/bhartiya-sahitya/>

<http://saagarika.blogspot.com/2013/02/blog-post.html>

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:

भाग द- अनुशंसित मूल्यांकन विधियाँ:

अनुशंसित सतत मूल्यांकन विधियाँ अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30

मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	70

कोई टिप्पणी/सुझाव

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ- परिचय			
कार्यक्रम: उपाधि		वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड	A3-HLIT2G	
2	पाठ्यक्रम का शीर्षक	सिनेमा: लेखन एवं निर्माण कला (सैद्धांतिक)	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/ लोकेशनल/माइनर ...)	जेनेरिक इलेक्टिव	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	सभी के लिए उपलब्ध (open for all)	
5	पाठ्यक्रम अध्ययन की परिलब्धियाँ (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर विद्यार्थी निम्न में सक्षम होंगे: 1. यह रोजगार उन्मुखी पाठ्यक्रम है जो साहित्य, कला, गीत-संगीत में रुचि रखने वाले छात्रों को फिल्म उद्योग में योग्यता अनुसार रोजगार अर्जित करने हेतु समझ विकसित करता है। 2. विद्यार्थी कथा, पटकथा तथा संवाद लेखन में कौशल प्राप्त कर रोजगार प्राप्त कर सकते हैं। 3. गीत, कविता लेखन में रुचि रखने वाले विद्यार्थी फिल्मों	

		में गीत लिखने का रोजगार परक कार्य कर सकते हैं। 4. फिल्मी समीक्षाएं, फिल्मी पत्रकारिता के क्षेत्र में रोजगार के अनेक अवसर की संभावनाएं हैं। 5. तकनीक में रुचि वाले विद्यार्थी फोटोग्राफी के क्षेत्र में यश और अर्थ दोनों का अर्जन कर सकते हैं।
6	क्रेडिट मान	06
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- ट्यूटोरियल- प्रायोगिक (प्रति सप्ताह घंटे में): L 3-T-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा/ व्याख्यान) 90
इकाई 1	सिनेमा की ऐतिहासिक पृष्ठभूमि <ul style="list-style-type: none"> • सिनेमा का उदय एवं विकास यात्रा • हिन्दी सिनेमा का इतिहास • हिन्दी सिनेमा की प्रमुख प्रवृत्तियाँ एवं फिल्में 	18
इकाई 2	सिनेमा निर्माण की प्रक्रिया: पटकथा एवं संवाद <ul style="list-style-type: none"> • सिने माध्यम की भाषा की प्रकृति एवं संरचना। • कहानी लेखन (STORY WRITING) • पटकथा लेखन की प्रक्रिया। • सिने संवाद लेखन। 	18
इकाई 3	सिनेमा निर्माण की प्रक्रिया: निर्देशन एवं अभिनय। <ul style="list-style-type: none"> • फिल्म निर्देशन के प्रमुख तत्व। • अभिनय के आधारभूत सिद्धान्त एवं प्रकार। • गीत एवं संगीत नियोजन। 	18
इकाई 4	सिनेमा का तकनीकी पक्ष <ul style="list-style-type: none"> • सृजन की सामूहिकता। • स्थल चयन एवं सेट निर्माण। • रूप सज्जा। • छायांकन एवं एनिमेशन का संयोजन। 	

	<ul style="list-style-type: none"> • ध्वनि एवं प्रकाश नियोजन। • डबिंग। • सम्पादन। 	18
इकाई 5	<p>सिनेमा के व्यावसायिक पक्ष</p> <ul style="list-style-type: none"> • सेन्सर बोर्ड। • सिनेमा का प्रचार-प्रसार (ट्रेलर, प्रोमो, पोस्टर आदि) • • वितरण और व्यवसाय। • फिल्म पत्रकारिता और समीक्षा। • • सिनेमा के अन्य रूप - फीचर, वृत्त चित्र, शॉर्ट मूवी, विज्ञापन फिल्में आदि। 	18
व्यावहारिक ज्ञान	<p>हिन्दी फिल्म की समीक्षा</p> <ul style="list-style-type: none"> • कहानियों का पटकथा लेखन/ संवाद लेखन- बड़े भाई साहब - प्रेमचंद, अपना-अपना भाग्य -जैनेन्द्र, अजोर -अशोक शाह। • एनिमेशन फिल्मों में संवाद लेखन। • फिल्म/ एनिमेशन फिल्म निर्माण (प्रकृति केन्द्रित/ जनहित/ राष्ट्र हित/ दृष्टिकोण से) <p>नोट- उपर्युक्त में से किसी दो पर</p>	
कीवर्ड: पटकथा, संगीत नियोजन		
भाग स- अनुशासित अध्ययन संसाधन		
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन		
<p>अनुशासित सहायक पुस्तकें /ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:</p> <ul style="list-style-type: none"> • बच्चन, श्रीवास्तव, भारतीय फिल्मों की कहानी (हिन्दी), राजपाल एड संस, दिल्ली • फिरोज, रंगूनवाला, भारतीय चलचित्र का इतिहास (हिन्दी), राजपाल एड संस, दिल्ली • नायर, पी. के., इंडियन सिनेमा 1985- (इंग्लिश), डायरेक्टोरेट ऑफ फिल्म फेस्टिवल एवं नेशनल फिल्म डेव्हलपमेंट का. लि . • दीवान, मीरा, डाक्यू मीडिया (इंग्लिश), डायरेक्टोरेट ऑफ फिल्म फेस्टिवल एवं नेशनल फिल्म डेव्हलपमेंट का. लि. • • भारद्वाज, विनोद, सिनेमा: कल आज और कल, वाणी प्रकाशन, नई दिल्ली • भंडारी, मन्नु, कथा-पटकथा, वाणी प्रकाशन, नई दिल्ली • ब्रांहात्मन, अजय, सिनेमा की सोच, वाणी प्रकाशन, नई दिल्ली • खरे, विष्णु, सिनेमा पढ़ने के तरीके, प्रवीण प्रकाशन, नई दिल्ली • तिवारी, विनोद, फिल्म लेखन एवं फिल्म पत्रकारिता, वाणी प्रकाशन, नई दिल्ली • अख्तर, जावेद, सिनेमा के बारे में, राजकमल प्रकाशन, नई दिल्ली 		

- नारायण, कुँवर, लेखक का सिनेमा, राजकमल प्रकाशन, नई दिल्ली
- जोशी, मनोहर श्याम, पटकथा लेखन एक परिचय, वाणी प्रकाशन, नई दिल्ली
- मध्य प्रदेश हिन्दी ग्रंथ अकादेमी भोपाल से प्रकाशित पुस्तकें.

अनुशंसित डिजिटल प्लेटफॉर्म

www.eshiksha.mp.gov.in

<https://www.amarujala.com/amp/kavya/book-review-of-bhartiya-cinema>

<https://www.khansir.co.in/history-of-indian-cinema-in-hindi-pdf/>

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30

मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	70

कोई टिप्पणी/सुझाव

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

2023&2024

प्रश्नपत्र (सैद्धांतिक)

भाग अ- परिचय			
कार्यक्रम: उपाधि		वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: हिंदी साहित्य			
1	पाठ्यक्रम का कोड		
2	पाठ्यक्रम का शीर्षक	रामचरित मानस एक अध्ययन	
3	पाठ्यक्रम का प्रकार : (कोरकोर्स/इलेक्टिव/जेनेरिक)	इलेक्टिव (सैद्धांतिक)	

	इलेक्टिव/ वोकेशनल/माइनर ...)	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	डिप्लोमा कोर्स प्राप्त किसी भी संकाय के छात्र इस पाठ्यक्रम का अध्ययन कर सकते हैं।
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे: 1. जीवन मूल्यों को समझ सकेंगे। 2. व्यक्तित्व विकास एवं चारित्रिक दृढ़ता। 3. भारतीय सामाजिक-सांस्कृतिक एवं राजनैतिक समझ विकसित होगी। 4. आत्मनिर्भरता एवं कर्मठता की दिशा में प्रेरित होंगे।
6	क्रेडिट मान	06
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

भाग ब – पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- ट्यूटोरियल- प्रायोगिक (प्रति सप्ताह घंटे में): L-T-P

इकाई	विषय	व्याख्यान की संख्या (1 घंटा/ व्याख्यान) 90
इकाई 1	रामकथा परंपरा एवं रामचरित मानस : • रामकथा परंपरा - संक्षिप्त परिचय • रामचरित मानस के विविध स्रोत एवं नवीन उद्भावनाएं • कथा विश्लेषण	18
इकाई 2	रामचरित मानस संवेदना एवं मूल्य • संवेदना • जीवन मूल्य (व्यष्टि मूल्य से विश्व बंधुत्व) • सामाजिक दृष्टिकोण	18
इकाई 3	रामचरित मानस में प्रतिबिम्बित संस्कृति : • लोक संस्कृति • नगरीय संस्कृति	18
इकाई 4	रामचरित मानस : भक्ति, दर्शन एवं काव्यत्व • भक्ति पद्धति • दर्शन	18

	<ul style="list-style-type: none"> • काव्यत्व 	
इकाई 5	<p>रामचरित मानस में राजनैतिक एवं वैज्ञानिक दृष्टिकोण:</p> <ul style="list-style-type: none"> • शासन प्रणाली • रामराज्य की संकल्पना • रामचरितमानस में विज्ञान • रामचरितमानस की प्रासंगिकता <p>पाठ्यांश-</p> <p>सोपान 1- (बालकाण्ड) सोरठा 1 से दोहा 1 तक एवं दोहा 35 से 38 तक</p> <p>सोपान 2-(अयोध्याकाण्ड) दोहा 230 से 234 तक</p> <p>सोपान 3- (अरण्यकाण्ड) दोहा 37 से 42 तक</p> <p>सोपान 4- (किष्किंधाकाण्ड) दोहा 13 से 17 तक</p> <p>सोपान 5-(सुंदरकाण्ड) दोहा 37 से 44 तक</p> <p>सोपान 6-(लंकाकाण्ड) दोहा 78 से 80 एवं</p> <p>सोपान 7- (उत्तरकाण्ड) दोहा 20 से 24 एवं दोहा 114 से 120 तक</p>	18

सार बिंदु (की वर्ड)/ टैग: जीवन मूल्य, दार्शनिकता, काव्यत्व

भाग स- अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें /ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

संदर्भ ग्रन्थ

- गोस्वामी, तुलसीदास, रामचरितमानस, गीताप्रेस, गोरखपुर
- गुप्त, डॉ माता प्रसाद, तुलसीदास एक समालोचनात्मक अध्ययन, हिन्दी साहित्य प्रेस, प्रयाग
- मिश्र, डॉ कृष्ण गोपाल, रघुवंश और रामचरित मानस, रचना प्रकाशन, जयपुर
- बुल्के, फादर कामिल, रामकथा उत्पत्ति और विकास, हिन्दी परिषद, प्रयाग विश्वविद्यालय
- मेघ, डॉ रमेश कुंतल, तुलसीदास आधुनिक वातायन से
- मिश्र, डॉ बलदेव प्रसाद, तुलसीदर्शन, हिन्दी साहित्य सम्मेलन प्रयाग
- उपाध्याय पंडित रामकिंकर जी मानस मंथन
- सं- सिंह, उदयभानु "तुलसी, राधाकृष्ण प्रकाशन, नई दिल्ली
- त्रिपाठी, विश्वनाथ, लोकवादी तुलसीदास, राधाकृष्ण प्रकाशन, नई दिल्ली
- शर्मा, डॉ शारदा प्रसाद, रामचरित मानस तत्व दर्शन और लोक चेतना, भारती प्रकाशन वाराणसी
- सं. शरण, अंजनी, मानस पीयूष (सात भाग), गीता प्रेस, गोरखपुर प्रकाशन, वाराणसी
- गीतम, डॉ. एस.पी., श्री रामचरित मानस की वैज्ञानिक टीका, मध्य प्रदेश हिन्दी ग्रंथ अकादमी,

2	पाठ्यक्रम का शीर्षक	संचार क्रांति: वैश्विक परिदृश्य और हिन्दी मीडिया (सैद्धांतिक) समूह- अ (प्रश्न पत्र-प्रथम)
3	पाठ्यक्रम का प्रकार	विषय आधारित विशिष्ट वैकल्पिक पाठ्यक्रम (डी.एस.ई. कोर्स)
4	पूर्वपक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ पत्रोपाधि (डिप्लोमा) अथवा समकक्ष परीक्षा उत्तीर्ण की हो।
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	<p>‘संचार क्रांति’ से आशय है- संचार के आधुनिक साधनों का अप्रत्याशित रूप से अत्यधिक मात्रा में एक साथ उपस्थिति हो जाना। वर्तमान युग में संचार साधनों की विविधता त्वरित गति से विश्व भर में सूचनाएँ पहुंचाने में सक्षम है। आज का दौर संचार क्रांति का दौर है। संचार क्रांति की इस प्रक्रिया में जनसंचार माध्यमों के विविध नए आयामों ने भी आकार लिया है। समूचे विश्व का “विश्वग्राम” (ग्लोबल विलेज) की परिधि में सिमट जाने से आज “सूचना” लोकतांत्रिक व्यवस्था के अतिमहत्वपूर्ण घटक के रूप में स्थापित हो गई है। गतिशील सूचना जगत एक हथियार भी है और स्वस्थ विचार-विमर्श का एक खुला मंच भी बन गया है। गतिशील सूचना जगत का व्यापक प्रभाव जनसंचार माध्यमों पर पड़ा है। पारंपरिक संचार साधनों का स्थान आधुनिक संचार माध्यमों ने ले लिया है। विश्व स्तर पर भारत की पहचान एक मजबूत और समर्थ लोकतांत्रिक राष्ट्र के रूप में बनाने में संचार क्रांति का महत्वपूर्ण योगदान है। उदारीकरण, निजीकरण, भूमंडलीकरण, बाजारवाद ने जहाँ भारतीय समाज एवं संस्कृति को गहरे से प्रभावित किया है, वहीं भारतीय युवाओं को विश्व में रोजगार के भरपूर अवसर भी उपलब्ध कराये हैं। आज विश्व भर में पर्यावरण वैश्विक महामारी, विश्वशांति, मानवाधिकार, लोकतान्त्रिक मूल्यों के संरक्षण आदि जैसे ज्वलंत मुद्दों पर अंतर्राष्ट्रीय मीडिया एवं संचार के दूसरे मंचों पर बहस छिड़ी हुई है। संचार क्रांति इस सार्थक और तार्किक बहस का महत्वपूर्ण सेतु है। विद्यार्थी देश-दुनिया के इन समस्त पहलुओं से जुड़ सके, उसका अध्ययन कर सके तथा हिन्दी मीडिया के माध्यम से विश्व बाजार में अपने लिए रोजगार के अवसर प्राप्त कर सके, इस उद्देश्य से इस पाठ्यक्रम का निर्माण किया</p>

		<p>गया है। पाठ्यक्रम के अध्ययन से</p> <ol style="list-style-type: none"> 1. विद्यार्थियों में विश्व स्तरीय समसामयिक घटनाचक्र का ज्ञान अर्जित कर उनका त्वरित गति से विश्लेषण करने की क्षमता विकसित हो सकेगी। 2. विद्यार्थियों में विश्वस्तर पर रोजगार के अवसर खोजने की प्रवृत्ति जागृत होगी। 3. विद्यार्थियों को अपने उपलब्ध ज्ञान, प्रतिक्रियात्मक टिप्पणियों, संवाद व संदेश-लेखन से आधुनिक पत्रकारिता के क्षेत्र में रोजगार के अवसर सुलभ होंगे। 4. अपनी रुचि एवं क्षमता के अनुरूप संचार माध्यम या विधाओं का चुनाव कर, विद्यार्थी रोजगार का विकल्प प्राप्त कर सकेंगे।
6	क्रेडिट मान	सैद्धान्तिक - 6
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

GROUP-A (DSE TH-1)

भाग ब – पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या- ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 3 घण्टे प्रति सप्ताह (L-T-P:3-0-0)		
कुल व्याख्यान : 90		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	<p>संचार क्रांति का स्वरूप एवं परिचय:</p> <ol style="list-style-type: none"> 1 संचार का तात्पर्य, संचार प्रक्रिया। 2 संचार के प्रकार और माध्यम। 3 संचार की भारतीय ऐतिहासिक परम्परा। 4 संचार क्रांति का अर्थ, स्वरूप, लाभ व हानि। 5 संचार क्रांति की प्रमुख चुनौतियां 	18
इकाई 2	<p>संचार क्रांति और अंतरराष्ट्रीय परिदृश्य:</p> <ol style="list-style-type: none"> 1 संचार क्रांति और वैश्विक परिदृश्य। 2 एशिया में उपग्रह क्रांति और सूचना। 	

	3 सूचना और समाज पर पश्चिमी वर्चस्व। 4 राष्ट्रीय- अंतरराष्ट्रीय जन आंदोलन, वैकल्पिक समाज और मीडिया।	18
इकाई 3	उदारीकरण, कॉरपोरेट, मीडिया और समाज: 1 भारत में उदारीकरण और निजीकरण। 2 मीडिया का व्यवसायीकरण और अंतरराष्ट्रीयकरण। 3 मुख्यधारा का मीडिया और वैकल्पिक मीडिया। 4 उदारीकरण, निजीकरण व मीडिया के व्यवसायीकरण का समाज पर प्रभाव।	18
इकाई 4	भूमण्डलीकरण, उत्तर आधुनिकता एवं मीडिया: 1. भूमण्डलीकरण, बाजारवाद और मीडिया। 2. उत्तर आधुनिकता, भारतीय समाज और हिंदी मीडिया। 3. जनमाध्यम और सूचना तकनीक। 4. हिंदी समाज- मीडिया और प्रसारण के विभिन्न माध्यम।	18
इकाई 5	वैश्विक मुद्दे और माध्यम (मीडिया) साम्राज्यवाद: 1 माध्यम (मीडिया)-साम्राज्यवाद का सिद्धांत। 2 आतंकवाद, युद्ध और हथियार की राजनीति। 3 पर्यावरण, वैश्विक महामारी और अंतरराष्ट्रीय मीडिया-बहस। 4 समकालीन आर्थिक परिदृश्य और मीडिया।	18

सार बिंदु (की वर्ड) टैग - संचार, संचार क्रांति, उपग्रह क्रांति, उदारीकरण, निजीकरण, उत्तर आधुनिकता, महामारी, साम्राज्यवाद, भूमण्डलीकरण, बाजारवाद, मीडिया

भाग स- अनुशंसित अध्ययन संसाधन

1 पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :

- 1 उपाध्याय, रमेश एवं संजा सं- "संस्कृति साम्राज्यवाद"- राजकमल प्रकाशन, नई दिल्ली, सं-1991
- 2 काबरा, कमलनयन -"भूमण्डलीकरण के भंवर में भारत"- प्रकाशन संस्थान, दिल्ली, सं-2005
- 3 गुप्ता, ब्रजमोहन-"जनसंचार विविध माध्यम"- राधाकृष्ण प्रकाशन, दरियागंज, दिल्ली, सं-1992
- 4 चतुर्वेदी, जगदीश्वर- "संस्कृति और मीडिया"- अनामिका पब्लिशर्स, दिल्ली, सं-2005
- 5 जोशी, रामशरण- "विदेशी रिपोर्टिंग:सिद्धांत एवं व्यवहार"- नेहा पब्लिकेशंस, दिल्ली, सं-2005-
- 6 दुबे, श्यामाचरण -"संचार और विकास"- प्रकाशन विभाग, नई दिल्ली, सं-1986
- 7 पारथ, जबरीमल -"जनसंचार के सामाजिक संदर्भ"- अनामिका पब्लिशर्स, दिल्ली, सं-2001
- 8 मधुकर, गंगाधर -"भारतीय प्रसारण विविध आयाम"- प्रवीण प्रकाशन, राजकोट, सं-2014
- 9 शर्मा, राधेश्याम -"जनसंचार"- हिंदी बुक सेंटर, दरियागंज, नई दिल्ली, सं-1993
- 10 शिलर, हरबर्ट आई -"संचार माध्यम और सांस्कृतिक वर्चस्व"- Rutledge Publishers-1976
- 11 त्रिवेदी, सुशील एवं शुक्ल, शशिकांत -"जनसम्पर्क: सिद्धांत और व्यवहार"- मध्य प्रदेश हिंदी

ग्रंथ अकादमी, भोपाल, 1982

12 मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित पुस्तकें...

अनुशंसित वेबसाइट एवं डिजिटल संपर्क सूत्र :

1. <https://www.eshiksha.mp.gov.in/>
2. <https://ndl.lithgn.ac.in/>
3. <https://www.hindisamay.com/>
4. <https://ncert.nic.in/textbook/pdf/kcham101.pdf>
5. http://www.drbrambedkarcollege.ac.in/sites/default/files/04_acknowledgemenu.pdf
6. https://nios.ac.in/media/documents/sree.301_new/RIS-35-SA.pdf
7. <https://hindivishwa.org/>
8. <https://www.swayamprabha.gov.in/index.php/prouram/archive/he/1>
9. <http://highereducation.mp.gov.in/?page=xh210mpZwky10c2b%2Fy567w%30%3D>
10. <http://highereducation.mp.gov.in/?page=XMBO2ybTXW8e4CsM%2BFS1qw%3D%3D>
11. <https://content.inflibnet.ac.in/index.php/content/index/>
12. <https://content.inflibnet.ac.in/index.php/content/index/57186c288nc36c5881225919>

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30

मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

GROUP-A (DSE TH-2)

भाग अ - परिचय -			
कार्यक्रम: स्नातक उपाधि (डिग्री) पाठ्यक्रम	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: प्रयोजनमूलक हिंदी (Functional Hindi), प्रश्न पत्र : प्रथम (समूह - अ)			
1	पाठ्यक्रम का कोड	A3-FHIN2D	
2	पाठ्यक्रम का शीर्षक	जनसंचार माध्यम और हिन्दी भाषा समूह- अ (प्रश्न पत्र- द्वितीय)	
3	पाठ्यक्रम का प्रकार	विषय आधारित विशिष्ट वैकल्पिक पाठ्यक्रम (डी.एस.ई. कोर्स)	
4	पूर्वपक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ पत्रोपाधि (डिप्लोमा) अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	सूचना एवं संचार मानवीय जीवन के लिए अत्यंत अनिवार्य है। जब हम व्यक्तियों के समूह के साथ प्रत्यक्ष संचार की बजाय किसी तकनीकी या यांत्रिक माध्यम के द्वारा समाज के एक विशाल वर्ग से संवाद कायम करने की कोशिश करते हैं तो यह जनसंचार होता है। संचार और जनसंचार के माध्यम हमारी अनिवार्य आवश्यकता बन गए हैं। हमारे रोजमर्रा के जीवन में उनकी बहुत अहम् भूमिका हो गई है। उनके बिना हम वर्तमान आधुनिक जीवन की कल्पना नहीं कर सकते। वे हमारे लिए न सिर्फ सूचना के माध्यम हैं बल्कि वे हमें	

		<p>जागरूक बनाने और हमारा मनोरंजन करने में भी अग्रणी भूमिका निभा रहे हैं। जनसंचार के माध्यम- समाचार पत्र, पत्रिकाएं, रेडियो, टेलीविजन, सिनेमा, इंटरनेट इत्यादि जानकारी देने के साथ-साथ जीवन में परिवर्तन लाने का कार्य भी करते हैं। संचार एवं संप्रेषण की सम्पूर्ण प्रक्रिया का आधार भाषा है। संचार भाषा, जनसंचार माध्यमों की सबसे बड़ी देन है। मीडिया द्वारा प्रसारित भाषा पाठक, श्रोता व दर्शक को बौद्धिक एवं मनोवैज्ञानिक स्तर तक प्रभावित करती है। जनसंचार माध्यमों का यह प्रयास होता है कि भाषा संप्रेषण सर्वसुलभ एवं सहजता से हो सके। जनसंचार के मुद्रित, श्रव्य एवं दृश्य-श्रव्य माध्यमों में भाषा के किस स्वरूप का प्रयोग किया जाना चाहिये। इससे विद्यार्थियों को अवगत कराना ही इस पाठ्यक्रम का मूल प्रयोजन है।</p> <p>पाठ्यक्रम के अध्ययन से-</p> <ol style="list-style-type: none"> 1. विद्यार्थी संचार माध्यमों और उनकी भाषा के विकास एवं विविधता की प्रक्रिया को समझ सकेंगे। 2. विद्यार्थियों में समाचार पत्रों, रेडियो, टेलीविजन, सिनेमा एवं वेब मीडिया की भाषा का प्रकारांतर में विश्लेषण करने की क्षमता विकसित हो सकेगी। 3. विद्यार्थियों में समाचार लेखन व वाचन, सम्पादकीय, साक्षात्कार, कमेंट्री, विज्ञापन, प्रतिक्रियात्मक टिप्पणियों, संवाद व संदेश लेखन जैसे रचनात्मक कौशल एवं ज्ञान का विकास हो सकेगा। 4. अपनी रुचि एवं क्षमता के अनुरूप संचार माध्यम का चयन कर विद्यार्थी रचनात्मक लेखन या वाचन कौशल का उपयोग कर रोजगार का विकल्प प्राप्त कर सकेंगे।
6	क्रेडिट मान	6
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

GROUP-A (DSE TH-2)

भाग ब - पाठ्यक्रम की विषयवस्तु	
व्याख्यान की कुल संख्या- ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 3 घण्टे प्रति सप्ताह (L-T-P:3-0-0)	
कुल व्याख्यान : 90	

पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	<p>जनसंचार परिचय एवं क्षेत्र</p> <p>1 जनसंचार का अर्थ परिभाषा एवं स्वरूप।</p> <p>2 जनसंचार का क्षेत्र-सूचना शिक्षा, मनोरंजन, विचार-संप्रेषण, विज्ञापन, जनमत आदि।</p> <p>3 जनसंचार की आवश्यकता एवं महत्व।</p> <p>4 भारत में जनसंचार का क्रमिक विकास- परंपरागत, आधुनिक, अत्याधुनिक।</p>	18
इकाई 2	<p>जनसंचार के विविध प्रकार</p> <p>1. मुद्रित (प्रिंट) माध्यम- समाचार पत्र, पत्रिकाएँ, पोस्टर, होर्डिंग आदि।</p> <p>2. श्रव्य माध्यम- रेडियो, टेलीफोन, एफ.एम. रेडियो।</p> <p>3. दृश्य-श्रव्य माध्यम- टेलीविजन, सिनेमा, वृत्तचित्र (डॉक्यूमेंट्री) आदि।</p> <p>4. सोशल मीडिया- ट्विटर, फेसबुक, व्हाट्स एप, यू-ट्यूब, इंस्टाग्राम, ऑरकुट, लिंकडइन, ब्लॉग, माइक्रोब्लॉगिंग, विकीपीडिया, पॉडकास्ट एवं फोरम आदि।</p>	18
इकाई 3	<p>जनसंचार और भाषा</p> <p>1. जनसंचार और भाषा का अंतर्संबंध, संचार भाषा में शुद्धता-अशुद्धता का प्रश्न।</p> <p>2. संचार भाषा में प्रचलित नई शब्दावली, भाषा के प्रयोग में सावधानियाँ।</p> <p>3. जनसंचार माध्यमों में हिंदी का प्रयोग।</p> <p>4. संचार भाषा का समाज पर प्रभाव।</p>	18
इकाई 4	<p>मुद्रित एवं श्रव्य माध्यम की भाषा</p> <p>1. मुद्रित (प्रिंट) माध्यमों की भाषा- समाचार पत्र/पत्रिकाएँ -समाचार, संपादकीय, मनोरंजन विज्ञापन के संदर्भ में।</p> <p>2. श्रव्य माध्यम की भाषा- विज्ञापन, रेडियो, समाचार, उद्घोषणा, कमेंट्री, भेंटवार्ता की भाषा, एफ.एम. चैनल- मनोरंजन कार्यक्रम एवं विज्ञापन।</p> <p>3. जबलपुर से प्रकाशित हिंदी के प्रमुख समाचार पत्र</p>	18
इकाई 5	<p>दृश्य-श्रव्य माध्यम एवं सोशल मीडिया की भाषा</p> <p>1. दृश्य-श्रव्य माध्यमों की भाषा- समाचार, उद्घोषणा, टेलीविजन, धारावाहिक, सिनेमा, संवाद, गीत, वृत्तचित्र, विज्ञापन आदि।</p> <p>2. सोशल मीडिया की भाषा- ट्विटर, फेसबुक, व्हाट्स एप, यू-ट्यूब, इंस्टाग्राम, ऑरकुट, लिंकडइन, ब्लॉग, माइक्रोब्लॉगिंग, विकीपीडिया, पॉडकास्ट एवं फोरम आदि।</p>	18

सार बिंदु (की वर्ड) टैग - जनसंचार, संचार भाषा, संचार माध्यम, सोशल मीडिया, प्रिंट मीडिया, श्रव्य माध्यम, दृश्य-श्रव्य माध्यम, माध्यम भाषा।

भाग स- अनुशंसित अध्ययन संसाधन

1 पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें/ ग्रंथ/ अन्य पाठ्य संसाधन / पाठ्य सामग्री :

- 1 कुमार, प्रदीप- " भारत में जनसम्पर्क"- नई किताब प्रकाशन, नई दिल्ली, सं-2021
- 2 कुलश्रेष्ठ, विजय -"जनसम्पर्क प्रचार एवं विज्ञापन"- राजस्थान प्रकाशन, जयपुर, सं -2015
- 3 गुप्त, बलदेवराज-"भारत में जनसम्पर्क"- विश्वविद्यालय प्रकाशन वाराणसी-2006
- 4 गुप्ता, ब्रजमोहन - "जनसंचार विविध माध्यम"- राधाकृष्ण प्रकाशन, दरियागंज, दिल्ली, सं-1992
- 5 दुबे, श्यामाचरण -"संचार और विकास"- प्रकाशन विभाग, नई दिल्ली, सं-1986
- 6 पारथ, जबरिमल -"जनसंचार के सामाजिक संदर्भ"- अनामिका पब्लिशर्स, दिल्ली, सं-2001
- 7 रतू, कृष्णभकुमार-" दूरदर्शन"- झनाश्री पब्लिशर्स, जयपुर, सं -2015
- 8 शर्मा, राधेश्याम -"जनसंचार"- हिंदी बुक सेंटर, दरियागंज, नई दिल्ली, सं-1993
- 9 श्रीवास्तव, डॉ. राजेश-" दृश्य-श्रव्य माध्यम लेखन"- कैलाश पुस्तक सदन, भोपाल, सं-2014
- 10 त्रिवेदी, सुशील एवं शुक्ल, शशिकांत -"जनसम्पर्क: सिद्धांत और व्यवहार"- मध्य प्रदेश हिंदी ग्रंथ अकादमी, भोपाल, 1982
- 11 मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित पुस्तकें...

अनुशंसित वेबसाइट एवं डिजिटल संपर्क सूत्र :

1. <https://www.eshiksha.mp.gov.in/>
2. <https://ndl.lithgn.ac.in/>
3. <https://ncert.nic.in/textbook/pdf/lehh213.pdf>
4. <https://www.hindikunj.com/2019/05/jansunchar-ke-madhyam.html>
5. https://nios.ac.in/media/documents/srsec335new_Mass_Communication_Hindi/335_Mass_Communication_Hindi_1.2.pdf
6. http://granthaalayah.com/Articles/Vol51ss3/27_URG17_A03_170.pdf
7. <https://ncert.nic.in/textbook/pdf/kham101.pdf>
8. <http://highereducation.mp.gov.in/?page=xhzlOmpZwky1Qo2b%2Fy5G7w%3D>
9. <http://highereducation.mp.gov.in/?page-XMBO2ybTXWS4CM2BFSIqw53D3D>
10. http://www.youtube.com/results?search_query

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30

मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन

क्लास टेस्ट

कुल अंक :30

सतत व्यापक मूल्यांकन (CCE)	असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. अति लघु प्रश्न अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70
कोई टिप्पणी/सुझाव		

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

GROUP-B (DSE TH-1)

भाग अ - परिचय -			
कार्यक्रम: स्नातक उपाधि (डिग्री) पाठ्यक्रम	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: प्रयोजनमूलक हिंदी (Functional Hindi), प्रश्न पत्र : प्रथम (समूह-ब)			
1	पाठ्यक्रम का कोड	A3-FHIN3D	
2	पाठ्यक्रम का शीर्षक	मीडिया प्रबंधन समूह- ब (प्रश्न पत्र-प्रथम)	
3	पाठ्यक्रम का प्रकार	विषय आधारित विशिष्ट वैकल्पिक पाठ्यक्रम (डी.एस.ई. कोर्स)	
4	पूर्वपक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ पत्रोपाधि (डिप्लोमा) अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	आज के डिजिटल युग में पत्रकारिता का क्षेत्र अत्यंत व्यापक हो गया है। प्रिंट, दृश्य-श्रव्य मीडिया से लेकर आधुनिक इंटरनेट न्यू मीडिया तक सब कुछ बहुत तेज रफ्तार से चल रहा है। गलाकाट प्रतिस्पर्धा के बीच सबको आगे निकलने व सबसे तेज चलने की जल्दी है। ऐसी स्थिति में वांछित लक्ष्यों की सटीक और सफल पूर्ति के लिए प्रबंधन की महती आवश्यकता है।	

जीवन के हर क्षेत्र में आजकल प्रबंधन का महत्व अत्यधिक बढ़ा है। मीडिया के सभी घटकों के कुशल प्रबंधन में, समाज के हित में सरकार की नीति और कार्यक्रमों की रिपोर्टिंग, मीडिया प्रणाली में नैतिक मूल्यों को सुनिश्चित करना, मीडिया-कवरेज को व्यापक आधार देना, मीडिया प्रणाली को उचित परिप्रेक्ष्य में पेशेवर बनाना, बड़े पैमाने पर समाज को प्रभावित करने वाले मुद्दों पर जनहित में ध्यान केंद्रित करना, प्रभावपूर्ण प्रस्तुति और व्यावसायिक हितों की पूर्ति आदि इसके प्रमुख लक्ष्य हैं। मीडिया प्रबंधन के विशेषज्ञ विश्व स्तरीय विषयवस्तु का निर्माण, वितरण व संचरण आदि सबकुछ सुनिश्चित करते हैं। ऐसे प्रबंधकों की मनोरंजन और मीडिया के क्षेत्र में आवश्यकता है। ये प्रतिभा की तलाश और मीडिया सेवा प्रदान करने वालों के बीच संपर्क स्थापित करने का कार्य करते हैं। एक मीडिया प्रबंधक के पास बेहतर और अधिक विश्वसनीय संपर्क सूत्र होते हैं जिससे वह अपने मीडिया की छवि को स्थापित करने, ब्रांड के वित्तीय प्रबंधन व अपनी लोकप्रियता को बढ़ाने का कार्य कुशलतापूर्वक करते हैं। इस पाठ्यक्रम का मुख्य ध्येय विद्यार्थियों में मीडिया के इसी प्रबंधन कौशल को विकसित कर रोजगार की ओर उन्मुख करता है।

पाठ्यक्रम के अध्ययन से-

1. विद्यार्थी मीडिया प्रबंधन के अर्थ, महत्व व सिद्धांतों से भलीभांति परिचित हो सकेंगे।
2. विद्यार्थियों को प्रेस काउंसिल एक्ट, प्रबंधन, पूंजी नियोजन और जनसंचार के अर्थशास्त्र को समझने की क्षमता प्राप्त हो सकेगी।
3. विद्यार्थी जनसेवी व आदर्शोन्मुखी पत्रकारिता करते हुये विश्वस्तरीय गुणवत्तापूर्ण और प्रामाणिक सूचना-सामग्री प्रस्तुत करने का कौशल प्राप्त कर सकेंगे।
4. विद्यार्थी वर्तमान प्रतिस्पर्धा के दौर में किसी भी मीडिया संगठन के लिए अपेक्षित प्रशासकीय और प्रबंधकीय कौशल हासिल कर रोजगार पा सकेंगे।
5. विद्यार्थी अपनी स्वतंत्र पत्रकारिता की शुरुआत कर स्वरोजगार अर्जित कर सकेंगे।

6	क्रेडिट मान	सैद्धान्तिक - 6
7	कुल अंक	अधिकतम अंक : 30++70 न्यूनतम उत्तीर्ण अंक : 35

GROUP-B (DSE TH-1)

भाग ब – पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या- ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 3 घण्टे प्रति सप्ताह (L-T-P:3-0-0) कुल व्याख्यान : 90		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	मीडिया: परिचय एवं महत्व 1. मीडिया का अर्थ, स्वरूप, परिभाषा एवं विशेषताएं। 2. मीडिया के विविध आयाम एवं महत्व। 3. मीडिया की भूमिका और दायित्व। 4. प्रबंधन का अर्थ और आवश्यकता। 5. प्रेस काउंसिल अधिनियम।	18
इकाई 2	मीडिया प्रबंधन आशय क्षेत्र और विविध आयाम- 1. अर्थ, परिभाषा, महत्व और सिद्धांत। 2. प्रबंधन और पूंजी नियोजन, जनसंचार माध्यमों का अर्थशास्त्र। 3. प्रबंधन विभाग, नीतियां और कियान्तरण, मीडिया-प्रबंधन कार्य एवं दायित्व। 4. विदेशी पूंजी निवेश और पत्रकारिता के बदलते मापदंड। 5. प्रायोजित कार्यक्रमों का गणित।	18
इकाई 3	मीडिया प्रबंधन का क्षेत्र, संगठनात्मक ढाँचा और कार्य विभाजन- 1. माध्यमगत स्थापत्य संरचना। 2. मीडिया स्वामित्व और प्रबंधन। 3. प्रबंधन नियंत्रण कौशल। 4. मीडिया ट्रेडमार्क प्रबंधन। 5. मीडिया संस्थानों की समस्याएं: राजनीतिक, आर्थिक, प्रशासनिक दबाव, यथार्थ और चुनौतियां।	18
इकाई 4	प्रिंट माध्यमों में प्रबंधन का स्वरूप- 1. प्रिंट मीडिया की प्रबंधन प्रक्रिया। 2. समाचार पत्र एवं पत्रिकाएँ: समाचार सामग्री-संकलन व संपादकीय	18

	<p>प्रबंधन।</p> <p>3. समाचार पत्र एवं पत्रिकाओं हेतु विज्ञापन-प्रबंधन।</p> <p>4. समाचार पत्र एवं पत्रिकाओं का मुद्रण प्रबंधन।</p> <p>5. समाचार पत्र एवं पत्रिकाओं का वितरण प्रबंधन।</p>	
इकाई 5	<p>इलेक्ट्रॉनिक माध्यमों में प्रबंधन का स्वरूप-</p> <p>1. इलेक्ट्रॉनिक माध्यमों में प्रबंधन का स्वरूप, रेडियो व एफएम चैनल प्रक्रिया।</p> <p>2. टेलीविजन की प्रबंधन प्रक्रिया- प्रोडक्शन, प्रसारण, विज्ञापन, जनसंपर्क और केबल नेटवर्क प्रबंधन आदि।</p> <p>3. केबल-डिजिटल नेटवर्क, वितरण एवं निवेश, प्रबंधन की आवश्यक शर्तें।</p>	18

सार बिंदु (की वर्ड) टैग - मीडिया, मीडिया प्रबंधन, मीडिया समूह, प्रिंट मीडिया, इलेक्ट्रॉनिक मीडिया, केबल नेटवर्क।

भाग स- अनुशंसित अध्ययन संसाधन

1 पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :

- 1 अल्बरान, ए.बी.-"इलेक्ट्रॉनिक मीडिया का प्रबंधन"- बेलमॉट पब्लिकेशन, आई.एन.सी., सं-2010
- 2 आलोक, डॉ.टी.डी.एस.-"मीडिया प्रबंधन"- वाणी प्रकाशन, दरियागंज, दिल्ली, सं-2009
- 3 आलोक, डॉ.टी.डी.एस.-"मीडिया प्रबंधन के सांस्कृतिक आयाम"- वाणी प्रकाशन, दरियागंज, दिल्ली, सं-2014
- 4 गुप्ता, डॉ. विनीता-" संचार और मीडिया शोध"- वाणी प्रकाशन, दरियागंज, दिल्ली, सं-2015
- 5 गोठी, ऋतु-" मीडिया प्रबंधन"- लक्ष पब्लिकेशंस, दरियागंज, दिल्ली, सं-2019
- 6 जोशी, रामशरण(संपा)- " मीडिया और बाजारवाद"- राधाकृष्ण प्रकाशन, दिल्ली, सं-2015-
- 7 पाण्डेय, मंजू -"पर्यटन, प्रबंधन और मीडिया"- सामयिक प्रकाशन, दिल्ली, सं-2013
- 8 त्रिपाठी, जय प्रकाश-"मीडिया हूँ मैं"- अमन प्रकाशन, दिल्ली, सं-2014
- 9 मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित पुस्तकें...

अनुशंसित वेबसाइट एवं डिजिटल संपर्क सूत्र :

1. <https://www.eshiksha.mp.gov.in/>
2. <https://ndl.litkcp.ac.in/>
- 3 <https://presscouncil.nic.in/>
4. <https://editorsguild.in/>
5. http://www.drbramedkarcollge.ac.in/sites/default/files/04_acknowledgemenu.pdf
6. https://nios.ac.in/media/documents/sree.301_new/RIS-35-SA.pdf . <https://hindivishwa.org/>

8. <https://www.swayamprabha.gov.in/index.php/prouram/archive/he/1>
 9. <http://highereducation.mp.gov.in/?page=xh210mpZwky10c2b%2Fy567w%30%3D>
 10. <http://highereducation.mp.gov.in/?page=XMBO2ybTXW8e4CsM%2BFSlqw%3D%3D>
 11. <https://content.inflibnet.ac.in/index.php/content/index/>
 12. <https://content.inflibnet.ac.in/index.php/content/index/57186c288nc36c5881225919>

भाग द- अनुशंसित मूल्यांकन विधियाँ:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30

मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन	क्लास टेस्ट	
सतत व्यापक मूल्यांकन (CCE)	असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :30
आंकलन:	अनुभाग (अ):. अति लघु प्रश्न	
मुख्य परीक्षा	अनुभाग (ब):) लघु प्रश्न	कुल अंक 70
समय 03.00 घंटे	अनुभाग (स): दीर्घ उत्तरीय प्रश्न	

कोई टिप्पणी/सुझाव

संत अलॉयसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

GROUP-B (DSE TH-2)

भाग अ- परिचय -			
कार्यक्रम: स्नातक उपाधि (डिग्री) पाठ्यक्रम	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: प्रयोजनमूलक हिंदी (Functional Hindi). प्रश्न पत्र : द्वितीय (समूह-ब)			
1	पाठ्यक्रम का कोड	A3-FHIN4D	
2	पाठ्यक्रम का शीर्षक	वेब पत्रकारिता समूह- ब (प्रश्न पत्र- द्वितीय)	
3	पाठ्यक्रम का प्रकार	विषय आधारित विशिष्ट वैकल्पिक पाठ्यक्रम (डी.एस.ई. कोर्स)	
4	पूर्वपक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक हिन्दी विषय के साथ पत्रोपाधि (डिप्लोमा) अथवा समकक्ष परीक्षा उत्तीर्ण की हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियाँ कोर्स लर्निंग आउटकम) (CLO)	सूचना की शक्ति से सब परिचित है। सूचना से अधिक महत्वपूर्ण सूचनातंत्र है। वेब पत्रकारिता कंप्यूटर और इंटरनेट के सहारे संचालित ऐसी नवीन पत्रकारिता है जिसकी पहुँच विश्व के कोने-कोने तक है। वेब पत्रकारिता आज मीडिया का सबसे तेजी से विकसित होने वाला माध्यम है। छोटे-बड़े हर शहर से वेब पत्रकारिता संचालित हो रही है।	

		<p>आज मीडिया के पूरे बाजार की नजर हिंदी वेब पत्रकारिता पर है। आज लोग सही खबरों के लिए समाचार चैनलों और समाचार पत्रों पर कम, ब्लॉगों पर अधिक विश्वास करते हैं क्योंकि ब्लॉग के माध्यम से आप न सिर्फ दूसरों की विचारधारा से परिचित होते हैं वरन उस पर अपनी प्रतिक्रिया भी दे सकते हैं और अपने ब्लॉग के माध्यम से विश्व के हर कोने तक अपने विचारों को फैला सकते हैं। हर विषय पर सामग्री प्रायः मुफ्त में उपलब्ध है। इंटरनेट की कोई भौगोलिक सीमाएँ नहीं है। आज के तेज रफ्तार युग में वेब पत्रकारिता अधिक खरी उतरती है। वह पाठकों को हर जानकारी सहज सुलभ कराती है। अखबारों के प्रकाशन में व्यय अधिक होता है, वेबसाइट बनाने और चलाने का खर्चा बहुत कम है और ब्लॉग तो निःशुल्क है ही। लोकतांत्रिक माध्यम होने से संवाद यहाँ सीधा और सुगम है। इसने हर एक नए व्यक्ति को अपनी प्रतिभा दिखाने का अवसर दिया है, उनकी खबर एक पल में सारी दुनिया में पहुँच जाती है, जो कि अन्य संचार माध्यमों द्वारा संभव नहीं है। विकसित तकनीक से वेब पत्रकारिता को नित नये आयाम मिल रहे हैं। अब चित्र, ऑडियो-वीडियो आदि बड़ी आसानी से कहीं भी भेजे जा सकते हैं। वेब पत्रकारिता का भविष्य उज्ज्वल है। वेब पत्रकारिता और उसके विविध आयामों से परिचित कराना इस पाठ्यक्रम मुख्य ध्येय है।</p> <p>पाठ्यक्रम के अध्ययन से-</p> <ol style="list-style-type: none"> 1. विद्यार्थी पत्रकारिता के तरंग आधारित नए स्वरूप वेब पत्रकारिता से परिचित होगा। 2. विद्यार्थी स्वतंत्र पत्रकारिता के विभिन्न पक्षों से परिचित होकर स्वयं का वेबसाइट/वेबपेज/ ब्लॉग बनाकर अपने विचारों व समाचारों को प्रभावी ढंग से प्रस्तुत करना सीखेगा। 3. विद्यार्थी यहाँ खुद संपादक और लेखक बनकर इस मंच पर अपनी उपस्थिति दर्ज करा सकता है और रोजगार के अवसर प्राप्त कर सकता है। 14. विद्यार्थी सीमित साधनों में ही देश-दुनिया के भिन्न- भिन्न समाचार समूहों से जुड़कर अपनी प्रतिभा से संचार जगत में अपनी पहचान बनाकर रोजगार पा सकेगा।
6	क्रेडिट मान	सैद्धान्तिक - 6
7	कुल अंक	अधिकतम अंक : 30+++70 न्यूनतम उत्तीर्ण अंक : 35

GROUP-B (DSE TH-2)

भाग ब – पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या- ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 3 घण्टे प्रति सप्ताह (L-T-P:3-0-0)		
कुल व्याख्यान : 90		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	पत्रकारिता : परिचय, विकास एवं उद्देश्य- 1. पत्रकारिता : स्वरूप, भारतीय प्राचीन परंपरा एवं क्रमिक विकास। 2. पत्रकारिता का उद्देश्य एवं उपादेयता (महत्व)। 3. पत्रकारिता के विविध रूप एवं क्षेत्र। 4. पत्रकारिता एवं जनसंचार। 5. वेब पत्रकारिता एवं इलेक्ट्रॉनिक मीडिया।	18
इकाई 2	वेब पत्रकारिता : परिचय, विविध रूप एवं प्रक्रिया- 1. वेब पत्रकारिता: अवधारणा, परिभाषा, संचार माध्यम के रूप में विकास 2. वेब पत्रकारिता के प्रमुख आयाम: वेब पेज, वेब पोर्टल व वेबसाइट, ब्लॉग एवं डिजिटल पत्र/पत्रिकाएँ। 3. वेब सामग्री संकलन, विषय वस्तु लेखन प्रक्रिया। 4. वेब समाचार निर्माण, संपादन, विषय वस्तु की साज-सज्जा(ले आउट)। 5. वेब पत्रकारिता की भाषा एवं प्रस्तुति।	18
इकाई 3	इंटरनेट मीडिया एवं वेब तकनीक- 1. इंटरनेट मीडिया एवं वेब तकनीक। 2. वेब पत्रकारिता एवं सोशल मीडिया। 3. वेबसाइट : परिचय एवं प्रमुख अंग। 4. वेब पेज : परिचय एवं प्रमुख अंग। 5. हिन्दी की प्रमुख वेबसाइट एवं वेब पेज।	18
इकाई 4	ब्लॉग, वेब पोर्टल एवं डिजिटल पत्र/पत्रिकाएँ- 1. ब्लॉग : परिचय, प्रमुख अंग एवं निर्माण की प्रक्रिया। 2. वेब पोर्टल : परिचय, प्रमुख अंग एवं निर्माण की प्रक्रिया।	18

	<p>3. डिजिटल पत्र/पत्रिकाएँ : परिचय एवं तकनीक।</p> <p>4. हिन्दी के प्रमुख ब्लॉग एवं वेब पोर्टल।</p> <p>5. हिन्दी की प्रमुख डिजिटल पत्र/पत्रिकाएँ।</p>	
इकाई 5	<p>वेब पत्रकारिता का भविष्य-</p> <p>1. न्यू मीडिया के रूप में वेब पत्रकारिता : उपयोगिता एवं महत्व।</p> <p>2. वेब पत्रकारिता का सामर्थ्य एवं चुनौतियाँ।</p> <p>3. वेब पत्रकारिता का विकास एवं संभावनाएँ।</p> <p>4. वेब पत्रकारिता का प्रबंधन।</p> <p>5. वेब पत्रकारिता : अभिव्यक्ति की सीमाएँ।</p>	18

सार बिंदु (की वर्ड) टैग - पत्रकारिता, वेब पत्रकारिता, वेब पेज, वेब पोर्टल, वेबसाइट, ब्लॉग, डिजिटल पत्रिकाएँ।

भाग स- अनुशंसित अध्ययन संसाधन

1 पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :

- 1 कुमार, सुरेश, इंटरनेट पत्रकारिता, तक्षशिला प्रकाशन, नई दिल्ली. सं-2004
- 2 जोशी, शालिनी एवं शिवप्रसाद, वेब पत्रकारिता : नया मीडिया नए रुझान, राधाकृष्ण प्रकाशन, दिल्ली. सं-2012
- 3 जोशी, शिवप्रसाद, इंटरनेट पत्रकारिता, राजकमल प्रकाशन, दिल्ली. सं-2010
- 4 पांडेय, डॉ. भगवान एवं मिथलेश कुमार, आधुनिक मीडिया प्रबंधन, तक्षशिला प्रकाशन, नई दिल्ली सं- 2009
- 5 माथुर, श्याम, वेब पत्रकारिता, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर सं-2010
- 6 मौर्य, रामप्रसाद, समाचार लेखन और वेब पत्रकारिता, राज पब्लिकेशन, नई दिल्ली. सं-2018
- 7 वाचस्पति, अविनाश एवं रवीन्द्र प्रभात, हिंदी ब्लोगिंग: अभिव्यक्ति की नई क्रांति, हिन्दी साहित्य निकेतन, बिजनौर, सं. 2011
- 8 वैदिक, डॉ. वेदप्रताप, हिन्दी पत्रकारिता विविध आयाम (भाग-1 व 2), हिन्दी बुक सेंटर, नई दिल्ली, सं. 2016
- 9 सिंह, अजय कुमार, इलेक्ट्रॉनिक पत्रकारिता, लोक भारती प्रकाशन, नई दिल्ली सं-2014
- 10 मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित पुस्तकें

अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र

1. <https://www.eshiksha.mp.gov.in/>
2. <https://nd.litkup.ac.in/>
3. <http://assets.vmou.ac.in/MJ-106.pdf>

4. <https://ncert.nic.in/textbook/pdf/kham103.pdf>
5. <https://hindivishwal.org/>
6. <https://www.webdunia.com/>
7. <https://webflow.com/>
8. https://www.youtube.com/results?search_query=%E0%A4%B5%E0%A5%87%E0%A4%AC+%EA4%AA%E0%A4%A4%E0%A5%8D%E0%A4%B0%E0%A4%95%E0%A4%BE%E0%A4%B00%E0%A4%BE%E0%A4%A4%E0%A4%BE
9. <http://highereducation.mp.gov.in/?page=xhzlQnipZwky1Qo2b%2Fy5G7w3E3D>
10. <http://highereducation.mp.gov.in/?page=XMBO2vbTXW8e4C5M%2BFSlqw/3D3D>

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30

मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. अति लघु प्रश्न अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70

कोई टिप्पणी/सुझाव

संत अलायसियस स्वशासी महाविद्यालय, जबलपुर (म.प्र.)

MINOR-TH

भाग अ- परिचय			
कार्यक्रम: स्नातक उपाधि (डिग्री) पाठ्यक्रम	कक्षा : बी.ए.	वर्ष: तृतीय वर्ष	सत्र: 2023-24
विषय: प्रयोजनमूलक हिंदी (Functional Hindi), प्रश्न पत्र : गौण (Minor)/वैकल्पिक (Elective)			
1	पाठ्यक्रम का कोड	A3-FHIN2T	
2	पाठ्यक्रम का शीर्षक	संभाषण कला (सैद्धांतिक)	
3	पाठ्यक्रम का प्रकार	गौण (Minor)/वैकल्पिक (Elective)	
4	पूर्वपक्षा (Prerequisite)	इस कोर्स का अध्ययन करने के लिए, छात्र ने प्रयोजनमूलक	

		हिन्दी विषय के साथ पत्रोपाधि (डिप्लोमा) अथवा समकक्ष परीक्षा उत्तीर्ण की हो।
5	पाठ्यक्रम अध्ययन की परिलब्धियां कोर्स लर्निंग आउटकम) (CLO)	<p>भाषा का उपयोग मनुष्य अपनी इच्छाओं, मनोभावनाओं को व्यक्त करने, विचारों के परस्पर आदान-प्रदान के लिए करता है। वार्तालाप में कम से कम दो व्यक्ति सम्मिलित होते हैं- वक्ता और श्रोता। वार्तालाप या संभाषण के द्वारा विचार-विनिमय करके ही परस्पर बौद्धिक आदान-प्रदान किया जा सकता है। प्रभावी वक्ता के लिए संभाषण कला में निपुण होना अत्यंत आवश्यक है। जीवन के विभिन्न क्षेत्रों में समुचित संवाद कौशल के अभाव में वांछित उपलब्धियां अर्जित नहीं हो पाती हैं। प्रश्नोत्तर जांच-पड़ताल, स्वागत-विदाई, शंका-समाधान, वाद-विवाद, प्रभावपूर्ण सम्बोधन, मंच संचालन आदि के लिए संभाषण की उचित तकनीक और संभाषण का पर्याप्त अभ्यास आवश्यक है। कर्णप्रिय और संतुलित भाषा में किए गए संभाषण के माध्यम से ही व्यक्ति का सामाजिककरण होता है। प्रभावी और संतुलित संभाषण व्यक्ति से समष्टि की ओर अग्रसर करता है। इस पाठ्यक्रम का प्रमुख उद्देश्य विद्यार्थी में वैयक्तिक, सामाजिक व व्यावसायिक व्यवहार में प्रभावी संवाद क्षमता विकसित करना है। इस अध्ययन से भाषा के आरोह-अवरोह, त्रुटिमुक्त उच्चारण के साथ विद्यार्थी में वाक् कला विकसित होगी, जिससे विद्यार्थी के लिए रोजगार के समुचित अवसर उपलब्ध होंगे।</p> <p>पाठ्यक्रम के अध्ययन से-</p> <ol style="list-style-type: none"> 1. विद्यार्थी को संभाषण कला के मूलभूत सिद्धांतों व भाषायी तकनीक का ज्ञान प्राप्त होगा जिससे वह निःसंकोच अपने विचारों को प्रभावी ढंग से प्रकट कर सकेगा। 2. विद्यार्थी संभाषण कला के विभिन्न रूपों से परिचित होगा जिससे वह एंकरिंग, कमेटी, अनाउंसमेंट आदि किसी भी विधा के कार्य में निष्णात होकर विभिन्न क्षेत्रों में रोजगार प्राप्त कर सकेगा। 3. विद्यार्थी संभाषण कला में निष्णात होकर रेडियो, एफ.एम. रेडियो, दूरदर्शन, टी.वी. चैनलों आदि जनसंचार के विभिन्न उपक्रमों में रोजगार पा सकेगा।

		4. राष्ट्रीय एवं अंतरराष्ट्रीय स्तर पर समूह-संवाद, वाद-विवाद एवं संभाषण में हिंदी भाषा की प्रभावी उपस्थिति दर्ज होगी ताकि विश्व में अग्रगण्य भाषा के रूप में हिंदी की स्थापना हो सके।
6	क्रेडिट मान	सैद्धान्तिक - 6
7	कुल अंक	अधिकतम अंक : 30++70 न्यूनतम उत्तीर्ण अंक : 35

MINOR-TH

भाग ब - पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या- ट्यूटोरियल -प्रायोगिक (प्रति सप्ताह घंटे में): 3 घण्टे प्रति सप्ताह (L-T-P:3-0-0)		
कुल व्याख्यान : 90		
पाठ्यक्रम		
इकाई	विषय (Topic)	व्याख्यान की संख्या
इकाई 1	संभाषण का अर्थ एवं परिभाषा संभाषण के विभिन्न रूप-वार्तालाप, व्याख्यान, वाद-विवाद, एकालाप, उद्घोषणा (अनाउन्समेंट), संचालन (एकरिंग)। आंखों देखा हाल (कमेन्ट्री) एवं उसकी महाभारतकालीन परंपरा । समाचार वाचन (रेडियो, टी.वी.), मंचीय वाचन (कविता, कहानी, व्यंग्य) आदि । अवाचिक अभिव्यक्ति, जन संबोधन । जनसम्पर्क में वाक् कला की उपयोगिता ।	18
इकाई 2	संभाषण कला के प्रमुख उपादान :- यथेष्ट भाषा ज्ञान, मानक उच्चारण, सटीक प्रस्तुति, अन्तराल ध्वनि (वॉल्यूम), वेग, लहजा (एक्सेण्ट) आदि ।	18
इकाई 3	उद्घोषणा (अनाउन्समेंट), आंखों देखा हाल (कमेन्ट्री), संचालन (एकरिंग) में संभाषण कौशल। समाचार वाचन (रेडियो, टी.वी.) में संभाषण कौशल । मंचीय वाचन (कविता, कहानी, व्यंग्य आदि) में संभाषण कौशल।	18
इकाई 4	व्याख्यान में संभाषण कौशल ।	

	वाद-विवाद प्रतियोगिता में संभाषण कौशल। समूह संवाद एवं परिचर्चा में संभाषण कौशल। संवादी-भाषा (कनवर्सेशनल लैंग्वेज) में संभाषण कौशल।	18
इकाई 5	लोक प्रशासन में संभाषण कौशल। जनसम्पर्क में संभाषण कौशल। वाणिज्य प्रबंधन में संभाषण कौशल। जन संबोधन में संभाषण कौशल।	18

सार बिंदु (की वर्ड) /टैग: संभाषण, उद्घोषणा, अनाउन्समेंट, आंखों देखा हाल, कमेन्ट्री संचालन एंकरिंग, वाक् कला, समाचार वाचन, मानक उच्चारण, संवादी-भाषा, वार्तालाप, मंच संचालन, कनवर्सेशनल लैंग्वेज

भाग स- अनुशंसित अध्ययन संसाधन

1 पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / अन्य / अन्य पाठ्य संसाधन / पाठ्य सामग्री :

- 1 उपाध्याय, देवनाथ "भाषण-संभाषण" किताब महल, इलाहाबाद, सं-1949
- 2 ब्रजमोहन "भाषा और व्यवहार" - वाणी प्रकाशन, दिल्ली. सं-2010
- 3 मेहता, डॉ. भानुशंकर "बोलने की कला", विश्वविद्यालय प्रकाशन, वाराणसी, सं-2011
- 4 शर्मा, महेश, भाषण कला", प्रभात प्रकाशन, दिल्ली, सं-2013
- 5 शर्मा, यज्ञदत्त, आदर्श भाषण कला,- आत्मराम एंड संस, कश्मीरी गेट, दिल्ली, सं-2015
- 6 मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित पुस्तकें..

अनुशंसित वेबसाइट एवं डिजिटल संपर्क-सूत्र

1. <https://www.eshiksha.mp.gov.in/> 2. www.ndl.iitkgp.ac.in (National Digital Library of India)

3. www.prasarbharti.gov.in

4. <http://egyankosh.ac.in/handle/123456789/65405> 5. <http://ignou.ac.in/cGyankosh>

6. <https://swayam.gov.in/explorer?category=Language>

7. <https://ugcmooocs.inflibnet.ac.in/> 8. www.mgahv.in

9. <http://highereducation.mp.gov.in/?page=xhzlQmpZwky1Qo2b%2FvSG7w%3D%3D> 10. <http://highereducation.mp.gov.in/?page=XMBO2vbTXW8e4CsM%2BFsIqw%3D%31>

अनुशंसित मूल्यांकन विधियां

अनुशंसित सतत मूल्यांकन विधियां

अधिकतम अंक- 100

सतत व्यापक मूल्यांकन- 30

मुख्य परीक्षा- 70

भाग द- अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियाँ

अधिकतम अंक 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30 मुख्य परीक्षा (ME) अंक: 70

आंतरिक मूल्यांकन सतत व्यापक मूल्यांकन (CCE)	क्लास टेस्ट असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक :30
आंकलन: मुख्य परीक्षा समय 03.00 घंटे	अनुभाग (अ):. अति लघु प्रश्न अनुभाग (ब):) लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक 70

कोई टिप्पणी/सुझाव



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

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College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS
UG
MANAGEMENT

BBA I Sem. Syllabus

Session 2023-24

GROUP-A

Program Certificate	Class BBA I Year	Year: 2023	Session : 2023-24
Subject : BUSINESS MANAGEMENT - MAJOR			
1	Course Code	M 1 – BBAIT (Group-I)	
2	Course Title	BBA	
3	Course Type (Core Course/ Elective/Generic Elective/ Vocational/.....)	(Core Course)	
4	Pre-requisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	<p>1. Student will be able to assess the global context for planning coordinating, and monitoring managerial behavior.</p> <p>2. Through various planning and decision-making techniques, students can learn about how businesses ensure to remain in a competitive market.</p> <p>3. Students will understand various forms of organizational structures and their importance.</p> <p>4. Students can learn about various strategies used by businesses to maintain and improve employee efficiency.</p> <p>5. Students will be able to understand how organizations use different leadership styles to stay competitive.</p>	
6	Credit Value	(Credit) 6	
7	Total Marks	Max. Marks; 40+60	Min. Passing Marks:33
Part B – Content of the Course			
Total No. of Lectures- Tutorials-Practical (in hours per week):3 Hours			
L-T-P:90			
Unit	Topics	No. of Lectures	
1	Management in Indian Culture and Tradition, Definition and		

	Meaning of Management, Functions and Responsibilities of Management, Role of manager, Principles of Management. School & Thoughts of Management.	18
2	Planning: Process, Types and Significance, Planning vs. Forecasting Objective, Strategies and Policies, MBO. Decision Making: Process & Significance, Planning for Start-ups	18
3	Organization: Nature and Purpose of organization. Importance and process of Organization. Departmentalization, Organizational structures: types and relevance, Line and Staff relationship.	18
4	Authority- Delegation, Decentralization - Difference between Authority and power- Responsibility, Recruitment- Sources, Selection, Training, Direction -Nature and Purpose.	18
5	Leadership: Meaning, Importance, Types of Leadership, Leadership Styles, Motivation: Types & significance, Maslow's Need Hierarchy, Theory X&Y of Motivation. An overview of Strategic Management, SWOT Analysis, Strategic Analysis, Alternative-Choice & Evaluation. Future Management-Challenges and Skills	18

Part C- Learning Resources

Text Books References Books Other resources

Suggested Readings

- Management-James A.F. Stoner, R. Edward Freeman-Pearson Prentice Hall-6th Edition
- Principles of Management- PC Tripathi & PN Reddy-TMH-5th Edition-2012.
- Koontz D and Welhrich: Management, International Student Edition, Tokyo 1980.
- .R.D. Agrawal: Organization & Management MC Graw Hill, New Delhi 1982.
- Newman and Warran: The Process of Management: Concepts, Behaviour and Practices, PHI.
- S. M. Shukla: Principles of Management, Sahitya Bhawan, Agra (UP) (Latest Edition)

(Hindi and English Medium).

- Dr. Rajeev Kumar Jhalani & Dr. Yogita Chandel, Principles of Management, Devi Ahilya Prakashan, Indore (Hindi Medium)

- Dr. C. M. Mehta, Business Organization, Ram Prasad and Sons, Bhopal. (Hindi Medium)

Suggested Web Links

https://www.dphu.org/uploads/attachments/books/books_5284_0.pdf

<https://education.stateuniversity.com/pages/ewlev9e9ib/An-Introduction-to-the-Principles-of-Management.htm>

Suggested equivalent online courses:

PROGRAM : certificate	Class: BBA I Year Year :2023	Session:2023-2024	
Subject : BUSINESS STATISTICS - MINOR			
1	Course Code : MI BBA		
2	Course title	BBA	
3	Course type (core course/ elective/generic elective /vocational)	(Core course)	
4	Prerequisite(if any)	Not required (open for all)	
5	Course learning out come (CLO)	1. To provide basic knowledge of statistics to students 2. To develop the ability to analyze and interpret data to provide meaningful information to assist in making management decisions 3. To describe data and make evidence based decisions using inferential statistics that are based on well reasoned statistical arguments.	
6	Credit Value	(Credit) 6	
7	Total Marks	Max Marks : 40+60	(Min. Passing marks :33
Part B -Content of the Course			
Total No of Lectures -Tutorials-Practical (in hours per week):3 Hours			
L-T-P:90			
UNIT	Topics	No of Lectures	
1	Meaning and Definition of Statistics, Steps in Statistical Investigations, Laws of Statistics, Scope of Statistics in Management and Industry , Limitations of Statistics	15	
2	Methods of Collection of Data- Primary and Secondary, Presentation of Data – Bar Diagram, Pie Chart and Histogram , Frequency Distribution- Inclusive and Exclusive series	17	
3	Measures of Central Tendencies: Mean, Median, Mode, Geometric Mean and Harmonic Mean	18	
4	Measures of Variation: Standard Deviation & Mean Deviation and Skewness – Karl Pearson’s Coefficient , Time Series Analysis -introduction to additive and multiplicative model	20	
5	Correlation & Regression Analysis - Karl Pearson’s Coefficient of Correlation ,Spearman’s Rank correlation (without ties), Regression - Lines of Regression, Index	20	

Numbers- Laspeyre's, Paasche's, Fisher's method

Text Books, Reference Books, Other Resources

- Fundamental of Statistics S.C.Gupta ,Himalaya Publications
- Basic Business Statistics: Concepts and Applications, Bereson and Levine, Pearson Education
- Business Statistics, N.D.Vohra, TATA Mcgraw Hill
- D.N.Elhance : Fundamental of Statistics ,Kitab Mahal ,Allahabad
- Gupta S P : Business Statistics ,Sultan Chand and Sons ,New Delhi
- Statistical Analysis, DrP.C.Tulsian ,Sultan Chand Publications ,Delhi
- Business Statistics, Dr S M Shukla and Sahani, Sathiya Bhawan Publications, Agra
- Business Statistics, R.S.Bharadwaj ,Excel Books
- STATISTICS FOR BUSINESS AND ECONOMICS,Anderson,Sweeney,Williams ,Camm,Cocharan,Cengage
- Stine, R. and Foster. (2014).Statistics for Business (Decision making and Analysis),Pearson.

Suggested weblinks :

http://cs.ioc.ee/ITKStats/files/1_intro.pdf

Part A Introduction			
Program: Certificate		Class': BBA I Year	Year:2023-2024
Subject: BUSINESS MATHEMATICS - ELECTIVE			
1	Course Code	MI -BBAC2T (Group-III)	
2	Course Title	BBA	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	(Core Course)	
4	Pre-requisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	Students will learn to prepare and calculate Invoice, Ratio, Simultaneous equation in two or three variables, Matrices, Logarithm, formulate word problems in order to solve the problems using various methods, Commission, Discount, and Brokerage, Profit and Loss, and then interpret and clearly convey the results in real-world scenarios.	
6	Credit Value	(Credit) 6	
7	Total Marks	Max. Marks:40+60	Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week):3			
Hours L-T-P: 90			
Unit	Topics	No. of Lectures	
1	Ratio - Gaining and Sacrificing Ratio, Proportion,Percentage, Averages — Simple and Weighted Averages.	15	
2	Simultaneous Equations — Meaning, Characteristics, Types and Calculations, Preparation of Invoice.	18	
3	Determinants and Matrices, Matrix- Definition, Types, Basic Operations on Matrices, Transpose of Matrix, Determinants- Minors and Co factor, Adjoint and Inverse of Matrix.	20	
4	Practical approach and application of Vedic Maths. Logarithms and Antilogarithms — Principles and Calculations. Simple and Compound Interest.	20	
5	Commission, Discount, Brokerage and Profit and Loss	17	

Keywords/Tags:

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

- Spooner H.A. and D.A.L Wilson, The essence of Mathematics for Business, Prentice Hall of India Private Limited, New Delhi latest edition
- S.M. Shukla: Business Mathematics, Sahitya Bhawan, Agra latest edition (Hindi and English Medium)
- V. Sundaresan and S.B. Jeysoelan: An Introduction to Business Mathematics, S.Chand&Co_Pvt. Ltd, New Delhi Latest edition
- M. Raghavanchari: Mathematics for Management, An Introduction Tata McGraw Hill Publishing company Ltd. New Delhi latest edition
- Dr. J P Mishra, Business Mathematics, Sahitya Bhawan, Agra (Hindi Medium)
- Dr. Alok Kumar, Vedic Mathematics, Upkar Prakashan, Agra, U.P. (Hindi Medium).

Suggested web links:

Suggested equivalent online courses:

BBA I Sem. Syllabus

Session 2023-24

GROUP-B

Part A Introduction			
Program: Certificate		Class': BBA I Year	Year:2023-2024
Subject: MICRO ECONOMICS - MAJOR			
1	Course Code	MI-BBAB1T	
2	Course Title	BBA	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	(Core Course)	
4	Prerequisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	L Students will understand the importance of basic principles of micro economics. 2. Students will be able to understand the basics of demand-supply rules and elasticity. They will also learn how to implement it. 3. Utility, utility analysis and market surplus, students will be able to understand. 4. Students will be able to understand production principles, classify costs and incomes. 5. Students will be able to understand the comparison of different market systems. 6. Students will be able to understand how national income is calculated.	
6	Credit Value		
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks:33
Part B- Content of the Course			
Total No. of Lectures-Tutorials-Practical (in hours per week):3 Hours L-T-P: 90			
Unit	Topics	No. of Lectures	

1	Introduction to economics, Definitions of economics, Nature and Scope of Economics, Significance and Evolution of Micro Economics, Functions of Managerial Economics.	10
2	Concept of Law of Demand, Law of Supply, Concept of Market Equilibrium, Elasticity of Demand, Demand Determinants.	15
3	Utility Analysis, Marginal Concept of Utility, <i>Law of Diminishing Marginal Utility</i> , Indifference Curve Analysis: Assumptions, Properties of Indifference curve, Theories of Consumer Surplus.	20
4	Elements of Cost, Factors of Production, Average Cost, Marginal Cost, Total Cost, Modern Theory of Rent, Modern Theory of Interest, Modern Theories of Profit, Modern Theory of Wage.	20
5	National Income: Estimates and Analysis (GNP, NNP, GDP, HDI), Methods of Measurement of National Income, Types of Market Structure, Perfect v/s Imperfect Market, Trade Cycles.	25

Keywords/Tags:

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

- Maddala & Miller, Microeconomics Theory and Applications, 13th Reprint 2017
 - Sinha V. C., Principles of Economics, Sahitya Bhawan Publication, Agra
 - Adhikary, M., Business Economics, Excel Books, New Delhi.
 - Chopra, N. P, Managerial Economics, New Delhi, TMH, 1985.
 - Koutsoyiannis, A., Modern Micro Economics, Mac Milian, New York
 - Jhingan, M. L. Micro Economics
 - Dr. J C Pant & Dr. J P Mishra, Micro Economics, Sahitya Bhawan, Agra (Hindi Medium)
 - Dr. C.M. Mehta, Micro Economics, Ram Prasad & Sons, Bhopal
- (Hindi Medium) Suggested web links:

Suggested equivalent online courses:

<u>Part A – Introduction</u>			
Program: Certificate	Class BBA I Year	Year: 2023	Session : 2023-24
Subject: Communication Skills - MINOR			
Course Code	M1-BBAA2T(Group-I)		
Course Title	BBA		
Course Type	Core Course		
Pre-requisite (if any)	Not required (open for all)		
Course Learning Outcome	Learners will be able: <ol style="list-style-type: none"> 1. To recall the types, channels and elements of communication and use them in managing organizational effectiveness. 2. To learn and practice verbal and non-verbal communication. 3. To equip themselves with the knowledge of business correspondence and use it in their work. 4. To engage effectively in discussions, interviews and conferences. 5. To recall and write reports effectively and other business documents. 		
Credit Value	(Credits) 6		
Total Marks	Max Marks : 40+60	Min Passing Marks: 33	
Part - B Content of the Course			
Total No. of Lectures- Tutorials- Practical (in hours per week):			
L-T-P: 90			
UNITS	TOPICS	No. of Lectures	
1	Historical Background of Communication , Definition and process of communication. Essential of effective communication, Barriers to communication, Role of communication in organizational Effectiveness.	18	
2	Public Speech –Composition, Principles, Speech Delivering skills. Group Discussion: Do's and Dont's, Communication in Committees, Seminars, Conferences, Symposia and Press Conference , Audience Analysis.	18	

3	Non- Verbal Communication: Meaning, Types and Importance. Listening, Difference between Listening and Hearing.	18
4	Business Correspondence, Essentials of effective Business Correspondence, Structure of Business Letter, Types of Business Letter- Enquiry, Reply, Orders, Complaints, Circular Letter. Principles of clear business writing.	18
5	Drafting of Notices, Agenda, Minutes, Job Application Letters, Preparation of Curriculum Vitae.	18

Part C- Learning Resources

Text Books, Reference Books and Other Resources

Suggested Reading:

Business Communication Concepts & Skills, T. N. Chhabra, Sun India Publishers.

Business Communication by Shashi k Gupta.

Business Communication, R K Madhukar, Vikas Publication

Business Communication, K. K. Ramachandran, Himalaya Publishing House.

Business Communication, Dr. S M Shukla, Shaitya Bhawan Publication

Essential of Business Communication, sixth Edition, Mary Ellen Guffey, South –Western College Publishing.

Ace of Soft Skills Attitude Communication and Etiquette for Success by Gopalaswamy Ramesh, Pearson India.

Rao N. & Das R. P. Communication Skills, Himalaya Publishing House.

Mehta D. & Mehta N.K., A Handbook of Communication Skills Practices, Radha Pub., New Delhi.

Sinha K K., Business Communication, Galgotia Publishing House, New Delhi

Murphy A. & Peck Charles E., Effective Business Communication, Tata Mcgraw Hill, New Delhi.

Suggested web links:

[http://books.google.co.in/books/about/effective Business Communication.html?id=Dzo1joiJVoiC](http://books.google.co.in/books/about/effective_Business_Communication.html?id=Dzo1joiJVoiC)

Suggested Equivalent Online Course:

Part A Introduction

Program: Certificate		Class': BBA I Year	Year:2023	Session:2023-2024
Subject: BUSINESS MATHEMATICS - ELECTIVE				
1	Course Code	MI -BBAC2T (Group-III)		
2	Course Title			
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	(Core Course)		
4	Pre-requisite (if any)	Not Required (Open for All)		
5	Course Learning outcomes (CLO)	Students will learn to prepare and calculate Invoice, Ratio, Simultaneous equation in two or three variables, Matrices, Logarithm, formulate word problems in order to solve the problems using various methods, Commission, Discount, and Brokerage, Profit and Loss, and then interpret and clearly convey the results in real-world scenarios.		
6	Credit Value			
7	Total Marks	Max. Marks:40+60	Min. Passing Marks: 33	
Part Content of the course				
Total No. of Lectures-Tutorials-Practical (in hours per week):3				
Hours L-T-P: 90				
Unit	Topics	No. of Lectures		
1	Ratio - Gaining and Sacrificing Ratio, Proportion,Percentage, Averages — Simple and Weighted Averages.	15		
2	Simultaneous Equations — Meaning, Characteristics, Types and Calculations, Preparation of Invoice.	18		
3	Determinants and Matrices, Matrix- Definition. Types, Basic Operations on Matrices, Transpose of Matrix. Determinants- Minors and Co factor. Adjoint and Inverse of Matrix.	20		

4	Practical approach and application of Vedic Maths. Logarithms and Antilogarithms — Principles and Calculations. Simple and Compound Interest.	20
5	Commission, Discount, Brokerage and Profit and Loss	17
Keywords/Tags:		
Part C-Learning Resources		
Text Books, Reference Books, Other resources		
Suggested Readings:		
<ul style="list-style-type: none"> ● Spooner H.A. and D.A.L Wilson, The essence of Mathematics for Business, Prentice Hall of India Private Limited, New Delhi latest edition ● S.M. Shukla: Business Mathematics, Sahitya Bhawan, Agra latest edition (Hindi and English Medium) ● V. Sundaresan and S.B. Jeysoelan: An Introduction to Business Mathematics, S.Chand&Co_Pvt. Ltd, New Delhi Latest edition ● M. Raghavanchari: Mathematics for Management, An Introduction Tata McGraw Hill Publishing company Ltd, New Delhi latest edition ● Dr. J P Mishra, Business Mathematics, Sahitya Bhawan, Agra (Hindi Medium) ● Dr. Alok Kumar, Vedic Mathematics, Upkar Prakashan, Agra, U.P. (Hindi Medium). 		
Suggested web links:		
Suggested equivalent online courses:		

BBA I Sem. Syllabus

Session 2023-24

GROUP-C

Part A Introduction				
Program : Certificate		Class: BBA I	Year : 2023	Session 2023-2024
Subject: FINANCIAL ACCOUNTING - MAJOR				
1	Course Code	M 1- BBAC1T (Group-III)		
2	Course Title	BBA		
3	Course Type (Core Course/ Elective/ Generic Elective/ Vocational/...)	(Core Course)		
4	Pre - requisite	Not Required (Open for All)		
5	Course Learning Outcomes (CLO)	<ol style="list-style-type: none">1. Students will be able to understand the basics of book- keeping and accounting.2. Students will be able to know about accounting software.3. Students will be able to do the accounting work of the business unit.4. They will be in a position to understand and technically use bank reconciliation, branch accounts and departments accounts.5. Students will understand the concept of Royalty accounting and Hire- Purchase accounting and learn what accounting remedies relate to them and where it can be used.		
6	Credit Value	(Credit) 6		
7	Total Marks	Max. Marks: 40+60	Min.passing Marks:33	
Part B – Content of the Course				
Total No. of Lectures – Tutorials – Practical (in hours per week) : 3 hours				

L-T-P :90

Unit	Topics	No. of Lectures
1	Accounting and its place in business and relationship with other financial areas, double Entry System, Book Keeping – Meaning, Advantages, Concepts and convention, Difference between Financial Accounting, Cost Accounting , and Management Accounting.	10
2	Types of books of accounts and their preparation Journal ,Ledger , Trial Balance and Depreciation Computerized Accounting software (cloud books, wave and Tally)	20
3	Preparation of Final Accounts: Trading Account, Profit and Loss Account, Balance Sheet Preparation of EMI Chart	20
4	Bank Reconciliation Statement, Branch Accounts(excluding stock and debtors method) and Department Accounts(excluding closing stock reserve calculation)	20
5	Royalty Accounts, Hire Purchase Accounts- Accounting records in the books of Purchase and vendor,	20

Keywords / Tags:

Part C – Learning Resources

Text Books, Reference Books, Other resource

Suggested Readings:

- Mukherjee & Hanif, Financial Accounting, Tata Mc Graw Hills , New Delhi
- Shukla & Grewal, Financial Accounting , S Chand Publication 2019 , New Delhi
- J R Batliboi , Double Entry book keeping System: A complete treatise on the fundamentals of Accounting written specifically for Indian Studies and Businessmen, Standard Accountancy Publication, 1987.29th edition , Mumbai
- Gupta, R L Advanced Accounting, Sultan Chand & Sons , New Delhi
- S.M Shukla , Financial Accounting , Sahitya Bhavan Publication , Agra Latest Publication(Hindi and English Medium)
- Accounting Principles , Anthony R N , and Reece , J S 6th ed, Homewood Richard D Irwin Publication , Illinios Us

Suggested Web links:

http://books.google.co.in/books/about/Financial_accounting.html?id=g7W0ZELBRy8C&redir_esc=y

<http://Corporatefinanceinstitute.com/resources/knowledge/accounting/trial-balance>

<http://www.accountingtools.com/articles/the-four-basic-financial-statement.html>

Suggested equivalent online courses:

<u>Part A – Introduction</u>			
Program: Certificate	Class BBA I Year	Year: 2023	Session : 2023-24
Subject: Communication Skills - MINOR			
Course Code	M1-BBAA2T(Group-I)		
Course Title	BBA		
Course Type	Core Course		
Pre-requisite (if any)	Not required (open for all)		
Course Learning Outcome	Learners will be able: <ol style="list-style-type: none"> 1. To recall the types, channels and elements of communication and use them in managing organizational effectiveness. 2. To learn and practice verbal and non-verbal communication. 3. To equip themselves with the knowledge of business correspondence and use it in their work. 4. To engage effectively in discussions, interviews and conferences. 5. To recall and write reports effectively and other business documents. 		
Credit Value	(Credits) 6		
Total Marks	Max Marks : 40+60	Min Passing Marks: 33	
Part - B Content of the Course			
Total No. of Lectures- Tutorials- Practical (in hours per week):			
L-T-P: 90			
UNITS	TOPICS	No. of Lectures	
1	Historical Background of Communication, Definition and process of communication. Essential of effective communication, Barriers to communication, Role of communication in organizational Effectiveness.	18	
2	Public Speech –Composition, Principles, Speech Delivering skills. Group Discussion: Do's and Dont's, Communication in Committees, Seminars, Conferences, Symposia and Press Conference. Audience Analysis.	18	

3	Non- Verbal Communication: Meaning, Types and Importance. Listening, Difference between Listening and Hearing,	18
4	Business Correspondence, Essentials of effective Business Correspondence, Structure of Business Letter, Types of Business Letter- Enquiry, Reply, Orders, Complaints, Circular Letter. Principles of clear business writing,	18
5	Drafting of Notices, Agenda, Minutes, Job Application Letters, Preparation of Curriculum Vitae.	18

Part C- Learning Resources

Text Books, Reference Books and Other Resources

Suggested Reading:

Business Communication Concepts & Skills, T. N. Chhabra, Sun India Publishers.

Business Communication by Shashi k Gupta.

Business Communication, R K Madhukar, Vikas Publication

Business Communication, K. K. Ramachandran, Himalaya Publishing House.

Business Communication, Dr. S M Shukla, Shaitya Bhawan Publication

Essential of Business Communication, sixth Edition, Mary Ellen Guffey, South –Western College Publishing.

Ace of Soft Skills Attitude Communication and Etiquette for Success by Gopalaswamy Ramesh, Pearson India.

Rao N. & Das R. P. Communication Skills, Himalaya Publishing House.

Mehta D. & Mehta N.K., A Handbook of Communication Skills Practices, Radha Pub., New Delhi.

Sinha K K., Business Communication, Galgotia Publishing House, New Delhi

Murphy A. & Peck Charles E., Effective Business Communication, Tata Mcgraw Hill, New Delhi.

Suggested web links:

[http://books.google.co.in/books/about/effective Business Communication.html?id=Dzo1joiJV0IC](http://books.google.co.in/books/about/effective+Business+Communication.html?id=Dzo1joiJV0IC)

Suggested Equivalent Online Course:

PART A INTRODUCTION			
PROGRAM : certificate	Class: BBA I Year	Year : 2023	Session: 2023-2024
Subject : BUSINESS STATISTICS-ELECTIVE			
1	Course Code : MI BBA		
2	Course title	BBA	
3	Course type (core course/ elective/generic elective /vocational)	(Core course)	
4	Prerequisite(if any)	Not required (open for all)	
5	Course learning out come (CLO)	1. To provide basic knowledge of statistics to students 2. To develop the ability to analyze and interpret data to provide meaningful information to assist in making management decisions 3. To describe data and make evidence based decisions using inferential statistics that are based on well reasoned statistical arguments.	
6	Credit Value	(Credit) 6	
7	Total Marks	Max. Marks : 40+60	(Min. Passing marks :33
Part B -Content of the Course			
Total No of Lectures -Tutorials-Practical (in hours per week):3 Hours			
L-T-P:90			
UNIT	Topics	No of Lectures	
1	Meaning and Definition of Statistics, Steps in Statistical Investigations, Laws of Statistics, Scope of Statistics in Management and Industry , Limitations of Statistics	15	
2	Methods of Collection of Data- Primary and Secondary, Presentation of Data – Bar Diagram, Pie Chart and Histogram , Frequency Distribution- Inclusive and Exclusive series	17	
3	Measures of Central Tendencies: Mean, Median, Mode, Geometric Mean and Harmonic Mean	18	
4	Measures of Variation: Standard Deviation & Mean Deviation and Skewness – Karl Pearson’s Coefficient ,Time Series Analysis - introduction to additive and multiplicative model	20	
5	Correlation & Regression Analysis - Karl Pearson’s Coefficient of Correlation ,Spearman’s Rank correlation	20	

(without ties), Regression - Lines of Regression, Index Numbers- Laspeyre's, Paasche's, Fisher's method	
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Text Books, Reference Books, Other Resources

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| <ul style="list-style-type: none">● Fundamental of Statistics S.C.Gupta ,Himalaya Publications● Basic Business Statistics: Concepts and Applications, Bereson and Levine, Pearson Education● Business Statistics, N.D.Vohra, TATA Mcgraw Hill● D.N.Elhance : Fundamental of Statistics ,Kitab Mahal ,Allahabad● Gupta S P : Business Statistics ,Sultan Chand and Sons ,New Delhi● Statistical Analysis, DrP.C.Tulsian ,Sultan Chand Publications ,Delhi● Business Statistics, Dr S M Shukla and Sahani, Sathiya Bhawan Publications, Agra● Business Statistics, R.S.Bharadwaj ,Excel Books● STATISTICS FOR BUSINESS AND ECONOMICS,Anderson,Sweeney,Williams ,Camm,Cocharan,Cengage● Stine, R. and Foster. (2014).Statistics for Business (Decision making and Analysis),Pearson. |
|--|

Suggested weblinks :

http://cs.ioc.ee/ITKStats/files/1_intro.pdf

BBA II Sem. Syllabus

Session 2023-24

GROUP-A

<u>Part A – Introduction</u>			
Program: Certificate	Class BBA I Year	Year: 2023	Session : 2023-24
Subject: Communication Skills - MAJOR			
Course Code	M1-BBAA2T(Group-I)		
Course Title	BBA		
Course Type	Core Course		
Pre-requisite (if any)	Not required (open for all)		
Course Learning Outcome	Learners will be able: <ol style="list-style-type: none">1. To recall the types, channels and elements of communication and use them in managing organizational effectiveness.2. To learn and practice verbal and non-verbal communication.3. To equip themselves with the knowledge of business correspondence and use it in their work.4. To engage effectively in discussions, interviews and conferences.5. To recall and write reports effectively and other business documents.		
Credit Value	(Credits) 6		
Total Marks	Max Marks : 40+60	Min Passing Marks: 33	
Part - B Content of the Course			
Total No. of Lectures- Tutorials- Practical (in hours per week):			
L-T-P: 90			
UNITS	TOPICS	No. of Lectures	
1	Historical Background of Communication, Definition and process of communication. Essential of effective communication, Barriers to communication, Role of communication in organizational Effectiveness.	18	

2	Public Speech –Composition, Principles, Speech Delivering skills. Group Discussion: Do's and Dont's, Communication in Committees, Seminars, Conferences, Symposia and Press Conference. Audience Analysis.	18
3	Non- Verbal Communication: Meaning, Types and Importance. Listening, Difference between Listening and Hearing,	18
4	Business Correspondence, Essentials of effective Business Correspondence, Structure of Business Letter, Types of Business Letter- Enquiry, Reply, Orders, Complaints, Circular Letter. Principles of clear business writing,	18
5	Drafting of Notices, Agenda, Minutes, Job Application Letters, Preparation of Curriculum Vitae.	18

Part C- Learning Resources

Text Books, Reference Books and Other Resources

Suggested Reading:

Business Communication Concepts & Skills, T. N. Chhabra, Sun India Publishers.

Business Communication by Shashi k Gupta.

Business Communication, R K Madhukar, Vikas Publication

Business Communication, K. K. Ramachandran, Himalaya Publishing House.

Business Communication, Dr. S M Shukla, Shaitya Bhawan Publication

Essential of Business Communication, sixth Edition, Mary Ellen Guffey, South –Western College Publishing.

Ace of Soft Skills Attitude Communication and Etiquette for Success by Gopalaswamy Ramesh, Pearson India.

Rao N. & Das R. P. Communication Skills, Himalaya Publishing House.

Mehta D. & Mehta N.K., A Handbook of Communication Skills Practices, Radha Pub., New Delhi.

Sinha K K., Business Communication, Galgotia Publishing House, New Delhi

Murphy A. & Peck Charles E., Effective Business Communication, Tata Mcgraw Hill, New Delhi.

Suggested web links:

[http://books.google.co.in/books/about/effective Business Communication.html?id=Dzo1joiJVoIC](http://books.google.co.in/books/about/effective+Business+Communication.html?id=Dzo1joiJVoIC)

Suggested Equivalent Online Course:

Part A Introduction			
Program: Certificate		Class': BBA I Year	Year:2023-2024
Subject: MICRO ECONOMICS - MINOR			
1	Course Code	MI-BBABIT	
2	Course Title	BBA	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	(Core Course)	
4	Prerequisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	<p>L Students will understand the importance of basic principles of micro economics.</p> <p>2. Students will be able to understand the basics of demand-supply rules and elasticity. They will also learn how to implement it.</p> <p>3. Utility, utility analysis and market surplus, students will be able to understand.</p> <p>4. Students will be able to understand production principles, classify costs and incomes.</p> <p>5. Students will be able to understand the comparison of different market systems.</p> <p>6. Students will be able to understand how national income is calculated.</p>	
6	Credit Value		
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks:33
Part B- Content of the Course			
Total No. of Lectures-Tutorials-Practical (in hours per week):3 Hours L-T-P: 90			
Unit	Topics	No. of Lectures	
1	Introduction to economics, Definitions of economics, Nature and Scope of Economics, Significance and Evolution of Micro Economics, Functions of Managerial Economics.	10	
2	Concept of Law of Demand, Law of Supply, Concept of Market Equilibrium, Elasticity of Demand, Demand Determinants.	15	

3	Utility Analysis, Marginal Concept of Utility, <i>Law of Diminishing Marginal Utility</i> , Indifference Curve Analysis: Assumptions, Properties of Indifference curve, Theories of Consumer Surplus.	20
4	Elements of Cost, Factors of Production, Average Cost, Marginal Cost, <i>Total Cost</i> , <i>Modern Theory of Rent</i> , <i>Modern Theory of Interest</i> , <i>Modern Theories of Profit</i> , <i>Modern Theory of Wage</i> .	20
5	National Income: Estimates and Analysis (GNP, NNP, GDP, HDI), Methods of Measurement of National Income, Types of Market Structure, Perfect v/s Imperfect Market, Trade Cycles.	25

Keywords/Tags:

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

- Maddala & Miller, *Microeconomics Theory and Applications*, 13th Reprint 2017
- Sinha V. C., *Principles of Economics*, Sahitya Bhawan Publication, Agra
- Adhikary, M., *Business Economics*, Excel Books, New Delhi.
- Chopra, N. P, *Managerial Economics*, New Delhi, TMH, 1985.
- Koutsoyiannis, A., *Modern Micro Economics*, Mac Milian, New York
- Jhingan, M. L. *Micro Economics*
- Dr. J C Pant & Dr. J P Mishra, *Micro Economics*, Sahitya Bhawan, Agra (Hindi Medium)
- Dr. C.M. Mehta, *Micro Economics*, Ram Prasad & Sons, Bhopal (Hindi Medium)

Suggested web links:

Suggested equivalent online courses:

Program : Certificate		Class: BBA I Year	Year : 2023	Session 2023- 2024
Subject: FINANCIAL ACCOUNTING - ELECTIVE				
1	Course Code	M 1- BBAC1T (Group-III)		
2	Course Title	BBA		
3	Course Type (Core Course/ Elective/ Generic Elective/ Vocational/...)	(Core Course)		
4	Pre - requisite	Not Required (Open for All)		
5	Course Learning Outcomes (CLO)	<p>1. Students will be able to understand the basics of book- keeping and accounting.</p> <p>2. Students will be able to know about accounting software.</p> <p>3. Students will be able to do the accounting work of the business unit.</p> <p>4. They will be in a position to understand and technically use bank reconciliation, branch accounts and departments accounts.</p> <p>5. Students will understand the concept of Royalty accounting and Hire- Purchase accounting and learn what accounting remedies relate to them and where it can be used.</p>		
6	Credit Value	(Credit) 6		
7	Total Marks	Max. Marks: 40+60	Min.passing Marks:33	
Part B – Content of the Course				
Total No. of Lectures – Tutorials – Practical (in hours per week) : 3 hours				
L-T-P :90				
Unit	Topics		No. of Lectures	

1	Accounting and its place in business and relationship with other financial areas, double Entry System, Book Keeping – Meaning, Advantages, Concepts and convention, Difference between Financial Accounting, Cost Accounting , and Management Accounting.	10
2	Types of books of accounts and their preparation ,Journal ,Ledger , Trial Balance and Depreciation , Computerized Accounting software (cloud books, wave and Tally)	20
3	Preparation of Final Accounts: Trading Account, Profit and Loss Account, Balance Sheet Preparation of EMI Chart	20
4	Bank Reconciliation Statement, Branch Accounts(excluding stock and debtors method) and Department Accounts(excluding closing stock reserve calculation)	20
5	Royalty Accounts, Hire Purchase Accounts- Accounting records in the books of Purchase and vendor,	20

Keywords / Tags:

Part C – Learning Resources

Text Books, Reference Books, Other resource

Suggested Readings:

- Mukherjee & Hanif, Financial Accounting, Tata Mc Graw Hills , New Delhi
- Shukla & Grewal, Financial Accounting , S Chand Publication 2019 , New Delhi
- J R Batliboi , Double Entry book keeping System: A complete treatise on the fundamentals of Accounting written specifically for Indian Studies and Businessmen, Standard Accountancy Publication, 1987.29th edition , Mumbai
- Gupta, R L Advanced Accounting, Sultan Chand & Sons , New Delhi
- S.M Shukla , Financial Accounting , Sahitya Bhavan Publication , Agra Latest Publication(Hindi and English Medium)
- Accounting Principles , Anthony R N , and Reece , J S 6th ed, Homewood Richard D Irwin Publication , Illinios Us

Suggested Web links:

http://books.google.co.in/books/about/Financial_accounting.html?id=g7W0ZELBRy8C&redir_esc=y

[http:// Corporatefinanceinstitute.com/resources/knowledge/accounting/trial-balance](http://Corporatefinanceinstitute.com/resources/knowledge/accounting/trial-balance)

<http://www.accountingtools.com/articles/the-four-basic-financial-statement.html>

Suggested equivalent online courses:

BBA II Sem. Syllabus

Session 2023-24

GROUP-B

PART A INTRODUCTION			
PROGRAM : certificate	Class: BBA I Year	Year : 2023	Session: 2023-2024
Subject : BUSINESS STATISTICS-MAJOR			
1	Course Code : MI BBA		
2	Course title	BBA	
3	Course type (core course/ elective/generic elective /vocational)	(Core course)	
4	Prerequisite(if any)	Not required (open for all)	
5	Course learning out come (CLO)	1. To provide basic knowledge of statistics to students 2. To develop the ability to analyze and interpret data to provide meaningful information to assist in making management decisions 3. To describe data and make evidence based decisions using inferential statistics that are based on well reasoned statistical arguments.	
6	Credit Value	(Credit) 6	
7	Total Marks	Max .Marks : 40+60	(Min. Passing marks :33
Part B -Content of the Course			
Total No of Lectures -Tutorials-Practical (in hours per week):3 Hours L-T-P:90			
UNIT	Topics	No of Lectures	
1	Meaning and Definition of Statistics, Steps in Statistical Investigations, Laws of Statistics, Scope of Statistics in Management and Industry, Limitations of Statistics	15	
2	Methods of Collection of Data- Primary and Secondary, Presentation of Data – Bar Diagram, Pie Chart and Histogram , Frequency Distribution- Inclusive and Exclusive series	17	
3	Measures of Central Tendencies: Mean, Median, Mode,	18	

	Geometric Mean and Harmonic Mean	
4	Measures of Variation: Standard Deviation & Mean Deviation and Skewness – Karl Pearson's Coefficient ,Time Series Analysis - introduction to additive and multiplicative model	20
5	Correlation & Regression Analysis - Karl Pearson's Coefficient of Correlation ,Spearman's Rank correlation (without ties), Regression - Lines of Regression, Index Numbers- Laspeyre's, Paasche's, Fisher's method	20
Text Books,Reference Books,Other Resources		

- Fundamental of Statistics S.C.Gupta ,Himalaya Publications
- Basic Business Statistics: Concepts and Applications, Bereson and Levine, Pearson Education
- Business Statistics, N.D.Vohra, TATA Mcgraw Hill
- D.N.Elhance : Fundamental of Statistics ,Kitab Mahal ,Allahabad
- Gupta S P : Business Statistics ,Sultan Chand and Sons ,New Delhi
- Statistical Analysis, DrP.C.Tulsian ,Sultan Chand Publications ,Delhi
- Business Statistics, Dr S M Shukla and Sahani, Sathiya Bhawan Publications, Agra
- Business Statistics, R.S.Bharadwaj ,Excel Books
- STATISTICS FOR BUSINESS AND ECONOMICS,Anderson,Sweeney,Williams ,Camm,Cocharan,Cengage
- Stine, R. and Foster. (2014).Statistics for Business (Decision making and Analysis),Pearson.

Suggested weblinks :

http://cs.ioc.ee/ITKStats/files/1_intro.pdf

Program Certificate	Class BBA I Year	Year: 2023	Session : 2023-24
Subject : BUSINESS MANAGEMENT - MINOR			
1	Course Code	M 1 – BBA1T (Group-I)	
2	Course Title	BBA	
3	Course Type (Core Course/ Elective/Generic Elective/ Vocational/.....)	(Core Course)	
4	Pre-requisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	<p>1. Student will be able to assess the global context for planning coordinating, and monitoring managerial behavior.</p> <p>2. Through various planning and decision-making techniques, students can learn about how businesses ensure to remain in a competitive market.</p> <p>3. Students will understand various forms of organizational structures and their importance.</p> <p>4. Students can learn about various strategies used by businesses to maintain and improve employee efficiency.</p> <p>5. Students will be able to understand how organizations use different leadership styles to stay competitive.</p>	
6	Credit Value	(Credit) 6	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks:33
Part B – Content of the Course			
Total No. of Lectures- Tutorials-Practical (in hours per week):3 Hours			
L-T-P:90			
Unit	Topics	No. of Lectures	
1	Management in Indian Culture and Tradition, Definition and Meaning of Management, Functions and Responsibilities of Management, Role of manager, Principles of Management. School & Thoughts of Management.	18	

2	Planning: Process, Types and Significance, Planning vs. Forecasting Objective, Strategies and Policies, MBO. Decision Making: Process & Significance, Planning for Start-ups	18
3	Organization: Nature and Purpose of organization. Importance and process of Organization. Departmentalization, Organizational structures: types and relevance, Line and Staff relationship.	18
4	Authority- Delegation, Decentralization - Difference between Authority and power- Responsibility, Recruitment- Sources, Selection, Training, Direction -Nature and Purpose.	18
5	Leadership: Meaning, Importance, Types of Leadership, Leadership Styles, Motivation: Types & significance, Maslow's Need Hierarchy, Theory X&Y of Motivation. An overview of Strategic Management, SWOT Analysis, Strategic Analysis, Alternative-Choice & Evaluation. Future Management-Challenges and Skills	18

Part C- Learning Resources

Text Books References Books Other resources

Suggested Readings

- Management-James A.F. Stoner, R. Edward Freeman-Pearson Prentice Hall-6th Edition
- Principles of Management- PC Tripathi & PN Reddy-TMH-5th Edition-2012.
- Koontz D and Welhrich: Management, International Student Edition, Tokyo 1980.
- .R.D. Agrawal: Organization & Management MC Graw Hill, New Delhi 1982.
- Newman and Warran: The Process of Management: Concepts, Behaviour and Practices, PHI.
- S. M. Shukla: Principles of Management, Sahitya Bhawan, Agra (UP) (Latest Edition (Hindi and English Medium).
- Dr. Rajeev Kumar Jhalani &Dr. Yogita Chandel, Principles of Management, Devi

AhilyaPrakashan, Indore (Hindi Medium)

- Dr. C. M. Mehta, Business Organization, Ram Prasad and Sons, Bhopal. (Hindi Medium)

Suggested Web Links

https://www.dphu.org/uploads/attachments/books/books_5284_0.pdf

<https://education.stateuniversity.com/pages/ewlev9e9ib/An-Introduction-to-the-Principles-of-Management.htm>

Suggested equivalent online courses:

Program : Certificate		Class: BBA I Year	Year : 2023	Session 2023- 2024
Subject: FINANCIAL ACCOUNTING - ELECTIVE				
1	Course Code	M 1- BBAC1T (Group-III)		
2	Course Title	BBA		
3	Course Type (Core Course/ Elective/ Generic Elective/ Vocational/...)	(Core Course)		
4	Pre - requisite	Not Required (Open for All)		
5	Course Learning Outcomes (CLO)	<p>1. Students will be able to understand the basics of book- keeping and accounting.</p> <p>2. Students will be able to know about accounting software.</p> <p>3. Students will be able to do the accounting work of the business unit.</p> <p>4. They will be in a position to understand and technically use bank reconciliation, branch accounts and departments accounts.</p> <p>5. Students will understand the concept of Royalty accounting and Hire- Purchase accounting and learn what accounting remedies relate to them and where it can be used.</p>		
6	Credit Value	(Credit) 6		
7	Total Marks	Max. Marks: 40+60	Min.passing Marks:33	
Part B – Content of the Course				
Total No. of Lectures – Tutorials – Practical (in hours per week) : 3 hours				
L-T-P :90				
Unit	Topics	No. of Lectures		
1	Accounting and its place in business and relationship with other financial areas, double Entry System, Book Keeping – Meaning, Advantages, Concepts and convention, Difference between Financial Accounting, Cost	10		

	Accounting , and Management Accounting.	
2	Types of books of accounts and their preparation ,Journal ,Ledger , Trial Balance and Depreciation , Computerized Accounting software (cloud books, wave and Tally)	20
3	Preparation of Final Accounts: Trading Account, Profit and Loss Account, Balance Sheet Preparation of EMI Chart	20
4	Bank Reconciliation Statement, Branch Accounts(excluding stock and debtors method) and Department Accounts(excluding closing stock reserve calculation)	20
5	Royalty Accounts, Hire Purchase Accounts- Accounting records in the books of Purchase and vendor,	20

Keywords / Tags:

Part C – Learning Resources

Text Books, Reference Books, Other resource

Suggested Readings:

- Mukherjee & Hanif, Financial Accounting, Tata Mc Graw Hills , New Delhi
- Shukla & Grewal, Financial Accounting , S Chand Publication 2019 , New Delhi
- J R Batliboi , Double Entry book keeping System: A complete treatise on the fundamentals of Accounting written specifically for Indian Studies and Businessmen, Standard Accountancy Publication, 1987.29th edition , Mumbai
- Gupta, R L Advanced Accounting, Sultan Chand & Sons , New Delhi
- S.M Shukla , Financial Accounting , Sahitya Bhavan Publication , Agra Latest Publication(Hindi and English Medium)
- Accounting Principles , Anthony R N , and Reece , J S 6th ed, Homewood Richard D Irwin Publication , Illinios Us

Suggested Web links:

http://books.google.co.in/books/about/Financial_accounting.html?id=g7W0ZELBRy8C&redir_esc=y

[http:// Corporatefinanceinstitute.com/resources/knowledge/accounting/trial-balance](http://Corporatefinanceinstitute.com/resources/knowledge/accounting/trial-balance)

<http://www.accountingtools.com/articles/the-four-basic-financial-statement.html>

Suggested equivalent online courses:

BBA II Sem. Syllabus

Session 2023-24

GROUP-C

Part A Introduction			
Program: Certificate	Class': BBA I Year	Year:2023	Session:2023-2024
Subject: BUSINESS MATHEMATICS - MAJOR			
I	Course Code	MI -BBAC2T (Group-III)	
2	Course Title	BBA	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	(Core Course)	
4	Pre-requisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	Students will learn to prepare and calculate Invoice, Ratio, Simultaneous equation in two or three variables, Matrices, Logarithm, formulate word problems in order to solve the problems using various methods, Commission, Discount, and Brokerage, Profit and Loss, and then interpret and clearly convey the results in real-world scenarios.	
6	Credit Value	(Credit) 6	
7	Total Marks	Max. Marks:40+60	Min. Passing Marks: 33
Part . Content of the course			
Total No. of Lectures-Tutorials-Practical (in hours per week):3			
Hours L-T-P: 90			
Unit	Topics	No. of Lectures	
1	Ratio - Gaining and Sacrificing Ratio, Proportion,Percentage, Averages — Simple and Weighted Averages.	15	
2	Simultaneous Equations — Meaning, Characteristics, Types and Calculations, Preparation of Invoice.	18	

3	Determinants and Matrices, Matrix- Definition. Types, Basic Operations on Matrices, Transpose of Matrix. Determinants- Minors and Co factor. Adjoint and Inverse of Matrix.	20
4	Practical approach and application of Vedic Maths. Logarithms and Antilogarithms — Principles and Calculations. Simple and Compound Interest.	20
5	Commission, Discount, Brokerage and Profit and Loss	17

Keywords/Tags:

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

- Spooner H.A. and D.A.L Wilson, The essence of Mathematics for Business, Prentice Hall of India Private Limited, New Delhi latest edition
- S.M. Shukla: Business Mathematics, Sahitya Bhawan, Agra latest edition (Hindi and English Medium)
- V. Sundaresan and S.B. Jeysoelan: An Introduction to Business Mathematics, S.Chand&Co_Pvt. Ltd, New Delhi Latest edition
- M. Raghavanchari: Mathematics for Management, An Introduction Tata McGraw Hill Publishing company Ltd. New Delhi latest edition
- Dr. J P Mishra, Business Mathematics, Sahitya Bhawan, Agra (Hindi Medium)
- Dr. Alok Kumar, Vedic Mathematics, Upkar Prakashan, Agra, U.P. (Hindi Medium).

Suggested web links:

Suggested equivalent online courses:

Program Certificate	Class BBA I Year	Year: 2023	Session : 2023-24
Subject : BUSINESS MANAGEMENT - MINOR			
1	Course Code	M 1 – BBA1T (Group-I)	
2	Course Title	BBA	
3	Course Type (Core Course/ Elective/Generic Elective/ Vocational/.....)	(Core Course)	
4	Pre-requisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	<p>1. Student will be able to assess the global context for planning coordinating, and monitoring managerial behavior.</p> <p>2. Through various planning and decision-making techniques, students can learn about how businesses ensure to remain in a competitive market.</p> <p>3. Students will understand various forms of organizational structures and their importance.</p> <p>4. Students can learn about various strategies used by businesses to maintain and improve employee efficiency.</p> <p>5. Students will be able to understand how organizations use different leadership styles to stay competitive.</p>	
6	Credit Value	(Credit) 6	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks:33
Part B – Content of the Course			
Total No. of Lectures- Tutorials-Practical (in hours per week):3 Hours			
L-T-P:90			
Unit	Topics	No. of Lectures	
1	Management in Indian Culture and Tradition, Definition and Meaning of Management, Functions and Responsibilities of Management, Role of manager, Principles of Management. School & Thoughts of Management.	18	

2	Planning: Process, Types and Significance, Planning vs. Forecasting Objective, Strategies and Policies, MBO. Decision Making: Process & Significance, Planning for Start-ups	18
3	Organization: Nature and Purpose of organization. Importance and process of Organization. Departmentalization, Organizational structures: types and relevance, Line and Staff relationship.	18
4	Authority- Delegation, Decentralization - Difference between Authority and power- Responsibility, Recruitment- Sources, Selection, Training, Direction -Nature and Purpose.	18
5	Leadership: Meaning, Importance, Types of Leadership, Leadership Styles, Motivation: Types & significance, Maslow's Need Hierarchy, Theory X&Y of Motivation. An overview of Strategic Management, SWOT Analysis, Strategic Analysis, Alternative-Choice & Evaluation. Future Management-Challenges and Skills	18

Part C- Learning Resources

Text Books References Books Other resources

Suggested Readings

- Management-James A.F. Stoner, R. Edward Freeman-Pearson Prentice Hall-6th Edition
- Principles of Management- PC Tripathi & PN Reddy-TMH-5th Edition-2012.
- Koontz D and Welhrich: Management, International Student Edition, Tokyo 1980.
- .R.D. Agrawal: Organization & Management MC Graw Hill, New Delhi 1982.
- Newman and Warran: The Process of Management: Concepts, Behaviour and Practices, PHI.
- S. M. Shukla: Principles of Management, Sahitya Bhawan, Agra (UP) (Latest Edition (Hindi and English Medium).
- Dr. Rajeev Kumar Jhalani &Dr. Yogita Chandel, Principles of Management, Devi

AhilyaPrakashan, Indore (Hindi Medium)

- Dr. C. M. Mehta, Business Organization, Ram Prasad and Sons, Bhopal. (Hindi Medium)

Suggested Web Links

https://www.dphu.org/uploads/attachments/books/books_5284_0.pdf

<https://education.stateuniversity.com/pages/ewlev9e9ib/An-Introduction-to-the-Principles-of-Management.htm>

Suggested equivalent online courses:

Part A Introduction			
Program: Certificate		Class': BBA I Year	Year:2023-2024
Subject: MICRO ECONOMICS - ELECTIVE			
1	Course Code	MI-BBABIT	
2	Course Title	BBA	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	(Core Course)	
4	Prerequisite (if any)	Not Required (Open for All)	
5	Course Learning outcomes (CLO)	<p>L Students will understand the importance of basic principles of micro economics.</p> <p>7. Students will be able to understand the basics of demand-supply rules and elasticity. They will also learn how to implement it.</p> <p>8. Utility, utility analysis and market surplus, students will be able to understand.</p> <p>9. Students will be able to understand production principles, classify costs and incomes.</p> <p>10. Students will be able to understand the comparison of different market systems.</p> <p>11. Students will be able to understand how national income is calculated.</p>	
6	Credit Value		
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks:33
Part B- Content of the Course			
Total No. of Lectures-Tutorials-Practical (in hours per week):3 Hours L-T-P: 90			
Unit	Topics	No. of Lectures	
1	Introduction to economics, Definitions of economics, Nature and Scope of Economics, Significance and Evolution of Micro Economics, Functions of Managerial Economics.	10	
2	Concept of Law of Demand, Law of Supply, Concept of Market Equilibrium, Elasticity of Demand, Demand Determinants.	15	

3	Utility Analysis, Marginal Concept of Utility, <i>Law of Diminishing Marginal Utility</i> , Indifference Curve Analysis: Assumptions, Properties of Indifference curve, Theories of Consumer Surplus.	20
4	Elements of Cost, Factors of Production, Average Cost, Marginal Cost, <i>Total Cost</i> , <i>Modern Theory of Rent</i> , <i>Modern Theory of Interest</i> , <i>Modern Theories of Profit</i> , <i>Modern Theory of Wage</i> .	20
5	National Income: Estimates and Analysis (GNP, NNP, GDP, HDI), Methods of Measurement of National Income, Types of Market Structure, Perfect v/s Imperfect Market, Trade Cycles.	25

Keywords/Tags:

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

- Maddala & Miller, *Microeconomics Theory and Applications*, 13th Reprint 2017
- Sinha V. C., *Principles of Economics*, Sahitya Bhawan Publication, Agra
- Adhikary, M., *Business Economics*, Excel Books, New Delhi.
- Chopra, N. P, *Managerial Economics*, New Delhi, TMH, 1985.
- Koutsoyiannis, A., *Modern Micro Economics*, Mac Milian, New York
- Jhingan, M. L. *Micro Economics*
- Dr. J C Pant & Dr. J P Mishra, *Micro Economics*, Sahitya Bhawan, Agra (Hindi Medium)
- Dr. C.M. Mehta, *Micro Economics*, Ram Prasad & Sons, Bhopal (Hindi Medium)

Suggested web links:

Suggested equivalent online courses:

BBA 3rd Semester

Group A- Human resource

Subject: Human Resource Management

Paper : Major

Credit Value:6

Max. Marks:100

(External:60+ Internal:40)

Course Learning Outcomes:

- Demonstrate proficiency in fundamental human resources theories and concepts and how they apply to real world situations. Formulate human resources policies and practices that help promote the organization's strategic goals.
- Students will understand how organizations link training programs to organizational needs.
- Students will learn how organizations evaluate jobs and design salary structure based on that.
- Develop an understanding of the challenges of human resources management and successfully manage and resolve conflicts.

Unit I

Concept And Functions of Human Resource Management, Structure & Role of Personnel Management in An Organization, Implementation of Personnel Policy, The Future Challenges Of FIRM, **International HRM**

Unit II

Strategic Management of Human Resource, Staffing Policy, And Process, Management Planning, **Job Analysis, Job Description, Job Specification, Recruitment, Selection, Induction, Placement, Promotion, And Transfer**

Unit III

Manpower Training & Development. Employment Training and Development, Employee Training, **Performance Appraisal and Potential Appraisal, Employee Morale and Productivity**

Unit IV

Wage & Salary Administration, Job Evaluation & Designing, Salary Structure, Compensation Management and Benefits

Unit V

Management Of Organizational Climate & Industrial Relations, Industrial Disputes Employee Relations and Participative Management, Grievance Vs Dispute, Grievance Handling Procedure, Disciplinary Action, Conflict

Reference Books

- Rao, V. S. P, Human Resource Management, Pearson, New Delhi, (2016)
- Mondy&Mortochhio, Human Resources Management, Persons Education, (2016- 14th Edition)
- C.B Mamoria, A Text Book of Human Resources Management, Hiomalaya Publishing House (2014)
- Susan L. Verhulst, David A. DeCenzo& Rama Shankar Yadav, Human Resources Management, Wiley, (2021- 13th Edition)
- Gary Dessler&BijuVarrkey, Human Resources Management, Persons Education, (2020- 16th Edition)
- S C Jain, Human Resource Management, KailashPustakSadan, Bhopal

BBA III Sem (Session 2023)
Group A - Human Resource
Subject: Marketing Management
Paper :Minor

Credit Value:6

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Student will be able to identify the marketing process and its applicability in business operations. List best practices for responsible marketing and how to manage marketing efforts.
- Recognize how to identify target markets and environments by analyzing demographics and consumer behaviour.

Unit I

Nature and Scope of Marketing, Selling V/s Marketing, Marketing management philosophies, Market segmentation, Marketing Mix, Marketing Environment

Unit II

Product Strategy, Product Classification & Product mix, Branding and Packaging decision, Integrated Marketing Communication,-Promotion mix: **Advertising, Publicity, Selling, Sales Promotion and Public Relations**

Unit III

Pricing Decision- Pricing Strategies, Rural Marketing, Modern & future Marketing – Concepts of Internet Marketing, Non-Profit Marketing, **Holistic Marketing**

Unit IV

Service marketing – Introduction, growth of service sector, concept, characteristics, classification of service designing, marketing of services with special reference to –(1. Financial Services 2. Health Services 3. Hospitality Services (travel, hotel, tourism) 4. Professional Services 5. Public Utility Services 6. Educational Services)

Unit V

Channel of Distribution, Types of intermediaries and their roles, Factors affecting choice of channel, *Introduction to* Logistics Supply Chain Management , *Retail Management* (Definition, types)

Reference Books:

- Saxena Rajan, Marketing Management ; Tata McGraw Hill Publishing Co. Ltd. New Delhi (2019-6th Edition)
- S.A. Sherlekar , Marketing Management, Himalya Publishing House (2015)
- Philip Kotler, Marketing Management , Pearson Education (2015)
- Krishna K. Havaldar & Shailendra Dasari B2B , Marketing Text & Cases , McGraw , New Delhi (2021-5th Edition)
- Nair Rajan Gupta C.B, Marketing Management , Sultan Chand & Sons, New Delhi (2018)

BBA III Sem (Session 2023)

Group A - Human Resource

Subject: Financial Markets & Financial Services

Paper: Elective

Credit Value:4

Max. Marks: 100

(External:60+ Internal:40)

Course Objective :

- To provide the student a basic knowledge of financial markets and institutions and to familiarise them with major financial services in India.
- They will be able to know various money market and capital market instruments.
- They will be able to understand the functions and the organisations of capital market and money market in India.
- They will be able to understand various financial institutions and their role in financing of business.
- They will be able to know about various financial services provided in the financial market.

Unit I

Financial System and its Components: financial markets and institutions; Financial intermediation; Flow of funds matrix; Financial system and economic development; An overview of Indian financial system.

Unit -II

Financial Markets: Money market: functions, organisation, and instruments. Role of central bank in money market; Indian money market - An overview
Capital Markets - functions, organisation, and instruments. Indian debt market; Indian equity market - primary and secondary markets; Role of stock exchanges in India.

Unit- III

Financial Institutions: Commercial banking introduction, its role in project finance and working capital finance; Development Financial institutions (DFIs) - An overview and role in Indian economy; Life and non-life insurance companies in India; Mutual Funds - Introduction and their role in capital market development. Non-banking financial companies (NBFCs). Role of IRDA and AFFI

Unit- IV

Financial Services: Overview of financial services industry: Merchant banking - pre and post issue management, underwriting. Regulatory framework relating to merchant banking in India.

Suggested Readings:

- LM Bhole, and Jitendra Mahakud. Financial Institution and Markets, McGraw-Hill (2017)
- Phathak. Indian Financial System, Pearsons Education. (2014)
- Khan M.Y. Indian Financial System: McGraw Hill Education. (2019-11th Edition)
- Sidhharth S.S. Indian Financial System: Financial Market, Institutions and Services McGraw Hill Education. (2020)
- Pathak Bharti Indian Financial System, Pearsons Education (2018)
- Annual Reports of Major Financial Institutions in India.

Group A - Human Resource
Subject: Organization Behaviour

Paper: Major

Credit Value:6

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Students will be able to know the organizational behavior, its important and comparison of various theories of organizational behavior. This outcome of organizational behavior will introduce to several theories on management framework, role of managers, skills of managers, and manager's jobs.
- Examine the components and theories behind leadership, power, and politics. They can analyze real situations where leadership, power, and politics are illustrated positively and negatively
- Analyze various Stress management and coping strategies.
- Compare different organizational cultures, examine characteristics of cultures, explore global implications, and examine creating and sustaining a positive culture, and assessing the impact of culture on organizational behavior.

Unit I

Concept of Organizational Behavior, Contributing disciplines to organizational Behavior, Background/historical perspective and framework of OB

Unit II

Individual Behaviour, Personality perception- Perceptual selectivity, organization, social perception and Impression management, Attitudes and Values, Learning and Reinforcement

Unit III

Leadership- Concept and Theories of leadership. Qualities of a good leader. Group Dynamics- Group Formation, Nature of groups, Reasons for joining Groups, Functions of group within organization

Unit IV

Stress Management- Meaning, cause, effect and coping strategies for stress, work stress, organizational change and development

Unit V

International dimensions of organizational behavior, equal employment opportunities, **organizational culture, managing cultural diversity, learning organisation**

Books Reference:

- Fred Luthans, Organizational Behaviour (Evidence Based) Tata McGraw Hill (2010 International Edition)
- Robbins S.P., Organizational behavior, Pearsons Education, (2018-18 Edition)
- Singh Dalip, Emotional intelligence at Work, Response Books, Sage Publications, Delhi, (2015)
- French Wendell, Bell Jr Cecil H & Vehra Veena, Organization Development: Behavioral
- Science Interventions for Organizational Improvement Pearson Education (2017-16th Edition)
- K. Chitale, Avinash, Prasad Mohanty, Rajendra, Rajaram Dubey & Nishith Organizational Behavior, Text & Cases, PHI Learning New Delhi, (2019)

BBA IV Sem (Session 2024)
Group A - Human Resource
Subject: Marketing Research
Paper: Minor

Credit Value:6

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Discuss the scope and managerial importance of market research and its role in the development of marketing strategy.
- Provide a detailed overview of the stages in the market research process.
- Develop an appropriate market research design for the clients.
- Manage the data collection process use contemporary statistical packages to calculate and report descriptive statistics from quantitative data.
- interpret data analysis in the context of the identified business problem.
- Communicating research results in written report and oral presentation formats.

UNIT I

Definition , Concepts and objectives of marketing , Advantages and limitations of Marketing Research . Problems and precautions in marketing research. Analyzing competition and consumer markets, market research methodology.

UNIT II

Types of Marketing Research: Consumer Research, product research, sales research, and advertising research. Various issues involved and **ethics in marketing research**. Rural Marketing Research, Institutional Management & Research.

UNIT III

Problem formulation and statement of research, Research process, research design - exploratory research, descriptive research and experimental research design. Decision Theory and decision tree.

UNIT IV

Tabulation and analysis of data, Methods of data collection- observational and survey methods, Questionnaire designing, Design attitude measurement techniques, scaling techniques

UNIT V

Administration of surveys, sample design,(selecting an appropriate statistical technique), Hypothesis, concepts , need objectives of hypothesis, Types of hypothesis and its uses. Report writing.

Reference Books

- Rajendra Nargundkar Marketing Research: Text and CasesTMH, New Delhi. (2019- 4^h Edition)
- Cooper DR and Schindler, Business Research Methods, Tata Me Graw Hill, New Delhi latest edition
- Kothari, C R, & Gaurav Garg Research Methodology, New Age International Publishers, New Delhi. (2019)
- Naresh K. Malhotra and Satyabhusan Das Marketing Research Perarsons Education (2019-7th Edition)
- Malhotra NC, Marketing Research, Pearson, New Delhi (2015)
- G.C. Berry, Marketing Research, TMH, New Delhi. (2020)

BBA IV Sem (Session 2024)
Group A - Human Resource
Subject : Financial Management

Elective : Paper

Credit Value:4

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Students will have an understanding of basic of Finance and analysis and interpretation
- The students will be able to evaluate comparative working capital management policies and their impact on the firm's profitability, liquidity, risk and operating flexibility.
- The students will learn make decisions regarding the purchase of long-term assets or the start of a business project.

Unit 1

Finance function and its objectives, tools for financial analysis, capitalization, over capitalization analysis, under capitalization. Concept of Risk and return.

Unit II

Working Capital Management, Factors determining the adequate working capital Requirement management of working capital, Source of Capital, Cost of capital, financial and operating, leverage.

Unit 3

Capital Structure: optimum capital structure, Theories of capital structure, Factors influencing capital structure. Capital structure decision of the firm, Shareholder Value Creation dividend payment and valuation of firms, dividend policy of the firm, Hire Purchase and Venture Capital.

Unit 4

Capital budgeting, methods of investments evaluation: payback period, accounting rate of return, discounted cash flow method and internal rate of return. Introduction to Return on Investment: CAPM, APT models & Derivatives.

Reference Books

- R.P. Rustagi, Fundamentals of Financial Management, Taxmann Company, New Delhi
- I. M. Pandey, Financial Management, Pearsons Education, New Delhi (2021)
- P. Chandra, Financial Management, Theory and Practice, Tata McGraw Hill, New Delhi
- M. Y. Khan & P. K. Jain Financial Management: Text, Problems and Cases McGraw Hill New Delhi (2018 — 8th Edition)

BBA III Sem (Session 2023)

Group B - Marketing

Subject : Marketing Management

Paper: Major

Credit Value: 6

Max. Marks:100(External:60,Internal:40)

Course Learning Outcomes:

- Student will be able to identify the marketing process and its applicability in business operations. List best practices for responsible marketing and how to manage marketing efforts.
- Recognize how to identify target markets and environments by analyzing demographics and consumer behaviour.

Unit I

Nature and Scope of Marketing, Selling V/s Marketing, Marketing Management philosophies, Market segmentation, Marketing Mix, Marketing Environment

Unit II

Product Strategy, Product Classification & Product mix, Branding and Packaging decision, Integrated Marketing Communication, -Promotion mix: Advertising, Publicity, Selling, Sales Promotion and Public Relations

Unit III

Pricing Decision - Pricing Strategies, Rural Marketing, *Modern & future Marketing – Concepts of Internet Marketing*, Non-Profit Marketing, Holistic Marketing

Unit IV

Service marketing – Introduction, growth of service sector, concept, characteristics, classification of service designing, marketing of services with special reference to –(1. Financial Services 2. Health Services 3. Hospitality Services (travel, hotel, tourism) 4. Professional Services 5. Public Utility Services 6. Educational Services)

Unit V

Channel of Distribution, Types of Intermediaries and their roles, Factors affecting choice of channel, *Introduction to Logistics Supply Chain Management*, Retail Management (Definition, types)

Reference Books:

- Saxena Rajan, Marketing Management ; Tata McGraw Hill Publishing Co. Ltd. New Delhi (2019-6th Edition)
- S.A. Sherlekar , Marketing Management, Himalya Publishing House (2015)
- Philip Kotler, Marketing Management , Pearson Education (2015)
- Krishna K. Havaladar & Shailendra Dasari B2B , Marketing Text & Cases , McGraw , New Delhi (2021-5th Edition)
- Nair Rajan Gupta C.B, Marketing Management , Sultan Chand & Sons, New Delhi (2018)

Group B - Marketing
Financial Market & Financial Services

Paper: Minor

Credit Value: 6

Max. Marks:100

(External:60+Internal:40)

Course Learning Outcomes:

- To provide the student a basic knowledge of financial markets and institutions and to familiarise them with major financial services in India.
- They will be able to know various money market and capital market instruments.
- They will be able to understand the functions and organisation of capital market and money market in India.
- They will be able to know about various financial services provided in the financial marketing

Unit 1

Financial System and its Components: financial markets and institutions; Financial intermediation; Flow of funds matrix; Financial system and economic development; An overview of Indian financial system.

Unit 2

Financial Markets: Money market: functions, organisation, and instruments. Role of central bank in money market; Indian money market — An overview Capital Markets — functions, organisation, and instruments. Indian debt market; Indian equity market — primary and secondary markets; Role of stock exchanges in India.

Unit 3

Financial Institutions: Commercial banking — introduction, its role in project finance and working capital finance; Development Financial institutions (DFIs) — An overview and role in Indian economy; Life and non-life insurance companies in India; Mutual Funds — Introduction and their role in capital market development. Non-banking financial companies (NBFCs). non-life insurance companies in India; Mutual Funds — Introduction and their role in capital market development. Non-banking financial companies (NBFCs).Role of IRDA and AFFI

Unit 4

Financial Services: Overview of financial services industry: Merchant Banking — pre and post issue management, underwriting. Regulatory framework relating to merchant banking in India.

Unit 5

Leasing and hire—purchase, Consumer, and housing finance; Venture capital finance; Factoring services, bank guarantees and letter of credit Credit rating; Financial counselling

Reference Books

- L M Bhole, and Jitendra Mahakud. Financial Institution and Markets, McGraw-Hill (2017)
- Phathak. Indian Financial System, Pearsons Education. (2014)
- Khan M.Y. Indian Financial System: McGraw Hill Education. (2019- 11th Edition)
- Sidhharth S.S. Indian Financial System: Financial Market, Institutions and Services McGrawHill Education. (2020)
- Pathak Bharti Indian Financial System, Pearsons Education (2018)

Group B - Marketing
Organizational Behaviour
Paper: Elective

Credit Value: 4

Max. Marks:100

(External:60+Internal:40)

Course Learning Outcomes:

- Students will be able to know the organizational behavior, its important and comparison of various theories of organizational behavior. This outcome of organizational behavior will introduce to several theories on management framework, role of managers, skills of managers, and manager's jobs.
- Examine the components and theories behind leadership, power, and politics. They can analyze real situations where leadership, power, and politics are illustrated positively and negatively
- Analyze various Stress management and coping strategies.
- Compare different organizational cultures, examine characteristics of cultures, explore global implications, and examine creating and sustaining a positive culture, and assessing the impact of culture on organizational behavior.

Unit I

Concept of Organizational Behavior, Contributing disciplines to organizational Behavior, Background/historical perspective and framework of OB

Unit II

Individual Behaviour, Personality perception- Perceptual selectivity, organization, social perception and Impression management, Attitudes and Values, Learning and Reinforcement

Unit III

Leadership- Concept and Theories of leadership. Qualities of a good leader. Group Dynamics- Group Formation, Nature of groups, Reasons for joining Groups, Functions of group within organization

Unit IV

Stress Management- Meaning, cause, effect and coping strategies for stress, work stress, organizational change and development

Books Reference:

- Fred Luthans, Organizational Behaviour (Evidence Based) Tata McGraw Hill (2010 International Edition)
- Robbins S.P., Organizational behavior, Pearsons Education, (2018-18 Edition)
- Singh Dalip, Emotional intelligence at Work, Response Books, Sage Publications, Delhi, (2015)
- French Wendell, Bell Jr Cecil H & Vehra Veena, Organization Development: Behavioral
- Science Interventions for Organizational Improvement Pearson Education (2017-16th Edition)
- K. Chitale, Avinash, Prasad Mohanty, Rajendra, Rajaram Dubey & Nishith Organizational Behavior, Text & Cases, PHI Learning New Delhi, (2019)

BBA IV Sem (Session 2024)

Group B - Marketing

Marketing Research

Paper: Major

Credit Value: 6

Max. Marks:100

(External:60+Internal:40)

Course Learning Outcomes:

- Discuss the scope and managerial importance of market research and its role in the development of marketing strategy.
- Provide a detailed overview of the stages in the market research process.
- Develop research questions and objectives that can be addressed in a research design.
- Develop an appropriate market research design for the clients.
- Manage the data collection process use contemporary statistical packages to calculate and report descriptive statistics from quantitative data.
- interpret data analysis in the context of the identified business problem.
- Communicating research results in written report and oral presentation formats.

UNIT I

Definition , Concepts and objectives of marketing , Advantages and limitations of Marketing Research . Problems and precautions in marketing research. Analyzing competition and consumer markets, market research methodology.

UNIT II

Types of Marketing Research: Consumer Research, product research, sales research, and advertising research. Various issue involved and ethics in marketing research. Rural Marketing Research, Institutional Management & Research.

UNIT III

Problem formulation and statement of research, Research process, research design - exploratory research, descriptive research and experimental research design. Decision Theory and decision tree.

UNIT IV

Tabulation and analysis of data, Methods of data collection- observational and survey methods, Questionnaire designing, Design attitude measurement techniques, scaling techniques

UNIT V

Administration of surveys, sample design,(selecting an appropriate statistical technique), Hypothesis, concepts , need objectives of hypothesis, Types of hypothesis and its uses. Report writing.

Reference Books

- Rajendra Nargundkar Marketing Research: Text and CasesTMH, New Delhi. (2019- 4th Edition)
- Cooper DR and Schindler, Business Research Methods, Tata Me Graw Hill, New Delhi latest edition
- Kothari, C R, & Gaurav Garg Research Methodology, New Age International Publishers, New Delhi. (2019)
- Naresh K. Malhotra and Satyabhusan Das Marketing Research Perarsons Education (2019-7th Edition)
- Malhotra NC, Marketing Research, Pearson, New Delhi (2015)
- G.C. Berry, Marketing Research, TMH, New Delhi. (2020)

BBA IV Sem (Session 2024)

Group B - Marketing

Subject: Human Resource Management

Paper: Minor

Credit Value: 6

Max. Marks:100

(External:60,Internal:40)

Course Learning Outcomes:

- Demonstrate proficiency in fundamental human resources theories and concepts and how they apply to real world situations. Formulate human resources policies and practices that help promote the organization's strategic goals.
- Students will understand how organizations link training programs to organizational needs.
- Students will learn how organizations evaluate jobs and design salary structure based on that.
- Develop an understanding of the challenges of human resources management and successfully manage and resolve conflicts.

Unit 1

Concept And Functions of Human Resource Management, Structure & Role of Personnel Management in An Organization, Implementation of Personnel Policy, The Future Challenges Of FIRM, International HRM

Unit 2

Strategic Management of Human Resource, Staffing Policy, And Process, Management Planning, Job Analysis, Job Description, Job Specification, Recruitment, Selection, Induction, Placement, Promotion, And Transfer

Unit 3

Manpower Training & Development. Employment Training and Development, Employee Training, Performance Appraisal and Potential Appraisal Employee Morale and Productivity

Unit 4

Wage & Salary Administration, Job Evaluation & Designing, Salary Structure. Compensation Management and Benefits

Unit 5

Management Of Organizational Climate & Industrial Relations, Industrial Disputes Employee Relations and Participative Management, Grievance Vs Dispute, Grievance Handling Procedure, Disciplinary Action, Conflict

Book Reference

- Rao, V. S. P, Human Resource Management, Pearson, New Delhi, (2016)
- Mondy&Mortochhio, Human Resources Management, Persons Education, (2016- 14th Edition)
- C.B Mamoria, A Text Book of Human Resources Management, Hiomalaya Publishing House (2014)
- Susan L. Verhulst, David A. DeCenzo& Rama Shankar Yadav, Human Resources Management, Wiley, (2021- 13th Edition)
- Gary Dessler&BijuVarrkey, Human Resources Management, Persons Education, (2020- 16th Edition)
- S C Jain, Human Resource Management, KailashPustakSadan, Bhopal

BBA IV Sem (Session 2024)

Group B - Marketing

Elective Paper: Financial Management

Credit Value: 4

Max. Marks:100 (External:60,Internal:40)

Course Learning Outcomes:

Course Learning Outcomes:

- Students will have an understanding of basic of Finance and analysis and interpretation
- The students will be able to evaluate comparative working capital management policies and their impact on the firm's profitability, liquidity, risk and operating flexibility.
- The students will learn make decisions regarding the purchase of long-term assets or the start of a business project.

Unit 1

Finance function and its objectives, tools for financial analysis, capitalization, over capitalization analysis, under capitalization. Concept of Risk and return.

Unit II

Working Capital Management, Factors determining the adequate working capital. Requirement management of working capital, Source of Capital, Cost of capital, financial and operating, leverage.

Unit 3

Capital Structure: optimum capital structure, Theories of capital structure, Factors influencing capital structure. Capital structure decision of the firm, Shareholder Value Creation dividend payment and valuation of firms, dividend policy of the firm, Hire Purchase and Venture Capital.

Unit 4

Capital budgeting, methods of investments evaluation: payback period, accounting rate of return, discounted cash flow method and internal rate of return. Introduction to Return on Investment: CAPM, APT models & Derivatives.

Reference Books

- R.P. Rustagi, Fundamentals of Financial Management, Taxmann Company, New Delhi
- I. M. Pandey, Financial Management, Pearsons Education, New Delhi (2021)
- P. Chandra, Financial Management, Theory and Practice, Tata McGraw Hill, New Delhi
- M. Y. Khan & P. K. Jain Financial Management: Text, Problems and Cases McGraw Hill New Delhi (2018 — 8th Edition)

BBA III Sem (Session 2023)

Group C - Finance

Subject : Financial Management

Major: Paper

Credit Value: 6

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Students will have an understanding of basic of Finance and analysis and interpretation
- The students will be able to evaluate comparative working capital management policies and their impact on the firm's profitability, liquidity, risk and operating flexibility.
- The students will learn make decisions regarding the purchase of long-term assets or the start of a business project.

Unit 1

Finance function and its objectives, tools for financial analysis, capitalization, over capitalization analysis, under capitalization. Concept of Risk and return.

Unit II

Ratio analysis: Meaning, Interpretations of ratios, classification of ratio, funds flow Statement (Introduction) and cash flow analysis.

Unit III

Working Capital Management, Factors determining the adequate working capital. Requirement management of working capital, Source of Capital, Cost of capital, financial and operating, leverage.

Unit IV

Capital Structure: optimum capital structure, Theories of capital structure, Factors influencing capital structure. Capital structure decision of the firm, Shareholder Value Creation dividend payment and valuation of firms, dividend policy of the firm, Hire Purchase and Venture Capital.

Unit V

Capital budgeting, methods of investments evaluation: payback period, accounting rate of return, discounted cash flow method and internal rate of return. Introduction to Return on Investment: CAPM, APT models & Derivatives.

Reference Books

- R.P. Rustagi, Fundamentals of Financial Management, Taxmann Company, New Delhi
- I. M. Pandey, Financial Management, Pearsons Education, New Delhi (2021)
- P. Chandra, Financial Management, Theory and Practice, Tata McGraw Hill, New Delhi
- M. Y. Khan & P. K. Jain Financial Management: Text, Problems and Cases McGraw Hill New Delhi (2018 — 8th Edition)

BBA III Sem (Session 2023)

Group C - Finance

Marketing Research

Paper:Minor

Credit Value: 6

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Discuss the scope and managerial importance of market research and its role in the development of marketing strategy.
- Provide a detailed overview of the stages in the market research process.
- Develop research questions and objectives that can be addressed in a research design.
- Develop an appropriate market research design for the clients.
- Interpret data analysis in the context of the identified business problem.
- Communicating research results in written report and oral presentation formats.

UNIT I

Definition , Concepts and objectives of marketing , Advantages and limitations of Marketing Research . Problems and precautions in marketing research. Analyzing competition and consumer markets, market research methodology.

UNIT II

Types of Marketing Research: Consumer Research, product research, sales research, and advertising research. Various issue involved and ethics in marketing research. Rural Marketing Research, Institutional Management & Research.

UNIT III

Problem formulation and statement of research, Research process, research design - exploratory research, descriptive research and experimental research design. Decision Theory and decision tree.

UNIT IV

Tabulation and analysis of data, Methods of data collection- observational and survey methods, Questionnaire designing, Design attitude measurement techniques, scaling techniques

UNIT V

Administration of surveys, sample design,(selecting an appropriate statistical technique), Hypothesis, concepts , need objectives of hypothesis, Types of hypothesis and its uses. Report writing. Text books, Reference Books and other resources

- Rajendra Nargundkar Marketing Research: Text and Cases TMH, New Delhi. (2019- 4th Edition)
- Cooper DR and Schindler, Business Research Methods, Tata Me Graw Hill, New Delhi latest edition
- Kothari, C R, & Gaurav Garg Research Methodology, New Age International Publishers, New Delhi. (2019)
- Naresh K. Malhotra and Satyabhusan Das Marketing Research Perarsons Education (2019-7th Edition)
- Malhotra NC, Marketing Research, Pearson, New Delhi (2015)
- G.C. Berry, Marketing Research, TMH, New Delhi. (2020)

Group C - Finance
Organizational Behaviour
Paper Elective

Credit Value: 4

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Students will be able to know the organizational behavior, its important and comparison of various theories of organizational behavior. This outcome of organizational behavior will introduce to several theories on management framework, role of managers, skills of managers, and manager's jobs.
- Examine the components and theories behind leadership, power, and politics. They can analyze real situations where leadership, power, and politics are illustrated positively and negatively
- Analyze various Stress management and coping strategies.
- Compare different organizational cultures, examine characteristics of cultures, explore global implications, and examine creating and sustaining a positive culture, and assessing the impact of culture on organizational behavior.

Unit I

Concept of Organizational Behavior, Contributing disciplines to organizational Behavior, Background/historical perspective and framework of OB

Unit II

Individual Behaviour, Personality perception- Perceptual selectivity, organization, social perception and Impression management, Attitudes and Values, Learning and Reinforcement

Unit III

Leadership- Concept and Theories of leadership. Qualities of a good leader. Group Dynamics- Group Formation, Nature of groups, Reasons for joining Groups, Functions of group within organization

Unit IV

Stress Management- Meaning, cause, effect and coping strategies for stress, work stress, organizational change and development

Books Reference:

- Fred Luthans, Organizational Behaviour (Evidence Based) Tata McGraw Hill (2010 International Edition)

- Robbins S.P., Organizational behavior, Pearsons Education, (2018-18 Edition)
- Singh Dalip, Emotional intelligence at Work, Response Books, Sage Publications, Delhi, (2015)
- French Wendell, Bell Jr Cecil H & Vehra Veena, Organization Development: Behavioral
- Science Interventions for Organizational Improvement Pearson Education (2017-16th Edition)
- K. Chitale, Avinash, Prasad Mohanty, Rajendra, Rajaram Dubey & Nishith Organizational Behavior, Text & Cases, PHI Learning New Delhi, (2019)

BBA IV Sem (Session 2024)

Group C - Finance

Subject: Financial Markets & Financial Services

Paper: Elective

Credit Value : 6

Max. Marks: 100

(External:60, Internal:40)

Course Learning Outcomes:

- To provide the student a basic knowledge of financial markets and institutions and to familiarize them with major financial services in India .
- They will be able to know various money market and capital market instruments.
- They will be able to understand the functions and organisation of capital market and money market in India .
- They will be able to know about various financial services provided in the financial market .
- They will understand various financial institutions and their role in financing of the business .

UNIT - I

Financial system and its components : Financial markets and institutions ; Financial intermediation ; Flow of funds matrix ; Financial system and economic development ; An overview of Indian financial system

UNIT - II

Financial markets : Money market : functions , organisation , and instruments . Role of central bank in money market ; Indian money market - An overview. Capital markets - functions , organisation , and instruments. Indian debt market ; Indian equity market - primary and secondary markets ; Role of stock exchanges in india .

UNIT-III

Financial Institutions : Commercial banking - Introduction , its role in project, finance and working capital finance ; Development Financial institutions (DFIs) - An overview and role in Indian economy ; Life and non-life insurance companies in India ; Mutual funds - Introduction and their role in capital market development . Non-banking financial companies (NBFCs) .

UNIT-IV

Financial services : Overview of financial services industry : Merchant banking - pre and post issue management , underwriting . Regulatory framework relating to merchant banking in India .

UNIT-V

Leasing and hire-purchase , consumer , and housing finance ; venture capital finance ; Factoring services , bank guarantees and letter of credit ; Credit rating ;Financial counselling .

Reference Books

- LM Bhole, and Jitendra Mahakud. Financial Institution and Markets, McGraw-Hill (2017)
- Phathak. Indian Financial System, Pearsons Education. (2014)
- Khan M.Y. Indian Financial System: McGraw Hill Education. (2019-11th Edition)
- Sidhharth S.S. Indian Financial System: Financial Market, Institutions and Services McGraw Hill Education. (2020)
- Pathak Bharti Indian Financial System, Pearsons Education (2018)
- Annual Reports of Major Financial Institutions in India.

Subject: Marketing Management

paper :Minor

Credit Value : 6

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Student will be able to identify the marketing process and its applicability in business operations. List best practices for responsible marketing and how to manage marketing efforts.
- Recognize how to identify target markets and environments by analyzing demographics and consumer behaviour.

Unit I

Nature and Scope of Marketing, Selling V/s Marketing, Marketing Management philosophies, Market segmentation, Marketing Mix, Marketing Environment.

Unit II

Product Strategy, Product Classification & Product mix, Branding and Packaging decision, Integrated Marketing Communication,-Promotion mix: Advertising, Publicity, Selling, Sales Promotion and Public Relations

Unit III

Pricing Decision- Pricing Strategies, Rural Marketing, *Modern & future Marketing – Concepts of Internet Marketing, Non-Profit Marketing, Holistic Marketing*

Unit IV

Service marketing – Introduction, growth of service sector, concept, characteristics, *classification of service designing*, marketing of services with special reference to –(1. Financial Services 2. Health Services 3. Hospitality Services (travel, hotel, tourism) 4. Professional Services 5. Public Utility Services 6. Educational Services)

Unit V

Channel of Distribution, Types of intermediaries and their roles, Factors affecting choice of channel, *Introduction to Logistics Supply Chain Management, Retail Management (Definition, types)*

Reference Books:

- Saxena Rajan, Marketing Management ; Tata McGraw Hill Publishing Co. Ltd. New Delhi (2019-6th Edition)
- S.A. Sherlekar , Marketing Management, Himalya Publishing House (2015)
- Philip Kotler, Marketing Management , Pearson Education (2015)
- Krishna K. Havaldar & Shailendra Dasari B2B , Marketing Text & Cases , McGraw , New Delhi (2021-5th Edition)
- Nair Rajan Gupta C.B, Marketing Management , Sultan Chand & Sons, New Delhi (2018)

Group C - Finance
Human Resource Management
Paper: Elective

Credit Value: 4

Max. Marks: 100

(External:60+ Internal:40)

Course Learning Outcomes:

- Demonstrate proficiency in fundamental human resources theories and concepts and how they apply to real world situations. Formulate human resources policies and practices that help promote the organization's strategic goals.
- Students will understand how organizations link training programs to organizational needs.
- Students will learn how organizations evaluate jobs and design salary structure based on that.
- Develop an understanding of the challenges of human resources management and successfully manage and resolve conflicts.

Unit 1

Concept And Functions of Human Resource Management, Structure & Role of Personnel Management in An Organization, Implementation of Personnel Policy, The Future Challenges Of FIRM, International HRM

Unit 2

Strategic Management of Human Resource, Staffing Policy, And Process, Management Planning, Job Analysis, Job Description, Job Specification, Recruitment, Selection, Induction, Placement, Promotion, And Transfer

Unit 3

Manpower Training & Development. Employment Training and Development, Employee Training, Performance Appraisal and Potential Appraisal. Employee Morale and Productivity

Unit 4

Management Of Organizational Climate & Industrial Relations, Industrial Disputes Employee Relations and Participative Management, Grievance Vs Dispute, Grievance Handling Procedure, Disciplinary Action, Conflict

Reference Books

- Rao, V. S. P, Human Resource Management, Pearson, New Delhi, (2016)
- Mondy&Mortochhio, Human Resources Management, Persons Education, (2016- 14th Edition)
- C.B Mamoria, A Text Book of Human Resources Management, Hiomalaya Publishing House (2014)
- Susan L. Verhulst, David A. DeCenzo& Rama Shankar Yadav, Human Resources Management, Wiley, (2021- 13th Edition)
- Gary Dessler&BijuVarrkey, Human Resources Management, Persons Education, (2020- 16th Edition)
- S C Jain, Human Resource Management, KailashPustakSadan, Bhopal

BBA III Year (Session 2023)

Group A - Human Resource

Subject – Human Resource Development

Paper – DSE I

Credit Value: 6

Max. Marks: 100

(External: 70+ Internal:30)

Course Learning Outcomes:

- To understand the concept of Human Resource Management .
- To understand the Human Resource Planning.
- To understand the Human Resource Development Process.
- To understand the importance of Learning and Human Resource Development.
- To understand the Process of Human Resource Development Activities.

UNIT – I

Introduction to Human Resource Development- Concept and Evaluation, Relationship between Human Resource Management and Human Resource Development. Human Resource Development process and outcomes.

UNIT – II

Human Resource Planning- Introduction, Meaning, Definition, Features, Need, Objectives, Importance of Human Resource Planning, Factors affecting Human Resource Planning.

UNIT – III

Human Resource Development Process- Assessing Human Resource Development Needs , Administration of HRD programmes- Designing and Developing, Implementing and Evaluating HRD Programmes.

UNIT – IV

HRD and Learning: Maximizing learning, individual differences in learning process; Learning strategies and styles; Principles of learning; Learning and motivation; **Human Resource Development culture and climate**

UNIT – V

HRD Activities and Applications: **Human Resource and Development for workers; Role of trade unions; Employee coaching, counselling and performance management, Career management and development**

Reference Books:

- Dawra Sudhir Human Resource Development, Indica Publishers & Distributors Pvt Ltd
New Delhi
- Balyan and Others Human Resource Development, Himalaya Publishing House New
Delhi
- Raymond and Kodwani Employee Training and Development, McGraw-Hill
Education India
- Sudha G.S. Human Resource Management, **RBD** Publishing House Jaipur
- Mehta and Upadhyaya Human Resource Development, RBD Publishing House Jaipur

BBA III Year (Session 2023)

Group A - Human Resource

Subject – Employee Relation & Compensation Management

Paper – DSE II

Credit Value: 6

Max. Marks: 100

(External: 70+ Internal:30)

Course Learning Outcomes:

- Understand the Concept and Importance of Employee Relation
- Understand the Strategies and Policies of Employee Relation.
- Understand the Objectives and Principles of Compensation Management
- Understand the Compensation Planning
- Understand Designing of Compensation System

UNIT – I

Introduction to Employees Relation- Meaning, Definition of Employee Relation Nature of Work and Importance of Employee Relationship, Challenges and Barriers of Employee Relationship .

UNIT – II

Employee Relations and Role of Employment-Determining shape of the Employee Relationship, Significance, Strategies and Policies of employee relations, Individualism and Collectivism, Joint and Unilateral regulation of employment, Centralized and Decentralized approaches to employment relation, role of Government in Employment relations.

UNIT – III

Introduction to Compensation Management- Definition, Objectives, Principles, Importance of Compensation Management, Types of Compensation, Compensation Approaches .

UNIT – IV

Compensation Planning- Level, Structure and System, Decision of Compensation level and planning, Factors influencing Compensation Planning. Employee Benefit Programs, Nature and Types of Benefits.

UNIT – V

Designing Organization System- Building internally consistent Compensation System- Creating internal equity through job analysis and job evaluation, building market competitive compensation System, Compensation Surveys .

BBA III Year (Session 2023)

Group A - Human Resource

Subject – Functional Management

Paper – Minor

Credit Value: 6

Max. Marks: 100

(External: 70+ Internal:30)

Course Learning Outcomes:

- Understand the concept of Financial Management .
- Understand the concept of Personnel Management .
- Understand the concept of Production Management .
- Understand the concept of Marketing Management .
- Understand the concept of Digital Marketing .
- Understand the need of Business Ethics in Management .

UNIT – I

Financial Management : Concept , Nature , Scope , Characteristics of sound financial plan , Objectives of sound financial plan , consideration of formulation of financial plan , steps in financial plan .

Finance Decision , Financing decisions , Investment decisions , Working capital decisions , Dividend decisions

UNIT – II

Personnel Management : Concept , Duties of Personnel Manager , Scope and Importance , Career Planning Introduction , Meaning and objectives , Career planning v/s Manpower planning , Individual career planning , Self -awareness career management meaning and elements , career models . Benefits of career planning and development , success in career .

UNIT – III

Production Management: Concept , Importance, Scope and Functions. Types of Production Systems, **Production Planning, Procedure of Production Control, Process of New Product Development, Concept of Product Diversification, Standardisation, Simplification and Specialisation.**

UNIT – IV

Marketing Management: Concept, Nature and Scope, Marketing Environment, Marketing Information and Research. Marketing Mix, Advertising Management, Media of Advertising. Sales Promotion- Meaning, Importance, Methods and limitations.

UNIT – V

Digital Marketing: Introduction, Digital Vs. Real Marketing, Digital Marketing Channels, Creating Initial Digital Marketing Plan, Business Ethics: Nature, Characteristics and need, Ethical Practices in Management, Fair Trade Practices.

Reference Books:

- Motihar M. – Functional Management
- Pandey I.M -Financial Management
- Flippo Edwin B.- Personnel Management
- Chary S. N.- Production and Operations Management
- Kotler Philip- Marketing Management
- Chaffey Dave and Ellis Chadwick- Digital Marketing
- Maxwell John C. — Ethics 101

BBA III Year (Session 2023)

Group A - Human Resource

Subject – Retail Management

Paper – Elective

Credit Value: 6

Max. Marks: 100

(External: 70+ Internal:30)

Course Learning Outcomes:

- Understand the Fundamental Concept of Retail Management .
- Understand the shopper's behaviour .
- Understand the consumer's behaviour .
- Understand merchandise Management .
- Understand visual merchandising .
- Understand E- Retailing system .
- Understand E- Payment system .

UNIT – I

Fundamentals of Retail Management :Basic concept of Retailing, Types of Retailer, Multi-Channel Retailer organize retailability organized Retailing in India, Retail Market Strategy, Retail Format and target market, Growth Strategies, Pricing Strategy Consumer behaviors, Determinants of consumer Marketing strategy, consumer decision making Process, Organizational consumers Behavior, Post purchase behavior

Service Retailing-Importance of service retailing and its Challenges. **Consumer Behavior in Services zone of Tolerance, Service Perception and Expectation,** Service strategy, Service triangle, marketing mix, Marketing segmentation.

UNIT – II

Merchandise Management: **Merchandising Philosophy,** Merchandising plans, Merchandise budget, financial inventory control, Pricing Strategy Basics of Visual Merchandising, Retail Store site and design, Store layout, Image mix, Store Exterior and Interior, Color Blocking, Signage and Understanding Material Planograms .

UNIT - III

E-Retailing: Introduction: The concepts of E-Commerce, E Business and E-Marketing Evolution of E-Commerce, E-Commerce Vs Traditional Commerce, Network infrastructure for E-Commerce, Internet, Extranet. ECommerce applications: Consumer Applications, Organization Applications, Procurement—**Online Marketing and Advertisement, Online**

Interactive Retailing, E-Commerce--Business Models: B2B, B2C, C2C, B2 Government, Government to Government.

UNIT - IV

E-Marketing: Information Based Marketing, E-Marketing Mix — Cost, Connectivity, Convenience, Customer, interface, Speed of delivery—Web retailing, Process of website development. E-Retailing / reverse marketing.

Electronic Payment Systems: Introduction to payment systems, On-line payments.

UNIT - V

Electronic payment systems- Prepaid E-payment systems, Post—paid E-payment systems, E-Cash or Digital Cash, E-Cheque, Credit cards, Smart Debit Cards.

Reference Books:

- Michaelly, Barton A Weitzand Ajay Pandit, Retail management, Tata Mc Graw Hill Education Pvt. Ltd. New Delhi.
- KVC Madaan, Fundamental of retailing, Tata McGraw Hill Education Pvt. Ltd. New Delhi.
- Swapna Pradhan, Retail management, Tata Mc Graw Hill Education Pvt.Ltd New Delhi.
- K. Rama Mohana Rao: Services Marketing, Pearson, 2 Ed. New Delhi.
- Valeri eithmal, ary J Binter, Dwayne D Gremler and Ajay Pandit: Services Marketing, Tata McGraw Hill, New Delhi

- Kalakota & Winston-Frontier of E-commerce, Pearson Education

BBA 3rd YEAR
GROUP B – MARKETING
SUBJECT – CONSUMER BEHAVIOUR
PAPER – DSE I

Credit Value : 6

Max Marks : 100

(External : 70, Internal : 30)

COURSE OUTCOME :

- To create understanding about Consumers
- To impart knowledge regarding process of decision making motivation and cultural influence
- To familiarize students influence
- Opinion leadership and consumer protection.

UNIT -1

Introduction to Consumer Behavior, Concept, Scope and their applications. Information search Process, Evaluative Criteria and Decision Rules, Building Customer satisfaction.

UNIT-2

Consumer Decision Making Process, Four views of Consumer decision rules: Economic man, Passive man, Emotional man, Cognitive man. Models of Consumer Decision making, Nicosia Model.

UNIT- 3

Consumer Motivation, needs and goals, Positive and Negative Motivation, Dynamic nature of Motivation, Consumer Perception, Conceptual Frame Work. **Cultural Influence, Dynamism of culture.**

UNIT -4

Consumer attitude and change. Influence of personality and self- concept on buying behavior. Diffusion of innovations, Diffusion Process, the Adoption Process

UNIT-5

Reference group influence, profile of consumer's opinion leadership, Industrial buying behavior, CRM and Consumer Protection.

REFERENCES BOOKS-

- Consumer Behaviour Schiffman L.G., Kanuk
- Chunnawal: Consumer Behaviour Pub S. Chand, New Delhi
- Kazami and S. Batra Satish: Consumer Behaviour Excel Book, New Delhi
- Consumer Behaviour - Michael R Soloman

BBA 3rd YEAR
GROUP B – MARKETING
SUBJECT – INTERNATIONAL MARKETING
PAPER – DSE II

Credit Value : 6

Max Marks : 100
(External : 70, Internal : 30)

COURSE OUTCOME :

- Proficient in import-Export procedure
- Student able to know about international marketing strategy
- The components and process of logistics global marketing.
- To learn role of government policies and challenges faced to international competition.

UNIT-1

Historical background of international marketing in India. International Marketing Definition, Nature and Scope of international market, Domestic marketing V/S International Marketing, Decisions relating Entry in the foreign market.

UNIT -2

Product Planning for International Market, Product designing, Advertising. International business Environment - Economical, Socio-Cultural and Political. Branding and Packaging.

UNIT-3

International Pricing - factors influencing International Price, Pricing Process and methods, International Price Quotation and Payment Conditions. Methods of Payment in international marketing.

UNIT-4

International Distribution Channels - functions, Types of Channels and Logistics decisions. Selection and appointment of foreign agent.

UNIT-5

Indian Import Export Policy and Practice. Steps of Commencement of an Export business, Export Pricing and Export finance.

REFERENCES BOOKS:

- Dr P.K. Jain: International Marketing
- Jain S.C.: International marketing CBS publications, New Delhi.
- Vasudev PK: International Marketing, Excel Books, New Delhi.
- Rathore VS: International Marketing
- Jain SC: International Marketing, Sahitya Bhawan Publication, Agra

BBA 3rd YEAR
GROUP B – MARKETING
SUBJECT – Retail Management
PAPER – MINOR

Credit Value : 6

Max Marks : 100

(External : 70, Internal : 30)

Course Learning Outcomes:

- Understand the Fundamental Concept of Retail management .
- Understand the shopper's behaviour .
- Understand the consumer's behaviour .
- Understand merchandise Management .
- Understand visual merchandising .
- Understand E- Retailing system .
- Understand E- Payment system .

UNIT – I

Fundamentals of Retail Management :Basic concept of Retailing, Types of Retailer, Multi-Channel Retailer organize ratability organized Retailing in India, Retail Market Strategy, Retail Format and target market, Growth Strategies, Pricing Strategy Consumer behaviors, Determinants of consumer Marketing strategy, consumer decision making Process, Organizational consumers Behavior, Post purchase behavior Service Retailing-Importance of service retailing and its Challenges. Consumer Behavior in Services zone of Tolerance, Service Perception and Expectation, Service strategy, Service triangle, marketing mix, Marketing segmentation.

UNIT – II

Merchandise Management: Merchandising Philosophy, Merchandising plans, Merchandise budget, financial inventory control, Pricing Strategy. Basics of Visual Merchandising, Retail Store site and design, Store layout, Image mix, Store Exterior and Interior, Color Blocking, Signage and Understanding Material Planograms .

UNIT - III

E-Retailing: Introduction: The concepts of E-Commerce, E Business and E-Marketing Evolution of E-Commerce, E-Commerce Vs Traditional Commerce, Network infrastructure for E-Commerce, Internet, Extranet. ECommerce applications: Consumer Applications, Organization Applications, Procurement—Online Marketing and Advertisement, Online Interactive Retailing, E-Commerce--Business Models: B2B, B2C, C2C, B2 Government, Government to Government.

UNIT - IV

E-Marketing: Information Based Marketing, E-Marketing Mix — Cost, Connectivity, Convenience, Customer, interface, Speed of delivery—Web retailing . Process of website development . E-Retailing / reverse marketing . Electronic Payment Systems: Introduction to payment systems, On-line payments.

UNIT – V

Electronic payment systems- Prepaid E-payment systems, Post—paid E-payment systems, E-Cash or Digital Cash, E-Cheque, Credit cards. Smart Debit Cards .

Reference Books:

- Michaelly, Barton A Weitzand Ajay Pandit, Retail management, Tata Mc Graw Hill Education Pvt. Ltd. New Delhi.
- KVC Madaan, Fundamental of retailing, Tata McGraw Hill Education Pvt. Ltd. New Delhi.
- Swapna Pradhan, Retail management, Tata Mc Graw Hill Education Pvt.Ltd New Delhi.
- K. Rama Mohana Rao: Services Marketing, Pearson, 2 Ed. New Delhi.
- Valeri eithmal, ary J Binter, Dwayne D Gremler and Ajay Pandit: Services Marketing, Tata McGraw Hill, New Delhi
- Kalakota & Winston-Frontier of E-commerce, Pearson Education

BBA 3rd YEAR

GROUP B – MARKETING

SUBJECT – Functional Management

PAPER – ELECTIVE

Credit Value : 6

Max Marks : 100

(External : 70, Internal : 30)

Course Learning Outcomes:

- Understand the concept of Financial Management .
- Understand the concept of Personnel Management .
- Understand the concept of Production Management .
- Understand the concept of Marketing Management .
- Understand the concept of Digital Marketing .
- Understand the need of Business Ethics in Management .

UNIT – I

Financial Management : Concept , Nature , Scope , Characteristics of sound financial plan , Objectives of sound financial plan , consideration of formulation of financial plan , steps in financial plan . **Finance Decision :** Financing decisions , Investment decisions , Working capital decisions , Dividend decisions

UNIT – II

Personnel Management : Concept , Duties of Personnel Manager , Scope and Importance , Career Planning Introduction , Meaning and objectives , Career planning v/s Manpower planning , Individual career planning , Self -awareness career management meaning and elements , career models . Benefits of career planning and development , success in career .

UNIT – III

Production Management: Concept , Importance, Scope and Functions. Types of Production Systems, Production Planning, Procedure of Production Control, Process of New Product Development, Concept of Product Diversification, Standardisation, Simplification and Specialisation.

UNIT – IV

Marketing Management: Concept, Nature and Scope, Marketing Environment, Marketing Information and Research, Marketing Mix, Advertising Management, Media of Advertising, Sales Promotion- Meaning, Importance, Methods and limitations.

UNIT – V

Digital Marketing: Introduction, Digital Vs. Real Marketing, Digital Marketing Channels, Creating Initial Digital Marketing Plan.

Business Ethics: Nature, Characteristics and need. Ethical Practices in Management. Fair Trade Practices.

REFERENCES BOOKS:

- Motihar M . – Functional Management
- Pandey I.M -Financial Management
- Flippo Edwin B.- Personnel Management
- Chary S. N.- Production and Operations Management

- Kotler Philip- Marketing Management
- Chaffey Dave and Ellis Chadwick- Digital Marketing
- Maxwell John C. — Ethics 101

BBA 3rd YEAR
GROUP C – FINANCE
SUBJECT – SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT
PAPER – DSE I

Credit Value : 6

Max Marks : 100 (External : 70,

Internal : 30)

Course Learning Outcome :

- Understand the Concept of Security and various kinds of investment .
- Development understanding regarding Indian Capital , Saving patterns and Indian stock market .
- Understanding the role of various market intermediaries .
- Learn the concepts of fundamental analysis and efficient market theory .
- Understand the fundamental concepts of derivative market.

UNIT -1

Investment : Concept , Objective , and types , Investment and Speculation , Factors of Sound Investment , Financial market : Meaning , and types , **Investment Opportunities available in India .**

UNIT -2

Concept of Return and Risk: Sources and types of Risk, Measurement of Risk, Concept of Portfolio Management, Portfolio selection, Markowitz Model, capital Asset Pricing Model.

UNIT -3

Fundamental Analysis: Economic Analysis, Industry Analysis and Company Analysis, Technical Analysis: Dow Theory, Elliott Wave Theory, Charting, Efficient Market Hypothesis.

UNIT-4

Stock Exchange in India : BSE, NSE, OTC, Interconnected Stock, Exchange in India, Stock Indices and their computation, SEBI: Their powers and functions.

UNIT-5

Emerging Trends in Indian Capital Market: Depositories and script less trading, Book Building, Stock Lending Scheme, Rolling Settlement, Green Shoe Option, Responsibilities and code of conduct for portfolio manager

REFERENCES BOOKS-

- Chandra Prasanna, 'Investment Analysis and Portfolio Management', McGraw Hill, 2017, Fifth Edition.
- New Bhat Sudhindra, 'Investment Analysis and Portfolio Management'. Excel Books, New Delhi, 2011, Second Edition.
- Bhalla V.K., 'Investment Management: Security Analysis and Portfolio Management', S. Chand Publishing, New Delhi, 2008, Nineteenth Edition.
- Dr. Singh Preeti, 'Investment Management'. Himalaya Publishing House, 2010.
- Haugen Robert H., 'Modera Investment Theory'. Pearson Education, 2017, Fifth edition, 6.
- Khatri Dhanesh Kumar, 'Investment Management And Security Analysis'. Trinity Press Pvt.Ltd ., 2012, Second Edition .
- Rosy Joshi ' Security Analysis and Portfolio Management '

BBA 3rd YEAR
GROUP C – FINANCE
SUBJECT –INTERNATIONAL FINANCE
PAPER – MAJOR II

Credit Value : 6

Max Marks : 100

Internal : 30)

(External : 70,

COURSE OUTCOME:

- Understand the most widely used international business terms and concepts.
- Identify the role and impact of political, economic, social and cultural variables in international business.
- Analyze international business from a multi-centric perspective, avoiding ethnocentrism.

UNIT-1

Introduction: International Trade, Its Importance, Principles of International Trade- Theory Comparative Costing, Classical Theory, Absolute Advantage. Heckscher-Ohlin Theory, Free Trade Vs. Security Barriers to Foreign Trade, Tariffs and Non- tariff Barriers.

UNIT-2

Balance of Payments: Meaning of BOP, Components of BOP Importance of BOP, Meaning of Deficit and Surplus, Balance, Disequilibrium and Adjustment, Methods of correcting disequilibrium, Accounting principles in BOP.

UNIT-3

Forex Market: Defining the Forex market, structure, settlement system, understanding exchange rates, participants, spot and forward rates, forex quotations, premiums and discounts in the forward market, cross rates, inverse rates and arbitrage.

UNIT -4

Exchange Rate Determination: Determination under Gold Standard and Paper Standard, Factors Affecting Exchange Rates, Purchasing Power Parity Theory, Demand and Supply Theory, Equilibrium Rate of Exchange, Volatile V/S Fixed Exchange Rate, Exchange Control, Exchange Control purpose.

UNIT -5

Instruments: ADR, GDR, Euro Currency, International Commercial Papers.

International Financial Institutions: Introduction to IMF, Its Importance, Functions and Significance.

REFERENCES BOOKS –

- Baker, HK, & Riddick, LA (2013). International Finance: A Survey. Oxford: Oxford University Press.
- Krugman, P. R., Obstfeld, M., & Melitz, M. J. (2017). International Finance: Theory and Policy, Global ed. (Vol. Eleventh ed.). Boston: Pearson
- Terra, c. (2015). International finance and the principles of the open economy Macroeconomics: principles, applications and policies. London: Academic Press.

BBA 3rd YEAR

GROUP C – FINANCE

SUBJECT – WORKING CAPITAL MANAGEMENT

PAPER – MINOR

Credit Value : 6

Max Marks : 100

(External : 70, Internal : 30)

COURSE OUTCOME :

- Equip the knowledge of management of Working Capital.
- Understand the importance of cash management.
- Acquaint themselves with the concept of credit policy and credit management.
- Learn to apply sound techniques for managing inventory.
- Acquaint themselves with various tools of short-term financing, debt financing and bank financing.

UNIT-1

Working Capital: Concept, Definition, types, Importance, Need and Objectives of Working Capital, Determinants of working capital, Excess working capital and inadequate working Capital, Disadvantages of Excess working capital and inadequate working Capital, Operating cycle-Concept.

UNIT -2

Meaning, definition and nature of cash, Motives for holding cash, Cash Management, Meaning of Cash Flow, Determination of optimum cash balance, Cash Management Models, Management of Marketable Securities.

UNIT-3

Concept and definition of receivables, cost of maintaining receivable, factors influencing the size of receivables, forecasting of receivables, objectives of receivable management, factoring and receivable management, types of factoring.

UNIT-4

Meaning and nature of inventory, purpose and benefit of holding inventory, risk and cost of holding inventories, objectives of inventory management, tools and techniques of inventory management.

UNIT-5

Financing of working capital, determining the working capital financing mix, new trends in financing of working capital by banks, latest committees regarding working capital- Kannan Committee, Marathe Committee

REFERENCES BOOKS –

- Kuchhal S.C., 'Financial Management', Chaitanya Publishing House, Allahabad, 1988.
- Khan M.Y. & Jain P.K., 'Financial Management', Tata McGraw-Hill Publishing Company Limited, New Delhi, 1984.
- Pandey I.M., 'Financial Management' Vikas Publishing House, New Delhi, 2016. Eleventh edition.
- Besant A., Raj C., 'Corporate Financial Management', Tata McGraw Hill, New Delhi, 1995, Second edition.
- Chandra Prasanna, 'Financial Management, Theory and Practice', McGraw Hill, New Delhi, 2019, Tenth Edition.
- Bhattacharya, Hrishikes, 'Working Capital Management: Strategies and Techniques', PHI, Fourth Edition.
- Sharma & Gupta, Kalyani Publishers, New Delhi, 2020

BBA 3rd YEAR

GROUP C – FINANCE

SUBJECT – Functional Management

PAPER – Elelctive

Credit Value : 6

Max Marks : 100

: 30)

(External : 70, Internal

Course Learning Outcomes:

- Understand the concept of Financial Management .
- Understand the concept of Personnel Management .
- Understand the concept of Production Management .
- Understand the concept of Marketing Management .
- Understand the concept of Digital Marketing .
- Understand the need of Business Ethics in Management .

UNIT – I

Financial Management : Concept , Nature , Scope , Characteristics of sound financial plan , Objectives of sound financial plan , consideration of formulation of financial plan , steps in financial plan .

Finance Decision : Financing decisions , Investment decisions , Working capital decisions , Dividend decisions .

UNIT – II

Personnel Management : Concept , Duties of Personnel Manager , Scope and Importance , Career Planning Introduction , Meaning and objectives , Career planning v/s Manpower planning , Individual career planning , Self -awareness career management meaning and elements , career models . Benefits of career planning and development , success in career .

UNIT – III

Production Management: Concept , Importance, Scope and Functions. Types of Production Systems, Production Planning, Procedure of Production Control, Process of New Product Development, Concept of Product Diversification, Standardisation, Simplification and Specialisation.

UNIT – IV

Marketing Management: Concept, Nature and Scope, Marketing Environment, Marketing Information and Research. Marketing Mix, Advertising Management, Media of Advertising. Sales Promotion- Meaning, Importance, Methods and limitations.

UNIT – V

Digital Marketing: Introduction, Digital Vs. Real Marketing, Digital Marketing Channels, Creating Initial Digital Marketing Plan.

Business Ethics: Nature, Characteristics and need. Ethical Practices in Management. Fair Trade Practices.

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- Flippo Edwin B. - Personnel Management
- Chary S. N.- Production and Operations Management
- Kotler Philip- Marketing Management
- Chaffey Dave and Ellis Chadwick- Digital Marketing
- Maxwell John C. — Ethics 101



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS
UG
CHEMISTRY

St. Aloysius (Autonomous) College, Jabalpur
Department of Chemistry

MARKS SCHEME FOR BSc. I & II SEMESTER

COURSE CODE: S1 CHEMISTRY

COURSE TYPE: FUNDAMENTALS OF CHEMISTRY & ANALYTICAL CHEMISTRY

COURSE TYPE: CORE COURSE

SUBJECT: CHEMISTRY

MAXIMUM MARKS: 100

CREDIT VALUE: 6

TOTAL MARKS:

SUBJECT	EXAMINATION	MAX. MARKS	MIN. MARKS
CHEMISTRY	CCE EXAM	40	35
	FINAL EXAM	60	

ASSISMENT AND EVALUATION

Assessment and presentation	09
Class test-I	08
Class test-II	08
Overall performance throughout the year(attendance and behavior)	15
Total	40

Theory Paper:

SECTION WISE MARKS DISTRIBUTION

S. No.	SECTION	TOTAL NO. OF QUESTION	MARKS
1	A	Objective Question	6 X 1= 6
2	B	Short Answer Question	6 X 3 = 18
3	C	Long Answer Question	6 X 6= 36
		Total	60
	Internal and ExternalMarks	Grand Total	40+ 60 =100

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
				Max:100	Min:35
B.Sc. I Semester	Major/Minor	ChemT1	Fundamentals of Chemistry	Max:100	Min:35

Course Objectives:

- To create an understanding of structure of atom and indicate the location of the nucleus, the shells, and the electronic orbitals and to calculate the maximum number of electrons that can occupy a specific shell
- To identify the various periodic properties of s and p block elements and their trends along the group and periods of the periodic table.
- To enable the students to identify and differentiate between the different types of chemical bonds/parameters and create an understanding of various theories associated.
- To enable the students in identifying the properties of acids and bases and comparing the various models of acid- base.
- To understand the fundamentals of structure, shape and reactivity of organic molecules.
- To enable the students to understand the concept of stereochemistry and conformations.
- To gain knowledge about rate constants of various order reactions, half-life period, types of electrolytes, solubility product, degree of ionization and factors affecting it.

UNIT - I

Atomic Structure:

(a) Chemical Techniques in ancient India: general Introduction. Contribution of ancient Indian Scientists in chemistry e.g., metallurgy, yes, pigments, cosmetics, Ayurveda, Charak Sanhita.

(b) Review of Bohr's theory and its limitations. Atomic spectrum of Hydrogen. Dual nature of particles and waves, de Broglie's equation, Heisenberg's Uncertainty Principle and its significance. Quantum number and their significance. Rules for filling electrons in various orbitals, Pauli's Exclusion Principle, Hund's rule of maximum multiplicity, Aufbau Principle and its limitations, Variation of orbital energy with atomic number. Electronic configurations of the atoms. Stability of half-filled and completely filled orbitals, concept of exchange energy. Relative energies of atomic orbitals, Anomalous electronic configurations.

Keywords/Tags: Metallurgy, Dyes, Cosmetics, Charak Sanhita Hydrogen Spectrum, Hund's Rule,

UNIT - II

Elementary idea of the following properties of the elements with reference to s & p-block elements in periodic table. Effective nuclear number (EAN), Shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table. Atomic radii (vander Waals) Ionic and crystal radii Covalent radii (octahedral and tetrahedral). Detailed discussion of the following properties of elements, with reference to s & p-blocks. Ionization energy – Successive ionization energy and factors affecting ionization energy. Applications of Ionization energy. Electronegativity-Pauling's/Mulliken's electronegativity scales. Variation of electro negativity with bond order, partial charge, hybridization.

Keywords/Tags: EAN, Atomic radii, Ionic radii, Crystal radii

UNIT - III

(a) **Ionic Bonding: General Characteristics of Ionic Bonding.**

Ionic Bonding and energy: lattice and solvation energies and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Madelung constant, Born-Haber cycle and its applications. Covalent character in ionic compounds, polarizing power and polarizability. Fajan's rules. Covalent bonding: Lewis structure, Valence bond theory (Heitler-London Approach). Hybridization-Concept, types (sp , sp^2 , sp^3 , dsp^2 , d^2sp^3) with suitable example of inorganic and organic molecules. Ionic character in covalent compounds-dipole moment and percentage ionic character. Valence Shell Electron pair Repulsion (VSEPR) Theory: Assumption, need of theory, application of theory to explain geometries or shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements such as: NH_3 , H_2O , SF_4 , ClF_3 , PCl_5 , SF_6 , ClF_5 , XeF_4 .

(b) Molecular orbital (MO) concept of bonding

The approximations of the theory, Linear combination of Atomic Orbitals (LCAO) (elementary pictorial approach). Rules for the LCAO method, bonding and antibonding MOs. Characteristics for s-s, s-p and p-p combinations of atomic orbitals, nonbonding combination of orbitals. Molecular orbital Diagram of homonuclear diatomic molecules: H_2 , Li_2 , Be_2 , B_2 , C_2 , N_2 , O_2 , F_2 and their ions. Molecular orbitals of heteronuclear diatomic molecules: CO , NO , CN , HF .

(c) Bond parameters: Definition and factors affecting- bond orders, bond lengths, bond angles.

Keywords/Tags: Ionic Bonding, Covalent Bonding, hybridization, VSEPR Theory, LCAO, MO diagram, Bond Parameters

UNIT – IV

Arrhenius concept, Bronsted-Lowry's concept, conjugate acids and bases, relative strength of acids, Lewis concept. pH, buffer solutions. Acid-base neutralization curves, Henderson equation. Strength of organic acids and bases: Comparative study with emphasis on factors affecting pK values Indicator, choice of indicators.

Keywords/Tags: Acid-base concept, Bronsted-Lowry's concept, Conjugate Acids and Bases, pH, Buffer Solution, Indicator.

UNIT – V

(a) Fundamentals of Organic Chemistry

Structure, shape and reactivity of organic molecules: Physical Effects, Electronic Displacement: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of bonds: Homolysis and Heterolysis. Reactive Intermediates: Carbocations, Carbanions and free radicals. Nucleophiles and Electrophiles.

(a) Stereochemistry of Organic Compounds: Concept of isomerism

Geometrical isomerism: Determination of configuration of geometric isomers. E & Z system of nomenclature, geometric isomerism in oximes and alicyclic compounds.

(b) Optical isomerism: Elements of symmetry, molecular chirality, enantiomers & their properties, stereogenic centre, optical activity of enantiomers. Concept of chirality (up to two carbon atoms): chiral and achiral molecules with two stereogenic centres, diastereomers, threo and erythroisomers, mesoisomer, resolution of enantiomers, inversion, retention and racemization. Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature.

(c) Conformations and Conformational analysis

Conformations of ethane, butane and cyclohexane. Interconversion of wedge Formula, Newman, Sawhorse and Fischer representations.

Keywords/Tags: Electronic Displacements, Nucleophiles, Electrophiles, Isomerism, Molecular Chirality, Enantiomers, Sequence Rules, Conformation

UNIT-VI:

(a) Chemical Kinetics:

Rate of reaction, Definition and difference of order and molecularity. Derivation of rate constants for first, second, third and zero order reactions and examples. Derivation of half-life period. Methods to determine the order of reactions. Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy.

(b) Ionic Equilibria: Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionizations constant and ionic product of water. Common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for difficult salts. Solubility and solubility product of sparingly soluble salts-applications of solubility product.

Keywords/Tags: Order of Reaction, Molecularity Of Reaction, Arrhenius Equation, Activation Equation, Activation Energy, Electrolytes, Salt Hydrolysis, Solubility Product.

Course outcome:

By the end of this course student will be able to

- Gain a thorough knowledge about various theories and principles applied to reveal atomic structure and quantum number
- Understand concepts of periodic properties of elements.
- Develop an understanding related to theories of chemical bonding
- Develop the Acid-Base concept and pH buffer
- Gain a thorough knowledge about factors responsible for reactivity of organic molecules.
- Develop an understanding related to basics and Mechanism of Chemical Kinetic

Reference Books:

1. Lee. J.D. Concise Inorganic Chemistry. ELBS, 1991.
2. Khera, H.C., Gurtu, J.N., Singh, J. Chemistry for B.Sc. I st Year, PragatiPrakashan.
3. Bariyar, A. &Goyal, S., B.Sc. Chemistry Combined. (In Hindi) Krishna Educational Publishers Year: 2019.
4. Puri, B. R. Pathania, M.S., Sharma, L. R., Principles of Physical Chemistry. Vishal Publishing Co. 2020
5. Gurtu, J. N, Gurtu A., Advanced Physical Chemistry. PragatiPrakashan, Meerut. ISBN: 9789386633347, 9386633345; Edition: IV, 2017
6. Day. M.C. and Selbin. J. Theoretical Inorganic Chemistry, ACS Publications 1962
7. Bahl, A &Bahl, B.S. Advanced Organic Chemistry. S. Chand, 2010.
8. Kalsi, P. S., Stereochemistry Conformation and Mechanism, New Age International, 2005.
9. Finar, I.L., Organic Chemistry (Vol. I&1).E.L.B.S.

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
B.Sc. I Semester	Elective	ChemT2	Fundamentals of Chemistry	Max: 100	Min: 35

Course Objectives:

- To create an understanding of structure of atom and indicate the location of the nucleus, the shells, and the electronic orbitals and calculate the maximum number of electrons that can occupy a specific shell
- To identify the various periodic properties of s and p block elements and their trends along the group and periods of the periodic table.
- To enable the students to identify and differentiate between the different types of chemical bonds/parameters and create an understanding of various theories associated.
- To identify the properties of acids and bases and comparing the various models of acid-base.
- To understand the fundamentals of structure, shape and reactivity of organic molecules.
- To enable the students to understand the concept of stereochemistry and conformations.
- To gain knowledge about rate constants of various order reactions, half-life period, types of electrolytes, solubility product, degree of ionization and factors affecting it.

UNIT – I**Atomic Structure:**

(a) Chemical Techniques in ancient India: general Introduction. Contribution of ancient Indian Scientists in chemistry e.g., metallurgy, yes, pigments, cosmetics, Ayurveda, Charak Sanhita.

(b) Review of Bohr's theory and its limitations. Atomic spectrum of Hydrogen. Dual nature of particles and waves, de Broglie's equation, Heisenberg's Uncertainty Principle and its significance. Quantum number and their significance. Rules for filling electrons in various orbitals, Pauli's Exclusion Principle, Hund's rule of maximum multiplicity, Aufbau Principle and its limitations, Variation of orbital energy with atomic number. Electronic configurations of the atoms. Stability of half-filled and completely filled orbitals, concept of exchange energy. Relative energies of atomic orbitals, Anomalous electronic configurations.

(c) Elementary idea of the following properties of the elements with reference to s & p-block elements in periodic table. Effective nuclear number (EAN), Shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table. Atomic radii (Vander Waals) Ionic and crystal radii Covalent radii (octahedral and tetrahedral). Detailed discussion of the following properties of elements, with reference to s & p-blocks. Ionization energy – Successive ionization energy and factors affecting ionization energy. Applications of Ionization energy. Electronegativity-Pauling's/Mulliken's electronegativity scales. Variation of electro negativity with bond order, partial charge, hybridization

Keywords/Tags: Metallurgy, Dyes, Cosmetics, Charak Sanhita Hydrogen Spectrum, Hund's Rule, EAN, Atomic radii, Ionic radii, Crystal radii.

UNIT II**(a) Ionic Bonding: General Characteristics of Ionic Bonding.**

Ionic Bonding and energy: lattice and salvation energies and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Madelung constant, Born-Haber cycle and its applications. Covalent character in ionic compounds,

polarizing power and polarizability. Fajan's rules. Covalent bonding: Lewis structure, Valence bond theory (Heitler-London Approach). Hybridization-Concept, types (sp , sp^2 , sp^3 , dsp^2 , d^2sp^3) with suitable example of inorganic and organic molecules. Ionic character in covalent compounds-dipole moment and percentage ionic character.

Valence Shell Electron pair Repulsion (VSEPR) Theory: Assumption, need of theory, application of theory to explain geometries or shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements such as: NH_3 , H_2O , SF_4 , ClF_3 , PCl_5 , SF_6 , ClF_5 , XeF_4 .

(b) Molecular orbital (MO) concept of bonding

The approximations of the theory, Linear combination of Atomic Orbitals (LCAO) (elementary pictorial approach). Rules for the LCAO method, bonding and antibonding MOs. Characteristics for s-s, s-p and p-p combinations of atomic orbitals, nonbonding combination of orbitals. Molecular orbital Diagram of homonuclear diatomic molecules: H_2 , Li_2 , Be_2 , B_2 , C_2 , N_2 , O_2 , F_2 and their ions. Molecular orbitals of heteronuclear diatomic molecules: CO , NO , CN , HF .

(c) Bond parameters: Definition and factors affecting- bond orders, bond lengths, bond angles.

Keywords/Tags: Ionic Bonding, Covalent Bonding, hybridization, VSEPR Theory, LCAO, MO diagram, Bond Parameters

UNIT – III

(a) Fundamentals of Organic Chemistry

Structure, shape and reactivity of organic molecules: Physical Effects, Electronic Displacement: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of bonds: Homolysis and Heterolysis. Reactive Intermediates: Carbocations, Carbanions and free radicals. Nucleophiles and Electrophiles.

(b) Stereochemistry of Organic Compounds: Concept of isomerism

Geometrical isomerism: Determination of configuration of geometric isomers. E & Z system of nomenclature, geometric isomerism in oximes and alicyclic compounds.

Optical isomerism: Elements of symmetry, molecular chirality, enantiomers & their properties, stereogenic centre, optical activity of enantiomers. Concept of chirality (up to two carbon atoms): chiral and achiral molecules with two stereogenic centres, diastereomers, threo and erythroisomers, mesoisomer, resolution of enantiomers, inversion, retention and racemization. Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature.

(c) Conformations and Conformational analysis

Conformations of ethane, butane and cyclohexane. Interconversion of wedge Formula, Newman, Sawhorse and Fischer representations.

Keywords/Tags: Electronic Displacements, Nucleophiles, Electrophiles, Isomerism, Molecular Chirality, Enantiomers, Sequence Rules, Conformation

UNIT – IV

(a) Arrhenius concept, Bronsted-Lowry's concept, conjugate acids and bases, relative strength of acids, Lewis concept. pH, buffer solutions. Acid-base neutralisation curves, Henderson equation. Strength of organic acids and bases: Comparative study with emphasis on factors affecting pK values. Indicator, choice of indicators.

(b) Chemical Kinetics: Rate of reaction, Definition and difference of order and molecularity. Derivation of rate constants for first, second, third and zero order reactions and examples. Derivation of half-life period. Methods to determine the order of reactions. Effect of temperature on rate of

reaction, Arrhenius equation, concept of activation energy.

(c) **Ionic Equilibria:** Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionizations constant and ionic product of water. Common ion effect. Salt hydrolysis- calculation of hydrolysis constant, degree of hydrolysis and pH for difficult salts. Solubility and solubility product of sparingly soluble salts-applications of solubility product.

Keywords/Tags: Acid-base concept, Bronsted-Lowry's concept, Conjugate Acids and Bases, pH, Buffer Solution, Indicator, Order of Reaction, Molecularity Of Reaction, Arrhenius Equation, Activation Equation, Activation Energy, Electrolytes, Salt Hydrolysis, Solubility Product

Course Outcomes:

By the end of this course student will be able to

- Gain a thorough knowledge about various theories and principles applied to reveal atomic structure and quantum number
- Understand concepts of periodic properties of elements.
- Develop an understanding related to theories of chemical bonding
- Develop the Acid-Base concept and pH buffer
- Gain a thorough knowledge about factor responsible for reactivity of organic molecules.

Develop an understanding related to basics and Mechanism of Chemical Kinetic

Reference Books:

1. Lee. J.D. Concise Inorganic Chemistry ELBS, 1991.
2. Khera, H.C., Gurtu, J.N., Singh, J. Chemistry for B.Sc. I st Year, PragatiPrakashan.
3. Bariyar, A. &Goyal, S., B.Sc. Chemistry Combined. (In Hindi) Krishna Educational Publishers Year: 2019.
4. Puri, B. R. Pathania, M.S., Sharma, L. R., Principles of Physical Chemistry. Vishal Publishing Co. 2020
5. Gurtu, J. N, Gurtu A., Advanced Physical Chemistry. PragatiPrakashan, Meerut. ISBN: 9789386633347, 9386633345; Edition: IV, 2017
6. Day. M.C. and Selbin. J. Theoretical Inorganic Chemistry, ACS Publications 1962
7. Bahl, A &Bahl, B.S. Advanced Organic Chemistry. S. Chand, 2010.
8. Kalsi, P. S., Stereochemistry Conformation and Mechanism, New Age International, 2005.
9. Finar, I.L., Organic Chemistry (Vol. I&1) E.L.B.S.

Class	Course Type	CourseCode	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. I Semester	Major/Minor/ Elective	S1- CHEM1P	Qualitative and Quantitative Chemical Analysis (Practical)	100	35

General Objective:

- To enable the students to create an understanding about the laboratory practices, various laboratory techniques and analysis.
- To recognize safe laboratory practices, handling laboratory glassware, equipment, and chemical reagents.
- To identify elements and functional group in organic compounds.
- To enable the students to measure the pH of solutions and prepare buffer solution.
- To create an understanding about paper chromatography and spectroscopy through various experiments

EXTERNAL ASSESSMENT: 60 marks

1. Basic Analytical Exercises:

Calibration of different weights and glass apparatus (measuring cylinders, burette, pipette, volumetric flask)

- Preparation of solutions of different normality/ molarity by weighing and dilution

2. Qualitative Organic Analysis

- Detection of hetero elements (N, S, Cl, Br, I) in organic compounds
- Functional group tests for alcohol, aldehyde, carboxylic acid, carbohydrate, phenols, nitro, amine and amide

3. Quantitative Analysis of acid, alkali and buffer solutions

Ionic Equilibria

- Measurement of pH of different solutions of acids, alkalies using pH- meter (may use carbonated drinks, fruit juices, shampoos and soaps)
- Measurement of the pH of buffer solutions and comparisons of the values with theoretical values.
- Preparation of buffer solutions and determination of their pH and buffer capacity:
 - (1) Sodium acetate – acetic acid
 - (2) Ammonium chloride – ammonium hydroxide

4. Qualitative Analysis:

- Identification by determination of the R_f value of given organic/ inorganic compounds by paper chromatography

INTERNAL ASSESSMENT: 40 marks

Internal assessment	Marks	External assessment	Marks
Chemical and Lab safety <ul style="list-style-type: none"> • Toxicity of the compounds used in chemistry laboratory • Safety symbols on labels of pack of chemicals and its meaning • What are MSDS sheets? Find out MSDS sheets of some hazardous chemicals ($K_2Cr_2O_7$, benzene, cadmium nitrate, sodium metal etc.) • Precautions in handling and storage of hazardous substances like concentrated acids, ammonia, organic solvents etc.) 	5	Viva- Voce on Practical	5
Attendance	5	Practical Record File	5
Assignment (Charts/ model seminar/Rural services/ Technology dissemination/ Report of Excursion/ Lab visits/ Survey/ Industrial visit)	30	Table work/Experiments	50
TOTAL	40		60

Course Outcomes: By the end of this course student will be able to

- Understand the importance of chemical safety and lab safety while performing experiments in laboratory
- Perform qualitative inorganic analysis
- Explain elemental analysis of organic compounds (non- instrumental)
- Gain a thorough knowledge about qualitative identification of functional group of organic compounds
- Understand the techniques of pH measurements
- Know the preparation on buffer solutions

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
B.Sc. II Semester	Major/Minor	ChemT2	Analytical Chemistry	Max: 100	Min: 35

Course Objectives:

- To understand various basic mathematical parameters.
- To gain analytical competence through awareness about measurement units used in chemistry, concentration of solutions and Chemical Stoichiometry.
- To attain the essential knowledge of Operating system, MS-word, MS-excel, Power-point.
- To create an understanding of chemical equilibrium, equilibrium constant, Free energy and chemical potential.
- To understand chromatogram, ion exchange, column selection and adsorption.
- To gain knowledge of fundamental laws of absorption, UV- visible spectroscopy and IR spectroscopy.

UNIT – I**Mathematics for Chemists:**

Right line equation Logarithmic relations, curves sketching, linear graphs and calculation of slopes, Differentiation of functions like k_x , e^x , x^n , $\sin x$, $\log x$; maxima and minima, partial differentiation. Integration of some useful/relevant functions.

Keywords/Tags: Linear graphs, Logarithmic relations, differentiation, Integration.

UNIT – II**Basic Analytical chemistry**

Introduction to analytical Chemistry and its interdisciplinary nature. Concept of Sampling, Importance of accuracy. Precision and source of error in analytical measurements. Significant figures. Statistical term: mean, mean deviation, median, standard deviation, Numerical problems.

Calculation used in Analytical Chemistry

Some important unit of measurement-SI units, Distinction between mass and weight, mole, milli mole and Numerical problems.

Solution and their Concentrations- Concept of molarity, molality and normality. Expressing the concentration in parts per million(ppm), parts per billion(ppb), Numerical problems.

Chemical Stoichiometry- empirical and molecular formulas, stoichiometric calculation, Numerical problems.

Keywords/Tags: Accuracy, Precision, SI Units, unit of concentration, Chemical Stoichiometry.

UNIT – III**Computer for Chemists**

Introduction to computer, Introduction to operating systems like-DOS, windows, Linus and Ubuntu. **Use of Computer Programs,** Running of standard programs and packages such as MS- word, MS-Excel, Power -point, Execution of linear regression x-y point. Use of software for drawing structures and Molecular formulae

Keywords/Tags: Operating system, MS-word, MS-excel, Power-point.

UNIT – IV

Chemical Equilibrium: Equilibrium constant and free energy, concept of chemical potential, thermodynamic derivation of law of chemical equilibrium, Temperature dependence of equilibrium constant: Vant Hoff reaction isochore, van't Hoff reaction isotherm, Le Chatelier's principle and its applications

Key/Tags: Chemical Equilibrium Equilibrium constant, Free energy, Chemical potential.

UNIT – V

Chromatography

Introduction Principle and classification Mechanism of separation: adsorption, Partition and ion-exchange. Development of chromatograms: frontal elution and displacement methods. Paper Chromatography (ascending descending and circular), thin layer chromatography (TLC) and Column Chromatography (CC) and High Pressure Liquids Chromatography (HPLC), types of column and column selection, applications, limitation

Principle and Applications of: Flash – Chromatography, Ion-Exchange chromatography and Chiral chromatography.

Keywords/ tags: Chromatogram, ion exchange, Column Selection, Adsorption.

UNIT – VI

Spectral techniques of analysis

Basics of absorption spectroscopy: Electromagnetic radiation Spectral range. Absorbance. Absorptivity, Molar Absorptivity. Fundamental Laws of absorption. Lambert-Beer Law and its limitation. Constitution and working of photometer, spectrometer, colorimeter.

Ultraviolet (UV) absorption spectroscopy: Presentation and analysis of UV spectra. Types of electronic transition Effect of conjugation. Concept of chromophore and auxochrome, Bathochromic, hypsochromic. Hyperchromic and hypochromic shift. UV spectra of conjugated polyenes and enones.

Infra-red (IR) absorption spectroscopy: Molecular vibration. Hook's law, selection rules. Intensity and position of IR bands. Measurement of IR-spectrum. Finger print region, Characteristics absorption of various functional group and interpretation of IR spectra of simple organic compounds.

Keywords/Tags: Hypsochromic Hypochromic, absorption, spectrum.

Course outcome:

By the end of this course student will be able to

- Understand the basics of application of mathematics and computer in chemistry
- Gain a thorough knowledge about fundamentals of analytical chemistry and steps involved in analysis.
- Build the concepts of thermodynamics and chemical equilibrium
- Develop an understanding about principle of chromatography and spectroscopy and utilization of chromatographic and spectroscopic techniques in analysis.

Reference Books:

1. MitraSurbhi, Handbook of Computer Science & IT, Arihant, 2018
2. Harris, D. C. Quantitative Chemical Analysis. 6th Ed., Freeman (2007)
3. Christian, Gary D; Analytical Chemistry, 6th Ed. John Wiley & Sons, NewYork, 2004.
4. Barrow, G.M. Physical Chemistry. Tata McGraw-Hill (2007)
5. Atkins' Physical Chemistry. 10" Edition, Oxford University Press, 2014
6. Gurtu J.N, GurtuA..Advanced Physical Chemistry, PragatiPrakashan, Meerut.ISBN: 9789386633347, 9386633345: Edition: IV, 2017
7. Atkins, P. W. & Paula, J. Physical Chemistry, Oxford Press, 2006.
8. Finar, I.L. Organic Chemistry (Vol. I & II), E.L.B.S.
9. Morrison, R.T. & Boyd, R.N. Organic Chemistry, Pearson, 2010.
10. Banwell, Molecular Spectroscopy, 2017.
11. Silverstien Robert, Spectrometric identification of Organic Compounds, Wiley.2014
12. Dyer J.R.. Applications of Absorption Spectroscopy of Organic Compounds,2009

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
B.Sc. II Semester	Elective	ChemT2	Analytical Chemistry	Max: 100	Min: 35

Course Objectives:

- To gain analytical competence through awareness about measurement units used in chemistry, concentration of solutions and Chemical Stoichiometry.
- To understand of chemical equilibrium, equilibrium constant, Free energy and chemical potential.
- To enable the students to understand chromatography, ion exchange, column selection and adsorption.
- To gain knowledge of fundamental laws of absorption, UV- visible spectroscopy and IR spectroscopy.

UNIT-I**(a) Mathematics for Chemists:**

straight line equation Logarithmic relations, curves sketching, linear graphs and calculation of slopes, Differentiation of functions like k_x , e^x , x^n , $\sin x$, $\log x$; maxima and minima, partial differentiation. Integration of some useful/ relevant functions.

(b) Computer for Chemists

Introduction to computer, Introduction to operating systems like-DOS, Windows, Linus and Ubuntu. Use of Computer Programs, Running of standard programs and packages such as MS- word, MS-Excel, Power -point, Execution of linear regression x-y point. Use of software for drawing structures and Molecular formulae

Keywords/Tags: Linear graphs, Logarithmic relations, differentiation, Integration, Operating system, MS-word, MS-excel, Power-point.

UNIT- II**(a) Basic Analytical chemistry**

Introduction to analytical Chemistry and its interdisciplinary nature. Concept of Sampling, Importance of accuracy. Precision and source of error in analytical measurements. Significant figures. Statistical term: mean, mean deviation, median, standard deviation, Numerical problems.

(b) Calculation used in Analytical Chemistry

Some important unit of measurement-SI units, Distinction between mass and weight, mole, milli mole and Numerical problems.

Solution and their Concentrations- Concept of molarity, molality and normality. Expressing the concentration in parts per million(ppm), parts per billion (ppb), Numerical problems.

(c) Chemical Stoichiometry- empirical and molecular formulas, stoichiometric calculation, Numerical problems.

Keywords/Tags: Accuracy, Precision, SI Units, unit of concentration, Chemical Stoichiometry.

UNIT- III**(a) Chemical Equilibrium:**

Equilibrium constant and free energy, concept of chemical potential, thermodynamic derivation of law of chemical equilibrium. Temperature dependence of equilibrium constant: Vant Hoff reaction isochore, van't Hoff reaction isotherm. Le Chatelier's principal and its applications.

(b) Chromatography

Introduction. Principal and classification Mechanism of separation: adsorption. Partition and ion-exchange. Development of chromatograms: frontal elution and displacement methods. Paper Chromatography (ascending descending and circular), thin layer chromatography (TLC) and Column Chromatography (CC) and High Pressure Liquids Chromatography (HPLC), types of column and column selection, applications, limitation

Key/Tags: Chemical Equilibrium Equilibrium constant, Free energy, Chemical potential, Chromatogram, ion exchange, Column Selection, Adsorption.

UNIT – IV

Spectral techniques of analysis

Basics of absorption spectroscopy: Electromagnetic radiation Spectral range. Absorbance. Absorptivity, Molar Absorptivity. Fundamental Laws of absorption. Lambert-Beer Law and its limitation. Constitution and working of photometer, spectrometer, colorimeter.

Ultraviolet(UV) absorption spectroscopy: Presentation and analysis of UV spectra. Types of electronic transition Effect of conjugation. Concept of chromophore and auxochrome, Bathochromic, hypsochromic. Hyperchromic and hypochromic shift. UV spectra of conjugated polyenes and enones.

Infra-red (IR) absorption spectroscopy: Molecular vibration. Hook's law, selection rules. Intensity and position of IR bands. Measurement of IR-spectrum. Finger print region, Characteristics absorption of various functional group and interpretation of IR spectra of simple organic compounds.

Keywords/Tags: Hypsochromic Hypochromic, absorption, spectrum.

Course outcome:

By the end of this course student will be able to

- Gain a thorough knowledge about fundamental of analytical chemistry and steps involve in analysis.
- Build the concepts of Chemical equilibrium
- Develop an understanding about principle of chromatography and chromatography techniques and various techniques of spectroscopic Analysis.

Reference Books:

1. MitraSurbhi, Handbook of Computer Science & IT, Arihant, 2018
2. Harris, D. C. Quantitative Chemical Analysis. 6th Ed., Freeman (2007)
3. Christian, Gary D; Analytical Chemistry, 6th Ed. John Wiley & Sons, NewYork, 2004.
4. Barrow, G.M. Physical Chemistry. Tata McGraw-Hill (2007)
5. Atkins' Physical Chemistry. 10" Edition, Oxford University Press, 2014
6. Gurtu J.N, GurtuA..Advanced Physical Chemistry, PragatiPrakashan, Meerut. ISBN: 9789386633347, 9386633345: Edition: IV, 2017
7. Atkins, P. W. & Paula, J. Physical Chemistry, Oxford Press, 2006.
8. Finar, I.L. Organic Chemistry (Vol. I & I), E.L.B.S.
9. Morrison, R.T. & Boyd, R.N. Organic Chemistry, Pearson, 2010.
10. Banwell, Molecular Spectroscopy, 2017.
11. Silverstien Robert, Spectrometric identification of Organic Compounds, Wiley.2014
12. Dyer J.R.. Applications of Absorption Spectroscopy of Organic Compounds,2009

<i>Class</i>	<i>Course Type</i>	<i>CourseCode</i>	<i>Course Title (Theory/Practical)</i>	<i>Marks</i>	
B.Sc. II Semester	Major/Minor/ Elective	S1- CHEM 2P	Analytical processes and techniques	Max: 100	Min: 35

Course Objectives:

- To interpret results after collecting and analyzing information through scientific methods.
- To develop a clear understanding of the concept behind the preparation of solutions for volumetric analysis.
- To enable the students to calibrate laboratory glassware and equipment
- To create a clear understanding of inorganic qualitative analysis.
- To create an understanding about paper chromatography and spectroscopy through various experiments
- To enable the students to construct scientific information clearly and accurately in oral and in written form

EXTERNAL ASSESSMENT: 60 marks**a. Qualitative Inorganic Analysis**

Identification of simple inorganic mixture (5 radicals) with two/ three acidic and two/ three basic radicals (including typical combinations), special emphasis on learning theoretical concepts of strong, moderate and weak electrolytes, ionic product, common ion effect, solubility and solubility product.

b. Quantitative Analysis: Titrimetric Analysis

- Standardization of NaOH by oxalic acid
- Determination of carbonate and hydroxide present in mixture

c. Quantitative analysis by colorimetric:

- Verification of Beer- Lambert's law

d. Qualitative Analysis:

Identification by determination of the R_f value of given organic/ inorganic compounds by thin layer chromatography

INTERNAL ASSESSMENT: 40 marks

Internal assessment	Marks	External assessment	Marks
Class Interaction on <ul style="list-style-type: none"> • Common glassware and lab ware for solution preparation and analysis • Numerical problem related to solution preparation • Any other discussion <i>Note: description to be written in practical records</i>	5	Viva- Voce on Practical	5
Attendance	5	Practical Record File	5
Assignment (Charts/ model seminar/ Rural services/ Technology dissemination/ Report of Excursion/ Lab visits/ Survey/ Industrial visit)	30	Table work/Experiments	50
TOTAL	40		60

Course Outcome: By the end of this course students will be able to-

- Build the concept of utilization of analytical methods in chemistry
- Learn the preparation of solutions of different concentrations
- Understand the reason of standardization of the solutions
- Develop an understanding for identification of organic compounds by chromatographic techniques
- Gain a thorough knowledge about analysis by spectral techniques

St. Aloysius (Autonomous) College, Jabalpur
Department of Chemistry

MARKS SCHEME FOR BSc. III & IV SEMESTER

COURSE CODE: S2 CHEMISTRY

COURSE TYPE: MAJOR AND MINOR

SUBJECT: CHEMISTRY

MAXIMUM MARKS: 100

CREDIT VALUE: 6

TOTAL MARKS:

SUBJECT	EXAMINATION	MAX. MARKS	MIN. MARKS
CHEMISTRY	CCE EXAM	40	35
	FINAL EXAM	60	

ASSISMENT AND EVALUATION

Assessment and presentation	09
Class test-I (Objective Question)	08
Class test-II (Descriptive Question)	08
Overall performance throughout the year(attendance and behavior)	15
Total	40

Theory Paper:

SECTION WISE MARKS DISTRIBUTION

S. No.	SECTION	TOTAL NO. OF QUESTION	MARKS
1	A	Objective Question	5 X 1 = 5
2	B	Short Answer Question	5 X 4 = 20
3	C	Long Answer Question	5 X 7 = 35
		Total	60
	Internal and External Marks	Grand Total	40+ 60 =100

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
B.Sc. III Semester	Major/Minor	S2 CHEM1T	Reactions, Reagents and Mechanisms in Organic chemistry (Theory)	Max: 100	Min: 35

Course objectives:

- To understand organic reaction mechanisms
- To impart a thorough knowledge about the chemistry of some selected organic reagents with a view to develop proper aptitude towards the study of organic compounds and their reactions
- To build up an understanding about pericyclic reactions and to predict the reaction outcome
- To develop the concept of Photochemistry and use, mechanism and application of some photochemical reactions

UNIT – I***Substitution Reactions***

Aliphatic Nucleophilic Substitution: Introduction, the S_N1 , S_N2 and S_Ni mechanism, neighbouring group participation, effect of substrate, nucleophile, leaving group and reaction medium. Aliphatic Electrophilic Substitution: Elementary treatment. Aromatic Nucleophilic Substitution: The S_NAr , S_N1 and benzyne $S_{RN}1$ mechanisms, effect of substrate, nucleophile, and reaction medium. Aromatic Electrophilic Substitution: Arenium ion mechanism, orientation/directive influence. (electronic explanation only) and reactivity, diazonium coupling, Vilsmeier reaction

Keywords/Tags: Nucleophilic Substitution, Electrophilic Substitution, S_N1 , S_N2 , S_Ni , S_NAr

UNIT – II***Addition and Elimination Reactions***

Addition Reactions: Introduction, reactions involving addition to nucleophile, electrophile and free radicals, regio-selectivity and chemo-selectivity, orientation and reactivity, Markovnikov and Anti Markovnikov's addition. Elimination Reactions: Introduction $E1$, $E2$ and $E1cB$ mechanisms, effect of substrate, attacking species, leaving group and reaction medium, Orientation-Saytzeff and Hofmann Rule.

Keywords/Tags: Addition Reactions, Elimination Reactions, Saytzeff rule, Markovnikov's addition, regio-selectivity and chemo-selectivity.

UNIT – III**Reagents, Catalysts and Rearrangements (Mechanism and Applications)**

Reagents and Catalysts: Preparation, properties and applications of important reagents and catalysts in organic synthesis with mechanistic details: Grignard reagent, N-bromosuccinimide (NBS), diazomethane, anhydrous aluminium chloride ($AlCl_3$), sodamide ($NaNH_2$), Ziegler-Natta catalyst.

Rearrangements (Reaction Mechanism and Applications): Introduction, Types of rearrangements, Rearrangement to electron deficient Carbon (Pinacol-pinacolone, benzylic acid & Wanger-Meerwein), Rearrangement to electron deficient Nitrogen (Hofmann-Lossen-Curtius & Backmann), Rearrangement to electron deficient Oxygen (Baeyer-Villiger & Dakin) Rearrangement to electron rich Carbon (Witting), Aromatic Rearrangements (Fries & Claisen)

Keywords/Tags: Rearrangement, Reagents, Catalysts, NBS, sodamide, Grignard

UNIT – IV

Oxidation & Reduction Reactions

Oxidation reactions: Introduction, metal based and non- metal based oxidation, Oxidation of alcohols to carbonyls (chromium, manganese and silver based reagents), alkenes to epoxides(peroxides/peracids based), alkenes to diols (manganese and Osmium based), alkenes to carbonyls with bond cleavage (manganese and lead based), oppenauer oxidation. Oxidation of amino group to nitro group: Oxidation by alkaline KMnO₄, Oxidation of aliphatic and aromatic amines by peracids, oxidation of primary and secondary amines to hydroxyl amine by hydrogen peroxide.

Reduction reactions: Introduction, reduction to carbon-carbon multiple bonds, carbonyl groups and nitro compounds: Catalytic hydrogenation: heterogenous (Pd-C and Raney Ni),homogeneous(Wilkinson's Catalyst)Hydride transfer reagents: sodium borohydride and lithium aluminium hydride, metal based reduction: Birch reduction and Clemmensen reduction. Reduction of nitro compound by catalytic hydrogenation and metal (with mechanism).

Keywords/Tags: Oxidation, Reduction, hydrogenation, Wilkinson's Catalyst, metal based reduction.

UNIT – V

Photochemical and Pericyclic Reactions

Photochemical Reactions: Introduction to Photochemistry, electronic excitations, Jablonski diagram, Norrish type I and II reactions and cis-trans isomerism

Pericyclic Reactions: Introduction of Pericyclic Reactions and their classification(Electrocyclic, Sigmatropic rearrangement and Cycloadditions) 2+2 and 4+2 cycloadditions, Claisen and Cope rearrangement.

Keywords/ tags: Photochemistry, Pericyclic Reactions, Norrish Reactions, Cycloaddition

Course Outcome: By the end of this course students will be able to-

- Develop knowledge of various organic reactions, reagents and their mechanism in understanding organic synthesis.
- Understand the applications of the reactions in the various industries like pharmaceutical, polymer, pesticides, textile, dye etc.
- Develop knowledge about important key reactions used in higher studies and research in chemistry.

Reference Books:

1. Clayden J., Graves N. and Warren S., "Organic Chemistry", Oxford University 2012, 2nd
2. March J, and Smith M.B. "Advanced Organic Chemistry" John Wily and Sons, 6th
3. Bruckner R., "Organic mechanism reactions stereochemistry and synthesis", 2010
4. Kalsi P.S., "Organic reactions and their mechanisms" New Age Science, London, editio 2010, 3rd
5. "synthesis" John Wily and Sons, New Jersey, 2005, second edition
6. Li J.J., "Name reactions are collection of detailed mechanism and synthetic application" Springer International Publishing, Switzerland, 2014, fifth edition
7. Hornback J.M. "Organic Chemistry" Thomson Learning, Singapore, 2006, second edition
8. Singh J. and Singh J., "Photochemistry and Pericyclic Reactions" New

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
B.Sc. III Semester	Elective	S2 CHEM1T	Reactions, Reagents and Mechanisms in Organic chemistry (Theory)	Max: 100	Min: 35

Course objectives:

- To understand organic reaction mechanisms
- To impart a thorough knowledge about the chemistry of some selected organic reagents with a view to develop proper aptitude towards the study of organic compounds and their reactions
- To build up an understanding about pericyclic reactions and to predict the reaction outcome
- To develop the concept of Photochemistry and use, mechanism and application of some photochemical reactions

UNIT – I**(a) Substitution Reactions**

Aliphatic Nucleophilic Substitution: Introduction, the S_N1 , S_N2 and S_Ni mechanism, neighbouring group participation, effect of substrate, nucleophile, leaving group and reaction medium. Aliphatic Electrophilic Substitution: Elementary treatment. Aromatic Nucleophilic Substitution: The S_NAr , S_N1 and benzyne $S_{RN}1$ mechanisms, effect of substrate, nucleophile, and reaction medium. Aromatic Electrophilic Substitution: Arenium ion mechanism, orientation/directive influence. (electronic explanation only) and reactivity, diazonium coupling, Vilsmeier reaction

(b) Addition and Elimination Reactions

Addition Reactions: Introduction, reactions involving addition to nucleophile, electrophile and free radicals, regio-selectivity and chemo-selectivity, orientation and reactivity, Markovnikov and Anti Markovnikov's addition. Elimination Reactions: Introduction $E1$, $E2$ and $E1cB$ mechanisms, effect of substrate, attacking species, leaving group and reaction medium, Orientation-Saytzeff and Hofmann Rule.

Keywords/Tags: Nucleophilic Substitution, Electrophilic Substitution, S_N1 , S_N2 , S_Ni , S_NAr Addition Reactions, Elimination Reactions, Saytzeff rule, Markovnikov's addition, regio-selectivity and chemo-selectivity.

UNIT – II**Reagents, Catalysts and Rearrangements (Mechanism and Applications)**

Reagents and Catalysts: Preparation, properties and applications of important reagents and catalysts in organic synthesis with mechanistic details: Grignard reagent, N-bromosuccinimide (NBS), diazomethane, anhydrous aluminium chloride ($AlCl_3$), sodamide ($NaNH_2$), Ziegler-Natta catalyst.

Rearrangements (Reaction Mechanism and Applications): Introduction, Types of rearrangements, Rearrangement to electron deficient Carbon (Pinacol-pinacolone, benzylic acid & Wangler-Meerwein), Rearrangement to electron deficient Nitrogen (Hofmann-Lossen- Curtius & Backmann), Rearrangement to electron deficient Oxygen (Baeyer-Villiger & Dakin) Rearrangement to electron rich Carbon (Witting), Aromatic Rearrangements (Fries & Claisen)

Keywords/Tags: Rearrangement, Reagents, Catalysts, NBS, sodamide, Grignard

UNIT – III**Oxidation & Reduction Reactions**

Oxidation reactions: Introduction, metal based and non-metal based oxidation, Oxidation of alcohols to carbonyls (chromium, manganese and silver based reagents), alkenes to epoxides (peroxides/peracids based), alkenes to diols (manganese and Osmium based), alkenes to carbonyls with bond cleavage

(manganese and lead based), oppenauer oxidation. Oxidation of amino group to nitro group: Oxidation by alkaline KMnO_4 , Oxidation of aliphatic and aromatic amines by peracids, oxidation of primary and secondary amines to hydroxyl amine by hydrogen peroxide.

Reduction reactions: Introduction, reduction to carbon-carbon multiple bonds, carbonyl groups and nitro compounds: Catalytic hydrogenation: heterogeneous (Pd-C and Raney Ni), homogeneous (Wilkinson's Catalyst) Hydride transfer reagents: sodium borohydride and lithium aluminium hydride, metal based reduction: Birch reduction and Clemmensen reduction. Reduction of nitro compound by catalytic hydrogenation and metal (with mechanism).

Keywords/Tags: Oxidation, Reduction, hydrogenation, Wilkinson's Catalyst, metal based reduction.

UNIT – IV

Photochemical and Pericyclic Reactions

Photochemical Reactions: Introduction to Photochemistry, electronic excitations, Jablonski diagram, Norrish type I and II reactions and cis-trans isomerism

Pericyclic Reactions: Introduction of Pericyclic Reactions and their classification (Electrocyclic, Sigmatropic rearrangement and Cycloadditions) 2+2 and 4+2 cycloadditions, Claisen and Cope rearrangement.

Keywords/ tags: Photochemistry, Pericyclic Reactions, Norrish Reactions, Cycloaddition

Course Outcome: By the end of this course students will be able to-

- Develop knowledge of various organic reactions, reagents and their mechanism in understanding organic synthesis.
- Understand the applications of the reactions in the various industries like pharmaceutical, polymer, pesticides, textile, dye etc.
- Develop knowledge about important key reactions used in higher studies and research in chemistry.

Reference Books:

1. Clayden J., Graves N. and Warren S., "Organic Chemistry", Oxford University 2012, 2nd
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3. Bruckner R., "Organic mechanism reactions stereochemistry and synthesis", 2010
4. Kalsi P.S., "Organic reactions and their mechanisms" New Age Science, London, editio 2010, 3rd
5. "synthesis" John Wiley and Sons, New Jersey, 2005, second edition
9. Li J.J., "Name reactions are collection of detailed mechanism and synthetic application" Springer International Publishing, Switzerland, 2014, fifth edition
10. Hornback J.M. "Organic Chemistry" Thomson Learning, Singapore, 2006, second edition
11. Singh J. and Singh J., "Photochemistry and Pericyclic Reactions" New

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Semester	Major/ Minor/ Elective	S2CHEM1P	Organic Qualitative Analysis, reactions and synthesis(Practical)	100	35

Course objectives:

- To develop the skills for identification, separation and purification of organic compounds
- To widen problem solving ability and scientific thinking which will be helpful in Higher studies and research

EXTERNAL ASSESSMENT: 60 marks**Inorganic Chemistry**

- Crystallization of CuSO_4
- Sublimation of a mixture of Naphthalene

Physical Chemistry- Volumetric analysis.

- Determination of acetic acid in commercial vinegar using NaOH
- Determination of alkali content- antacid tablet using HCl
- Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- Estimation of hardness of water by EDTA.

Organic Chemistry

- Paper chromatography : Ascending*

Determination of R_f values and identification of organic compounds- Separation of a mixture of phenylalanine and glycine, alanine and aspartic acid. Spray reagent ninhydrin.

- Binary mixture analysis containing two solids Separation, identification and preparation of derivatives
 - Preparation
- i) Acetylation (ii) Benzoylation (iii) Meta-dinitro benzene (iv) Picric acid

INTERNAL ASSESSMENT: 40 marks

Internal assessment	Marks	External assessment	Marks
Class Interaction/	15	Viva- Voce on Practical	15
Attendance	5	Practical Record File	10
Assignment (Charts/ model seminar/Rural services/ Technology dissemination/ Report of Excursion/ Lab visits/ Survey/ Industrial visit)	20	Table work/ Experiments	35
TOTAL	40		60

Course Learning Outcome: By the end of this course students will be able to:

- Perform various reactions, which will be helpful in understanding organic synthesis.
- Understand the use reagents while performing experiments based on certain organic reactions
- Analyze and Synthesize some organic compounds
- Understand the use of chromatographic techniques and its application in monitoring organic reactions

- Develop an understanding for the applications of qualitative analysis.

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. IV Semester	Major/ Minor	S2 CHEM2T	Transition Elements, Chemi-energetics, Phase Equilibria(Theory)	100	35

Course objectives:

- To enrich the students with the understanding of fundamentals and concepts of thermodynamics, thermochemistry, phase equilibrium, Solutions, Electrochemistry, adsorption, adsorption and its applications.
- To enable the students to understand the fundamentals of the inorganic chemistry through schematic study of transition, inner transition elements and their properties and compounds
- To build up an understanding of coordination chemistry, their reactions, structure, isomerism and applications

UNIT – I

Chemistry of d- & f-block elements

(a) **Chemistry of Transition elements:** First, Second and Third Transition series. General group trends with special reference to- Electronic Configuration, Coordination Geometry, Colour, Variable Valency, Spectral, Magnetic and Catalytic Properties, Ability to form Complexes.

(b) **Chemistry of Inner Transition elements:** Lanthanides and Actinides. General group trends with special reference to Electronic Configuration, Oxidation States, Colour, Spectral and Magnetic Properties. Lanthanide Contraction. Separation of Lanthanides (Ion-exchange method only).

(c) **Transuranic elements:** General Introduction.

Keywords/Tags: Knowledge Tradition of Indian Chemistry, Transition elements, Spectral Properties, Magnetic Properties, Catalytic Properties, Lanthanide Contraction.

UNIT – II

Coordination Chemistry

(a) **Structures, Stereochemistry and Metal-Ligand Bonding in Transition Metal Complexes:** Werner theory for complexes. Electronic interpretation by Sidwick.

(b) **Valence Bond Theory (VBT)-** Postulates and applications for Tetrahedral, Square planar and Octahedral complexes. Limitations of VBT.

(c) **Crystal Field Theory (CFT);** Postulates and application: Crystal field splitting of d-orbitals Crystal field stabilization energy (CFSE) in Tetrahedral, Square planar and Octahedral complexes, CFSE of weak and strong fields. Factors affecting the crystal field parameters. Measurement of $10 Dq$ (Δ_o) and factors affecting its magnitude. Comparison of octahedral and tetrahedral coordination. Tetragonal distortions from octahedral geometry. Jahn-Teller theorem. Square planar geometry. Limitations of CFT. Qualitative aspect of Ligand field and Molecular Orbital (MO) Theory. Spectrochemical and Nephelauxetic series. Coordination number, coordination geometries of metal ions, types of ligands.

(d) **Isomerism in coordination compounds:**

Structural isomerism: Ionization, Linkage, Coordination-Ligand Isomerism.

Stereo isomerism: Geometrical isomerism: Square planar metal complexes of type- $[MA_2B_2]$, $[MA_2BC]$, $[M(AB)_2]$, $[MABCD]$. Octahedral metal complexes of type- $[MA_4B_2]$, $[M(AA)_2B_2]$, $[MA_3B_3]$. Optical isomerism: Tetrahedral complexes of type- $[MABCD]$ complexes of type- $[M(AA)_2B_2]$, $[M(AA)_3]$.

UNIT- III

Thermodynamics

(a) **First Law of Thermodynamics:** Concept of heat (Q), work (W), internal energy (U), Statement of the first Law, Enthalpy(H), Relation between heat capacities. Calculation of Q, W, ΔU and ΔH under isotherm and adiabatic conditions for Reversible, Irreversible and free (ideal and Van der Waals) expansions of gas. Joule Thomson effect and its theory, Inversion temperature.

(b) **Second Law of Thermodynamics:** Carnot cycle, Statement of the Second Law of Thermodynamics. Concept of Entropy, Calculation of entropy change for Reversible and irreversible processes, Concept of residual entropy, Free energy Function: Gibbs and Helmholtz functions. Variation of entropy(S), Gibbs free energy (G), work function (A) with temperature (T), volume (V) & pressure (p). Free energy change and spontaneity, Gibbs-Helmholtz equation.

(c) **Third Law of Thermodynamics:** Nernst heat theorem and its significance, Statement of third law, Calculation of absolute entropy of substance.

Keyword/Tag: Thermodynamics, Law of Thermodynamics, Carnot cycle, Enthalpy, Free energy

UNIT-IV

Electrochemistry

Electrical Conduction: conduction in metals and in electrolyte solutions, specific and equivalent conductance, Measurement of equivalent conductance. Effect of dilution on conductivity Migration of ions and Kohlrausch-law and its application.

Weak and strong electrolytes: Theory of Strong electrolytes, Debye-Huckel Onsagar's(DHO) theory and equation.

Transport Numbers: determination of Transport numbers by Hittorf method and moving boundary method. Electrode reactions: Nernst equation, Derivation of equation for single electrode potential. Electrode: Reference electrodes, Standard hydrogen electrode Quinhydrone, glass electrodes, Calomel electrode. Standard electrode potential, Electrochemical Series and its application. Electrochemical Cell: Nernst equation, calculation of e.m.f. of cell

Keyword/Tag: Electrical Transport, Conduction, DHO theory, Transport Numbers Nernst equation, Electrode, Electrochemical Series

UNIT- V

Phase equilibrium

Concept phase, component and the degree of freedom, thermodynamic derivation of the Gibbs phase rule for reactive and nonreactive system.

Clausius-Clapeyron and its applications Solid-Liquid, Liquid-Vapour and Solid-Vapour equilibria.

Phase diagrams for one component system with application: water, and Sulphur. Phase diagrams for system of solid-liquid equilibria involving-Eutectic, Congruent and Incongruent melting points. Water and Sulphur system simple, Ag-Pb and Mg-Zn system, NaCl-H₂O system.

Binary solution:, Raoult' law. Non-ideal system or azeotropes mixture Immiscible Liquid, Steam Distillation.

Keyword/Tag: Phase equilibrium, Gibbs phase rule, Clausius-Clapeyron equation Raoult's Law

Course outcome- By the end of this course students will be able to:-

- Develop an understanding about traditional Indian Chemistry
- Understand the concepts of chemistry of d & f block elements, basic concepts of coordination chemistry.
- Explain Stereochemistry of transition metal complexes.
- Gain a thorough knowledge about Laws of thermodynamics and thermochemistry

- Develop the concept of phase equilibrium with reference to solid solution, liquid-liquid mixture, partially miscible liquids.
- Develop an understanding about basic concepts of electrochemistry, various types of electrodes and their reactions.

Reference Books:

1. Bariyar R and Goyal S, BSc Chemistry combined (in Hindi) Krishna education publishers, year 2019
2. Lee J.D., Concise Inorganic Chemistry, Wiley, 2008, 5th edition
3. Kalia K.C., Puri B.R., Sharma L.R., Principles of Inorganic Chemistry, Vishal Publishing Company 2020
4. Sodhi G.S., Textbook of Inorganic Chemistry, Viva Books private limited, New Delhi
5. Singh J, Singh J and Anandvardhan, A logical approach to modern inorganic chemistry, Anu books, 2019
6. Gopalan R and Ramalingan V, Concise coordination chemistry, Vikas publishing house private limited, New Delhi, 2005, 1st edition
7. Madan R. L., Chemistry for degree students, BSc II year, S. Chand and Company limited, New Delhi, 2011
8. Prakash S, Tuli G.D. Basu S.K. and Madan R.D., Advanced Inorganic Chemistry, volume 2, S Chand and company limited, New Delhi, 2007, 19th edition.
9. Malik W.U., Tuli G.D and Madan R.D. Selected topics in inorganic chemistry, S Chand and company limited, New Delhi 2014
10. Puri B.R., Pathania M.S., Sharma L.R., Principals of physical chemistry, Vishal Publishing Company 2020

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
B.Sc. IV Semester	Elective	S2 CHEM2T	Transition Elements, Chemi-energetics, Phase Equilibria(Theory)	Max: 100	Min: 35

Course objectives:

- To enrich the students with the understanding of fundamentals and concepts of thermodynamics, thermochemistry, phase equilibrium, Solutions, Electrochemistry, adsorption, adsorption and its applications.
- To enable the students to understand the fundamentals of the inorganic chemistry through schematic study of transition, inner transition elements and their properties and compounds
- To build up an understanding of coordination chemistry, their reactions, structure, isomerism and applications

UNIT – I**Chemistry of d- & f-block elements**

(a) **Chemistry of Transition elements:** First, Second and Third Transition series. General group trends with special reference to- Electronic Configuration, Coordination Geometry, Colour, Variable Valency, Spectral, Magnetic and Catalytic Properties, Ability to form Complexes.

(b) **Chemistry of Inner Transition elements:** Lanthanides and Actinides. General group trends with special reference to Electronic Configuration, Oxidation States, Colour, Spectral and Magnetic Properties. Lanthanide Contraction. Separation of Lanthanides (Ion-exchange method only).

(c) **Transuranic elements:** General Introduction..

Coordination Chemistry

(d) **Structures, Stereochemistry and Metal-Ligand Bonding in Transition Metal Complexes:**

Werner theory for complexes. Electronic interpretation by Sidwick.

(e) **Valence Bond Theory (VBT)-** Postulates and applications for Tetrahedral, Square planar and Octahedral complexes. Limitations of VBT.

(f) **Crystal Field Theory (CFT);** Postulates and application: Crystal field splitting of d-orbitals Crystal field stabilization energy (CFSE) in Tetrahedral, Square planar and Octahedral complexes, CFSE of weak and strong fields. Factors affecting the crystal field parameters. Measurement of $10 Dq$ (Δ_o) and factors affecting its magnitude. Comparison of octahedral and tetrahedral coordination. Tetragonal distortions from octahedral geometry. Jahn-Teller theorem. Square planar geometry. Limitations of CFT. Qualitative aspect of Ligand field and Molecular Orbital (MO) Theory. Spectrochemical and Nephelauxetic series. Coordination number, coordination geometries of metal ions, types of ligands.

(g) **Isomerism in coordination compounds:**

Structural isomerism: Ionization, Linkage, Coordination-Ligand Isomerism.

Stereo isomerism: Geometrical isomerism: Square planar metal complexes of type- $[MA_2B_2]$, $[MA_2BC]$, $[M(AB)_2]$, $[MABCD]$. Octahedral metal complexes of type- $[MA_4B]$, $[M(AA)_2B_2]$, $[MA_3B_3]$. Optical isomerism: Tetrahedral complexes of type- $[MABCD]$ complexes of type- $[M(AA)_2B_2]$, $[M(AA)_3]$.

Keywords/Tags: Knowledge Tradition of Indian Chemistry, Transition elements, Spectral Properties, Magnetic Properties, Catalytic Properties, Lanthanide Contraction.

UNIT- II

Thermodynamics

(c) **First Law of Thermodynamics:** Concept of heat (Q), work (W), internal energy (U), Statement of the first Law, Enthalpy(H), Relation between heat capacities. Calculation of Q, W, ΔU and ΔH under isotherm and adiabatic conditions for Reversible, Irreversible and free (ideal and Van der Waals) expansions of gas. Joule Thomson effect and its theory, Inversion temperature.

(d) **Second Law of Thermodynamics:** Carnot cycle, Statement of the Second Law of Thermodynamics. Concept of Entropy, Calculation of entropy change for Reversible and irreversible processes, Concept of residual entropy, Free energy Function: Gibbs and Helmholtz functions. Variation of entropy(S), Gibbs free energy (G), work function (A) with temperature (T), volume (V) & pressure (p). Free energy change and spontaneity, Gibbs-Helmholtz equation.

(c) **Third Law of Thermodynamics:** Nernst heat theorem and its significance, Statement of third law, Calculation of absolute entropy of substance.

Keyword/Tag: Thermodynamics, Law of Thermodynamics, Carnot cycle, Enthalpy, Free energy

UNIT- III

Electrochemistry

Electrical Conduction: conduction in metals and in electrolyte solutions, specific and equivalent conductance, Measurement of equivalent conductance. Effect of dilution on conductivity Migration of ions and Kohlrausch-law and its application.

Weak and strong electrolytes: Theory of Strong electrolytes, Debye-Huckel Onsagar's(DHO) theory and equation.

Transport Numbers: determination of Transport numbers by Hittorf method and moving boundary method. Electrode reactions: Nernst equation, Derivation of equation for single electrode potential. Electrode: Reference electrodes, Standard hydrogen electrode Quinhydrone, glass electrodes, Calomel electrode. Standard electrode potential, Electrochemical Series and its application. Electrochemical Cell: Nernst equation, calculation of e.m.f. of cell

Keyword/Tag: Electrical Transport, Conduction, DHO theory, Transport Numbers Nernst equation, Electrode, Electrochemical Series

UNIT- IV

Phase equilibrium

Concept phase, component and the degree of freedom, thermodynamic derivation of the Gibbs phase rule for reactive and nonreactive system.

Clausius-Clapeyron and its applications Solid-Liquid, Liquid-Vapour and Solid-Vapour equilibria.

Phase diagrams for one component system with application: water, and Sulphur. Phase diagrams for system of solid-liquid equilibria involving-Eutectic, Congruent and Incongruent melting points. Water and Sulphur system simple, Ag-Pb and Mg-Zn system, NaCl-H₂O system.

Binary solution:, Raoult' law. Non-ideal system or azeotropes mixture Immiscible Liquid, Steam Distillation.

Keyword/Tag: Phase equilibrium, Gibbs phase rule, Clausius-Clapeyron equation Raoult's Law

Course outcome- By the end of this course students will be able to:-

- Develop an understanding about traditional Indian Chemistry
- Understand the concepts of chemistry of d & f block elements, basic concepts of coordination chemistry.
- Explain Stereochemistry of transition metal complexes.
- Gain a thorough knowledge about Laws of thermodynamics and thermochemistry

- Develop the concept of phase equilibrium with reference to solid solution, liquid-liquid mixture, partially miscible liquids.
- Develop an understanding about basic concepts of electrochemistry, various types of electrodes and their reactions.

Reference Books:

11. Bariyar R and Goyal S, BSc Chemistry combined (in Hindi) Krishna education publishers, year 2019
12. Lee J.D., Concise Inorganic Chemistry, Wiley, 2008, 5th edition
13. Kalia K.C., Puri B.R., Sharma L.R., Principles of Inorganic Chemistry, Vishal Publishing Company 2020
14. Sodhi G.S., Textbook of Inorganic Chemistry, Viva Books private limited, New Delhi
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16. Gopalan R and Ramalingan V, Concise coordination chemistry, Vikas publishing house private limited, New Delhi, 2005, 1st edition
17. Madan R. L., Chemistry for degree students, BSc II year, S. Chand and Company limited, New Delhi, 2011
18. Prakash S, Tuli G.D. Basu S.K. and Madan R.D., Advanced Inorganic Chemistry, volume 2, S Chand and company limited, New Delhi, 2007, 19th edition
19. Malik W.U., Tuli G.D and Madan R.D. Selected topics in inorganic chemistry, S Chand and company limited, New Delhi 2014
20. Puri B.R., Pathania M.S., Sharma L.R., Principals of physical chemistry, Vishal Publishing Company 2020

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
B.Sc. IV Semester	Major/Minor/Elective	S2CHEM2P	Metal complex preparation, Thermochemistry & phase equilibrium experiments (Practical)	Max: 100	Min: 35

Course Objectives:

- To enable the students to create an understanding about the laboratory practices, various laboratory and analytical techniques.
- To enrich the students with the concepts of physical chemistry viz. thermodynamic and phase equilibrium

EXTERNAL ASSESSMENT: 60 marks

Inorganic Chemistry

- To obtain pure water from NaCl solution by distillation.
- To obtain pure potash alum by the process of crystallization.

Volumetric Analysis

- To determine the percentage of acetic acid in commercial vinegar.
- Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- To prepare M/20 solution of Mohr's salt and, using this solution find out the molarity and strength of the given potassium permanganate (KMnO_4) solution.

Gravimetry - Estimation of Copper

Physical Chemistry

A. Phase equilibrium

- To determine the critical solution temperature of two partially miscible liquid by determining their solubility in each other.
- To study the effect of solute (e.g. NaCl, succinic acid) on the critical solution temperature of two partially miscible liquid (e.g., phenol water system).

B. Thermochemistry

To determine the enthalpy of neutralization of weak acid/weak base versus strong acid/strong base and determine the enthalpy of ionization of the weak acid/base.

INTERNAL ASSESSMENT: 40 marks

Internal assessment	Marks	External assessment	Marks
Class Interaction/Quiz	15	Viva- Voce on Practical	15
Attendance	10	Practical Record File	10
Assignment (Charts/ model seminar/ Rural services/ Technology dissemination/ Report of Excursion/ Lab visits/ Survey/ Industrial visit)	15	Table work/ Experiments	35
TOTAL	40		60

Course Outcome: By the end of this course students will be able to:

- Develop an understanding of preparation of inorganic complexes.
- Explain the use of calorimeter for thermochemistry experiments.
- Determine the enthalpy of various systems and reactions
- Perform the experiments on phase equilibria with understanding of changes involved in transitions
- Gain a thorough knowledge about construction of phase diagrams and study of reaction equilibrium

St. Aloysius (Autonomous) College, Jabalpur
Department of Chemistry

MARKS SCHEME FOR BSc. III YEAR

COURSE CODE: S3CHEN3D

COURSE TYPE: INSTRUMENTAL TECHNIQUES IN CHEMISTRY DSE-Paper-1

COURSE TYPE: DSE MAJOR

SUBJECT: CHEMISTRY

MAXIMUM MARKS: 100

CREDIT VALUE: 4

TOTAL MARKS:

SUBJECT	EXAMINATION	MAX. MARKS	MIN. MARKS
CHEMISTRY	CCE EXAM	30	35
	FINAL EXAM	70	

ASSISMENT AND EVALUATION

Assessment and presentation	10
Class test (Descriptive Question)	10
Assignment	10
Total	30

Theory Paper:

SECTION WISE MARKS DISTRIBUTION

S. No.	SECTION	TOTAL NO. OF QUESTION	MARKS
1	A	Very Short Question	5 X 2= 10
2	B	Short Answer Question	6 X 3= 18
3	C	Long Answer Question	6 X 7= 42
		Total	70
	Internal and ExternalMarks	Grand Total	30+ 70 =100

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Year	Major	S3CHEN3D	Instrumental Techniques in Chemistry	100	35

Course Objectives:

- To enable the students in standard samples for analysis
- To enable the Instrumentation for Analytical methods of Chemistry
- To enable the students in understanding Instrumentation for various spectroscopic techniques
- To enable the Principles and instrumentation of various electro analytical techniques
- To enable the Instrumentation used in optical methods of analysis
- To enable the Advance Chromatography Techniques

UNIT – I**Practical Aspects of Chemical Analysis**

(a) **Analysis of real samples:** Choice of analytical method, Analysis of standard samples, preparing standard samples for analysis moisture in sample, drying the analytical sample, decomposition and dissolution of sample, source of errors in decomposition and dissolution.

(b) **Automation in Laboratory:** Introduction, classification of analytical methods. Types of instrumental methods. Importance of instruments for analysis. Analog & Digital signals, for planning for laboratory automation. An overview of automatic instruments & instrumentation. Good laboratory practices. Instrumental standardization, optimization of procedures.

Unit- II**Electronic and Vibrational-Rotational Spectroscopy**

(a) **Electronic or Ultra-Violet Visible (UV-Vis) Spectroscopy:** Basic principles, Instrumentation and Techniques.

(b) **Fourier-transform infrared (FTIR) Spectroscopy:** Introduction and basic principle of IR spectroscopy, Instrumentation. Working of FTIR Spectrophotometer, Advantages of FTIR Spectroscopy.

(c) **Raman Spectroscopy:** Mechanism of Raman Effect- Quantum theory and classical theory. Instrumentation and techniques. Qualitative treatment and techniques. Qualitative treatment of Rotational Raman effect, Effect of nuclear spin, Vibrational Raman spectra, Stokes and anti-Stokes lines, their intensity difference, rule of mutual exclusion.

Unit- III**Molecular Characterization techniques**

(a) **Nuclear Magnetic Response Spectroscopy:** Basic principles of NMR, Instrumentation- Magnet, sweep generator, RF generator, RF receiver, signal recorder, calculation of NMR signals.

(b) **Electron Spin Resonance (ESR) spectroscopy:** Introduction, principle, instrumentation, selection rules, interpretation of Lande's factor 'g'. Hyperfine and super hyperfine coupling.

(c) **Mass Spectrometry:** Theory of mass spectrometry. Principle and operation of mass spectrometer. Ionization techniques- electron impact, chemical ionization, electrospray, electrical discharge, laser desorption, fast atom bombardment.

Separation of ions on the basis of mass-charge ratio. Analyzers- Magnetic-sector, Electric quadrupole and high-resolution multiple-reflection time of flight (MR-TOF)

Unit- IV

Atom Characterization Techniques

- Flame photometry:** Flame emission spectroscopy, characteristics of flame, instrumentation & working of flame photometer.
- Atomic Absorption Spectroscopy (AAS):** Basic principles, Instrumentation, atomizer, monochromator, detector, sensitivity and detection limits. Interferences in AAS and their elimination.
- Atomic Emission Spectroscopy (AES):** Principles, Sources for excitation, Instrumentation, Qualitative and quantitative Analysis.

Unit-V

Electro analytical techniques

- Polarography:** General principles and instrumentation of polarography half-wave potential, equations for reversible cathodic, anodic and cathodic-anodic waves, analysis of reversible polarographic wave.
- Voltametry:** General principles and instrumentation of polarography, half-wave potential, equations for reversible polarographic wave.
- Amperometry:** Principles and amperometric titration techniques- Dropping mercury electrodes. Instrumentation and measurement of electro motive force of cell (EMF). Potentiometric titrations.
- Conductometry:** Principle, measurement of conductance, conductometric titrations.

Unit- VI

Optical and Advanced Chromatographic Techniques

- Polarimetry:** Polarimeter, optical rotations, measurements of optical rotation.
- Refractometry:** Principle of refraction, Snell's law, Construction & working of refractometer.
- Gas Chromatography (GC):** Theory, Instrumentation-description of equipment and different parts, columns (packed and capillary columns). Detector specifications, Thermal conductivity detector, Flame ionization detector, electron capture detector, nitrogen-phosphorous detector or thermionic specific detector (TSD), photo ionization detector. Programmed temperature gas chromatography.
- High Performance Liquid Chromatography (HPLC):** Theory, Instrumentation, description of the different parts of the equipment, stationary phases (columns), mobile phases, detectors, UV detector, refractive index (RI) detector, Fluorescence detector, Photo Diode Array detector, Evaporative Light Scattering Detector (ELSD), conductometric detector and electrometric detector.

Course Outcomes: By the end of this course student will learn the following aspects of instrumental technique in chemistry:

- Preparation of standard samples for analysis
- Instrumentation for Analytical methods of Chemistry
- Instrumentation for various spectroscopic techniques
- Principles and instrumentation of various electro analytical techniques
- Instrumentation used in optical methods of analysis
- Advance Chromatography Techniques

Reference Books:

1. Galen, e., "Instrumental methods & chemical analysis", McGraw-Hill publishing company ltd., 1985.
2. Christian, G. D., "Analytical Chemistry", John Wiley and Sons. Inc, 1944.
3. Harris, D.C., "Qualitative Chemical Analysis", W.H. Freeman & Co. New York, 2003, 7th Edition.
4. Drago, R.S., "Physical Methods in Chemistry", W.B. Saunders Co, 1977.
5. Atkins P. W., "Physical Chemistry", Oxford University Press, 2017.

<i>Class</i>	<i>Course Type</i>	<i>CourseCode</i>	<i>Course Title (Theory/Practical)</i>	<i>Marks</i>	
B.Sc. III Year	Major	S3CHEN3D	Instrumental Techniques in Chemistry	Max: 100	Min: 35

General Objective:

- To enable the students to create an understanding about the laboratory practices, various laboratory techniques and analysis.
- To recognize safe laboratory practices, handling laboratory glassware, equipment, and chemical reagents.
- To enable the students to operate spectrophotometer, conductometer, polarimeter and pH meter

EXTERNAL ASSESSMENT: 70 marks

Course Content:

1. Determination of concentration of Ferric ions in Ferric salicylate complex spectrophotometrically
2. Spectrophotometric determination of pK Value of an indicator.
3. Determination of Sodium and Potassium in fruit sample by flame photometer
4. Spectrophotometric determination of stoichiometric and stability of complex
5. Determination of Sulphate and phosphate by spectrophotometry
6. Determination of specific rotation of a given optically active compound by
7. Polarimetry determination of the enzyme catalyzed inversion of sucrose by polarimetry
8. Potentiometric titration of a given Strong acid solution with an NaOH solution
9. Potentiometric titration of a given Weak acid solution with an NaOH solution
10. Conductometric titration of Strong acid solution with an NaOH solution
11. Conductometric titration of a given Weak acid solution with an NaOH solution
12. pH metric- Strong acid solution with an NaOH solution
13. pH metric- Weak acid solution with an NaOH solution.

INTERNAL ASSESSMENT: 30 marks

Internal assessment	Marks	External assessment	Marks
Chemical and Lab safety Class Interaction / Quiz	10	Viva- Voce on Practical	10
Attendance	10	Practical Record File	10
Assignment (Charts/ model seminar/ Rural services/ Technology dissemination/ Report of Excursion/ Lab visits/ Survey/ Industrial visit)	10	Table work/ Experiments	50
TOTAL	30		70

Course Outcomes: By the end of this course student will be able to understand

- Preparation of standard sample for analysis
- Determination of concentration of the solution by spectroscopic method
- Determination of stability constant
- Determination of potentiometric and conductometric titration
- Advanced Chromatographic technique

MARKS SCHEME FOR BSc. III YEAR

COURSE CODE: S3CHEM4D

**COURSE TYPE: BIO- PHYSICAL, BIOINORGANIC AND ORGANOMETALLIC
COMPOUND**

COURSE TYPE: DSE MAJOR

SUBJECT: CHEMISTRY

MAXIMUM MARKS: 100

CREDIT VALUE: 4

TOTAL MARKS:

SUBJECT	EXAMINATION	MAX. MARKS	MIN. MARKS
CHEMISTRY	CCE EXAM	30	35
	FINAL EXAM	70	

ASSISMENT AND EVALUATION

Assessment and presentation	10
Class test (Descriptive Question)	10
Assignment	10
Total	30

Theory Paper:

SECTION WISE MARKS DISTRIBUTION

S. No.	SECTION	TOTAL NO. OF QUESTION	MARKS
1	A	Very Short Question	5 X 2= 10
2	B	Short Answer Question	6 X 3= 18
3	C	Long Answer Question	6 X 7= 42
		Total	70
	Internal and ExternalMarks	Grand Total	30+ 70 =100

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Year	Major	S3CHEN4D	Bio- Physical, Bioinorganic and Organometallic compound	100	35

Course Objectives: To enable the Biophysical concept like pH, Biological oxidation, bioenergetics.

- To enable the students in understanding Magnetic properties and electronic spectra of transition metal complexes
- To enable the Structure and bonding analysis of organometallic compounds using the MO theory
- To enable the Organometallic compounds of main group elements and their structure and bonding analysis
- To enable the Bioinorganic chemistry and roll of metal ions in biological system

Unit- I

(a) **Water, pH and buffer:**

Water, pH and buffer water as a medium for biological reaction, concept of p in terms of biological system, effect of pH on a biomolecule, biological buffer system

Bonding in biomolecule hydrogen bond, vanderwal interaction, ionic bond hydrophobic attraction, glycoside linkages peptide bond, phosphodiester linkage role of different biological buffer system like phosphate buffer, biocarbonate buffer protein aminoacid buffer, hemoglobin buffer system

(b) **Biological Oxidation:** Definition, types of biological oxidation, reduction oxidation by direct action of oxygen, oxidation by loss of hydrogen electron transport chain, inhibitors of ETC

(c) **Oxidative phosphorylation** – definition, theories inhibitors of oxidative phosphorylation, uncouplers

(d) **Bioenergetics** – couple reaction, law of thermodynamics, free energy, relationship between standard free energy change and equilibrium constant general introduction of high energy compounds structure of ATP as universal currency of free energy in biological system with example in muscle contraction, free energy of ATP hydrolysis

Unit- II

Magnetic properties of transition metal complexes

Magnetic properties of transition metal complexes introduction, types of magnetic behaviors, diamagnetism paramagnetic, and ferromagnetism, anti-ferromagnetism, ferrimagnetism, origin and calculation of magnetism. Methods of determining magnetic susceptibility Gouy's, Bhatnagar Mathur, quincke's curie and nuclear magnetic resonance method magnetic moment, L-S coupling determination of ground state terms symbol, orbital contribution to magnetic moment and application of magnetic moment data for 3D metal complexes

Unit- III

(a) **Organometallic compounds**

An introduction to organometallic compounds- Definition and classification with appropriate example based on nature of metal carbon bond (ionic, s, p, and multicenter bonds)

Metal alkyls important structural features of methyl lithium (tetramer) and trialkyl aluminum (dimer), concept of multicenter bonding in these compounds. Role of triethyl aluminum in polymerization of ethene Ziegler Natta catalyst

(b) **Organomagnesium compound** – Grignard's reagents preparation structure and chemical reaction

(c) **Organo zinc compound**- preparation and chemical reaction

(d) **Organolithium compounds**- preparation and chemical reaction organo sulphur compounds- nomenclature structure characteristics thio ether, sulphonic acid, sulphonamide and sulphaguanidine methods of preparation and chemical reactions

Unit- IV

Metal carbonyls

Metal carbonyls 18 electron rule, electron count of mono nuclear, polynuclear and substitute metal carbonyls of 3D series general methods of preparation (direct combination reductive carbonylation, thermal and photochemical decomposition) of mono and binuclear carbonyls of 3D series. Structure of mono nuclear and bi nuclear carbonyl of Cr, Fe, Co and Ni using VBT. π -acceptor behaviour of CO (MO diagram of CO to be discussed) synergic effects and use of IR data to explain extent of back bonding. Zeise's salt preparation and structure, evidences of synergic effects and comparison of synergic effect with that in carbonyls.

Unit- V

Bioinorganic chemistry-

Bioinorganic chemistry metal ions present in biological systems, classification of elements according to their action in biological system. Geochemical effect on the distribution of metals. Na / K-pump, carbonic anhydrase and carboxypeptidase. Excess and deficiency of some trace metals. Toxicity of metal ions (Hg, Pb, Cd and As), reasons for toxicity, USE of chelating agents in medicine. Iron and its application in bio-systems, Role of Mg^{2+} ions in energy production and chlorophyll. Role of Ca^{2+} in blood clotting. Hemoglobin: storage and transfer of iron

Course outcome: By the end of this course student will be able to understand

- Biophysical concept like pH, Biological oxidation, bioenergetics.
- Magnetic properties and electronic spectra of transition metal complexes
- Structure and bonding analysis of organometallic compounds using the MO theory
- Organometallic compounds of main group elements and their structure and bonding analysis
- Bioinorganic chemistry and roll of metal ions in biological system

Reference Books:

1. Vogel, A. I. Qualitative Inorganic Analysis, Longman, 1972 36.
2. Svehla, G. Vogel's Qualitative Inorganic analysis, 7th edition, Prentice Hall, 1996-03-07.
3. Huheey, J. E., Keiter, E.A. & Keiter, R. L. Inorganic Chemistry, Principles of Structure and Reactivity 4th Ed., Harper Collins 1993, Pearson, 2006.
4. Lee, J.D. Concise Inorganic Chemistry 5th Ed., John Wiley and sons 2008.
5. Sharpe, A.G. Inorganic Chemistry, 4th Indian Reprint (Pearson Education) 2005.

Class	Course Type	CourseCode	Course Title (Theory/Practical)	Marks	
B.Sc. III Year	Major	S3CHEN4D	Bio- Physical, Bioinorganic and Organometallic compound	Max: 100	Min: 35

General Objective:

- To enable the students to create an understanding about the laboratory practices, various laboratory techniques and analysis.
- To recognize safe laboratory practices, handling laboratory glassware, equipment, and chemical reagents.
- To enable the students to synthesis of complexes and organic compounds.

EXTERNAL ASSESSMENT: 70 marks

Course Content:

1. Synthesis of Ferrocene from FeCl_3
2. Synthesis of $\text{K}_2[\text{Fe}(\text{C}_2\text{O}_4)_3]$ Complex
3. Synthesis of Sodium trioxalato ferrate
4. Synthesis of Nitrobenzene
5. Synthesis of $\text{Cr}(\text{C}_5\text{H}_5)_2$ complex
6. Synthesis of Aceto-Fe complex
7. Synthesis of triphenyl methanol from benzoic acid using Grignard reagents
8. Determination of pH of the Bio Sample
9. To determine the sugar in cough syrup by spectrophotometer
10. Estimation of Copper by Copper Sulphate
11. Determination of Rf Value in given inorganic mixture

INTERNAL ASSESSMENT: 30 marks

Internal assessment	Marks	External assessment	Marks
Chemical and Lab safety Class Interaction / Quiz	10	Viva- Voce on Practical	10
Attendance	10	Practical Record File	10
Assignment (Charts/ model seminar/ Rural services/ Technology dissemination/ Report of Excursion/ Lab visits/ Survey/ Industrial visit)	10	Table work/ Experiments	50
TOTAL	30		70

Course Outcomes: By the end of this course student will be able to understand

- How to synthesis Ferrocene from FeCl_3
- How to synthesis $\text{K}_2[\text{Fe}(\text{C}_2\text{O}_4)_3]$ Complex
- How to determine pH of biosample
- How to determine sugar in cough syrup by spectrophotometer

MARKS SCHEME FOR BSc. III YEAR

COURSE CODE: S3CHEM2T
COURSE TYPE: PHARMACEUTICAL AND MEDICAL CHEMISTRY

COURSE TYPE: MINOR/ ELECTIVE
MAXIMUM MARKS: 100
TOTAL MARKS:

SUBJECT: CHEMISTRY
CREDIT VALUE: 4

SUBJECT	EXAMINATION	MAX. MARKS	MIN. MARKS
CHEMISTRY	CCE EXAM	30	35
	FINAL EXAM	70	

ASSISMENT AND EVALUATION

Assessment and presentation	10
Class test (Descriptive Question)	10
Assignment	10
Total	30

Theory Paper:

SECTION WISE MARKS DISTRIBUTION

S. No.	SECTION	TOTAL NO. OF QUESTION	MARKS
1	A	Very Short Question	5 X 2= 10
2	B	Short Answer Question	6 X 3= 18
3	C	Long Answer Question	6 X 7= 42
		Total	70
	Internal and ExternalMarks	Grand Total	30+ 70 =100

Class	CourseType	CourseCode	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Year	Minor/ Elective	S3CHEM2T	Pharmaceutical and Medicinal Chemistry	100	35

Course Objectives:

- To enable the students importance of pharmaceutical chemistry and pharmacopeia.
- To enable the students Learn intellectual property rights, patents trademark and copyright.
- To enable the students Understand definition, classification of the drug with example and structure.
- To enable the students Describe the structure activity relation of some important class of drugs.
- To enable the students Describe the overall process of drug discovery and the role played by medicinal chemistry in this process.
- To enable the students Relate the structure and physical properties of drug to their pharmacological activity.

Unit-I**Pharmaceutical Chemistry:**

Introduction to Pharmacy, career in pharmacy, codes of pharmaceutical ethics, importance of pharmaceutical chemistry, pharmacopeia and its history (IP, BP, USP, NF).

Drug and cosmetic act with special reference to schedule M, GMP, GLP, GCP, USFDA, NDA, clinical trial.

Concept of quality and total quantity management, quality assurance and quality control, IPQA, IPQC. Documentation and maintenance of record, intellectual property rights, patents, trademarks, copyright, patent act.

Unit- II**Pharmacognosy:**

Definition, history, scope and development of Pharmacognosy.

Classification and sources of drugs: classification of drugs, sources and use of natural drug product, biological (plants, animals and microbes), geographical, marine and mineral resources.

Drug Receptors: Introduction to drug receptors, nature of drug receptors, different bonding involved in drug receptor interaction, drug receptor theories.

Drug absorption: routes of drug administration, absorption of drug and factors affecting absorption.

Unit- III**Molecular Modeling and Drug Design:**

Drug design and development an overview, analogues and prodrugs structure and activity relationship between chemical (SAR), factors governing drug design, approaches to drug design, receptor site theory, introduction to combinatorial synthesis in drug discovery, factors affecting bioactivity. QSAR-Free-Wilson analysis, structure a biological activity, Hansch Analysis, relationship between Free-Wilson analysis and Hansch analysis.

Unit- IV

Antibiotics and Anti-bacterials:

Introduction, Antibiotic β -Lactum Type- penicillin, cephalosporins, antitubercular- streptomycin, Broad Spectrum Antibiotics- Tetracyclines, Anticancer- Dactinomycin (Actinomysin D)

Unit- V

Antifungal and Non-Steroidal Anti-inflammatory Drugs:

Antifungal: Polysenes, Antibacteria-Ciprofloxacin, Norfloxacin, Antiviral-Acyclovir.

Antimalarials: Chemotherapy of Malaria SAR, Chloroquine, Chloroguanide and Mefloquine.

Non-steroidal Anti-inflammatory Drugs: Diclofenac Sodium, Ibuprofen and Netopam.

Course outcome: By the end of this course student will be able to understand

- Understand importance of pharmaceutical chemistry and pharmacopeia.
- Learn intellectual property rights, patents trademark and copyright.
- Understand definition, classification of the drug with example and structure.
- Describe the structure activity relation of some important class of drugs.
- Describe the overall process of drug discovery and the role played by medicinal chemistry in this process.
- Relate the structure and physical properties of drug to their pharmacological activity.
- Explain physio-chemical properties related to QSAR.

Reference Books:

1. "Pharmaceutical Chemistry Inorganic Vol. 1", Chatwal G. R., Himalaya Publishing House, Mumbai, 2010.
2. "Textbook of Pharmacognosy", Wallis T. E., CBS Publishers and Distributors, New Delhi, 2005, Fifth Edition.
3. "Pharmaceutical Chemistry", Choudhary N. C. and Gurbani N. K., Vallabh Prakashan, New Delhi, 2009, Fifth Edition.
4. "Pharmaceutical Chemistry", Watson D.G., Churchill Livingstone Elsevier, UK, 2011.
5. "Text Book Of Professional Pharmacy". Jain N. K. and Sharma S. N., Vallabh Prakashan, New Delhi, 2009, Fifth Edition.

Class	Course Type	CourseCode	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Year	Minor/ Elective	S3CHEM2T	Pharmaceutical and Medicinal Chemistry	100	35

General Objective:

- To enable the students to create an understanding about the laboratory practices, various laboratory techniques and analysis.
- To recognize safe laboratory practices, handling laboratory glassware, equipment, and chemical reagents.
- To enable the students to gain knowledge about inorganic and organic synthesis.

EXTERNAL ASSESSMENT: 70 marks**Course Content:**

1. Synthesis of Acetanilide
2. Synthesis of Aspirine
3. Synthesis of tinchre Iodine
4. Synthesis of Potash Alum
5. Synthesis of Ferrous Ammonium Sulphate
- 6 Isolation of Caffein by tea leaves
7. Extraction of active constituent from solvent extraction method
8. Identification of crude drug
9. Morphology of turmeric, Ginger, Mentha
10. Preparation of suspension / Emulsions, Oil Mint
11. Synthesis of Milk of Magnesia
12. Preparation of simple Syrup as per IP and USP
13. Preparation of Pharmaceutical Buffer and study of its theoretical and calculated pH
14. Preparation of Zinc Oxide
15. Calcium Carbonate
16. MgCO₃
17. Synthesis of Oil of Winter Green
18. Synthesis of Oxalic acid

INTERNAL ASSESSMENT: 30 marks

Course Outcomes: By the end of this course student will be able to understand

- How to prepare Acetanilide
- How to isolate the caffeine from tea leaves
- To learn about preparation of simple syrup as per IP and USP

St. Aloysius (Autonomous) College, Jabalpur
Department of Chemistry

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Semester	Vocational	V1-CLN-NUTT	Nutrition and Dietetics	100	33

Course objectives:

- To evaluate the food and food products and evaluate their nutritional value
- To apply nutritional concepts in diet planning
- To understand and apply the concept of RDA, BMI and balanced diet in healthmanagement

Course Content:

Module-1 Introduction to food and nutrition

Definition of food, Functions of food, Food groups, Food guide pyramids, Food in relation to health, Definition of Nutrition, Assessment of nutritional status, Optimum or adequate nutrition, Good nutrition under nutrition, Malnutrition, Nutrients Definition, Type of Nutrients- Energy carbohydrate protein fat vitamins and minerals water(sources functions and deficiency symptoms)

Module-2 RDA (Recommended Dietary Allowances ICMR 2020)

General principle of deriving RDA, Practical applications of RDA, Indian standards for height and weight BMI (body mass index)

Module-3 Meal planning

Definition, Principle of meal planning, Menu-introduction and concept, Format for menu plant

Module-4 Nutrition Education

Nutrition and health education program (in brief), Tools of Nutrition education

Module-5 Introduction to Dietetics and Dietitian

Definition of dietetics, Area of dietetics, Role and responsibility of dietitians, Career opportunities as Dietitian

Course Outcomes: After studying this course students will be able to:

- Understand the relationship between food, nutrition and health
- Understand the various functions of food and food groups
- Understand digestion, absorption and functions of various nutrients and their sources
- Understand importance of balanced diet to reduce risk of deficiency disease

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Semester	Vocational	V1-CLN-NUTT	Nutrition and Dietetics (Practical)	100	35

Course objectives:

- To evaluate the food and food products and evaluate their nutritional value
- To apply nutritional concepts in diet planning
- To understand and apply the concept of RDA, BMI and balanced diet in healthmanagement

Course Content:

Part- I.

1. Identification of different foods
2. Prepare a chart of food guide pyramid
3. Prepare chart of different nutrients according to their sources and deficiency

Part- II Prepare height and weight chart for Indians (Male and Female)

Part-III Household measures weight and measure of raw and cooked food

Part-IV Preparation of pamphlets deflect for health education programs

Part-V Interaction with Dietitian working in:-Hospital, Wellness Centre ,Gym , NRC (NutritionRehabilitation Centre)

Course Outcomes:

After studying this course students will be able to:

- Understand the relationship between food, nutrition and health
- Understand the various functions of food and food groups
- Understand digestion, absorption and functions of various nutrients and their sources
- Understand importance of balanced diet to reduce risk of deficiency diseases.

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Department of Chemistry

Class	Course Type	Course Code	Course Title (Theory/Practical)	Marks	
				Max:	Min:
B.Sc. III Year	Vocational	V2-CLN-NUTT	Management of Nutrition in Life Cycle	100	33

Course objectives:

- To evaluate their nutritional value at different age groups
- To apply nutritional concepts in diet planning
- To understand the importance of diet at all age categories

Course Content:**Module-1 Dietary Management for different age group**

- (a) **Dietary Management:** Introduction to Dietary Management, Factors affecting Dietary Management, recommended Dietary Allowances (RDA), Translating RDA into daily food intake.
- (b) **Food and our body:** Body composition, Choice of food, Calorie value of food, dietary modification

Module-2 Dietary Management for Childhood

- (a) **Dietary Management for Early Childhood:** Nutritional requirement, Nutrition related problems, Feeding patterns, Special deficiency diseases
- (b) **Dietary Management for School going Children:** Nutritional requirement, Importance of school snacks and lunch tiffin, Nutrition related problems

Module-3 Dietary Management for Adolescent, adults and old aged

- (a) **Dietary Management for adolescence:** Physiological changes during adolescent period, Nutritional requirement, Food likes and dislikes, Factors influencing food habits, Nutrition problems related to adolescent
- (b) **Dietary Management for adults:** Nutritional requirement, Food adequacy, Low cost balanced diet
- (c) **Dietary Management for old age:** Nutritional requirement, Food requirement, Nutrition related problems for old age

Module-4 Dietary Management for Pregnancy and Lactation

- (a) **Diet during pregnancy:** Nutritional requirement, Complications, Physiological changes
- (b) **Diet during lactation:** Nutritional requirement, Food taboo during lactation, lactogenic diets, formula feeding
- (c) **Weaning:** Food planning, formula and preparing a formula feed, importance of correct and timely weaning

Course Outcomes: After studying this course students will be able to:

- Plan diets for early childhood
- Plan diets for school going children
- Plan diets for adolescent
- Plan diets for adults

- Plan diets for pregnancy and lactation
- Plan diets for old age.

<i>Class</i>	<i>Course Type</i>	<i>Course Code</i>	<i>Course Title (Theory/Practical)</i>	<i>Marks</i>	
B.Sc. III Year	Vocational	V2-CLN- NUTT	Management of Nutrition in Life Cycle	Max: 100	Min: 35

Course objectives:

- To evaluate the food and food products and evaluate their nutritional value
- To apply nutritional concepts in diet planning
- To understand and apply the concept of RDA, BMI and balanced diet in healthmanagement

Planning of diet:

1. Dietary Modifications
2. Early Childhood
3. School going
4. Adolescent
5. Adults
6. Old age
7. Pregnant women
8. Lactating women
9. Weaning/ Supplementary food

Course Outcomes:

After studying this course students will be able to:

- Understand the relationship between food, nutrition and age group
- Understand importance of proper diet at different age groups and health condition



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

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SYLLABUS
UG
BIOTECHNOLOGY

St. Aloysius' College
Department of Biotechnology
Session 2023-24
NEP

Program: Certificate Course	Class: B.Sc. I semester	Session: 2023-24
Subject	Biotechnology	
Course Code	CORE TH-1-SI-BTE C1 T	
Course Title	Cell Biology and Biochemistry	
Course Type	Core Course	
Pre-requisite:	To study this course, a student must have had the subject in Biology in 12 th class.	
Credit Value	4	
Total Marks: 100	(40 internal + 60 external)	Min. Passing Marks: 33

Course Content

Unit 1

History of cell biology, cell theory, cell structure (Prokaryotic and Eukaryotic).
Cell organelles: flagella, pili, cell wall, cytoplasmic membrane, nuclear region, ribosomes, vacuoles, metachromatic granules, spores and cysts, microtubule, microfilament, centriole, mitochondria, chloroplast, endoplasmic reticulum, Golgi bodies, lysosomes, peroxisomes.

Unit 2

Cell cycle and its regulation, Cell division (Mitosis and Meiosis), Cell death (Apoptosis).
Interaction between cell and their environment: ECM, Integrins, Focal adhesions, Selectins, IgSF, Cadherins, Tight and Gap Junction.

Unit 3

Chemical Bonds: Ionic, covalent, coordinate, non-covalent bond, hydrogen bond.
Water: Structure of water, properties of water, interaction of water, role of water in bio molecular structure.
Acid and bases, buffer.

Unit 4

Biomolecules: Sources, nomenclature, classification, structures, characteristics, and functions: Carbohydrates, Lipids, Proteins, and Nucleic acid.

Unit 5

Principle and application of Light Microscopy, Centrifugation, Chromatography (Paper and Thin Layer), Colorimeter and spectrophotometer

List of Experiments/Exercise/Practical:

B.Sc Biotechnology Syllabus

1. To study the plant cell structure using various plant materials.
2. To study the animal cell structure using cheek cells.
3. To Prepare Onion root tip for the stages of Mitosis.
4. To Prepare and study the different stages of Mitosis and Meiosis.
5. To analyze Carbohydrates Quantitatively.
6. To analyze proteins Quantitatively.
7. To analyze lipids Quantitatively.
8. To prepare Buffers.
9. To separate plant pigments by Paper Chromatography.
10. To separate amino acids by TLC.

Program: Certificate Course	Class: B.Sc. II semester	Session: 2023-24
Subject	Biotechnology	
Course Code	CORE TH-2-SI-BTE C2 T	
Course Title	Microbiology and Immunology	
Course Type	Core Course	
Pre-requisite:	To study this course, a student must have had the subject in Biology in 12 th class.	
Credit Value	4	
Total Marks: 100	(40 internal + 60 external)	Min. Passing Marks: 33

Course Content

Unit 1

History, Basic concepts of Microbiology and Culture Media Preparation, History, Basic concepts of Microbiology: Fundamental, History and evolution of microbiology. Development of microbiology, Application of microbiology in human welfare. Classification, General characteristic and structure of Bacteria, Fungi and Viruses. Media Preparation: Methods and Types: Culture, Minimal, Selective, differential, Transport media. Synchronous, Batch and Continuous culture.

Unit 2

Microbial Growth and Growth measurement. Microbial Growth: Definition of growth, Mathematical expression of growth Growth Curve, Generation time, Growth yield, Effect of nutrients on growth. Factor affecting growth: Nutrient, Temperature, Oxygen, pH, Osmotic pressure. Growth measurement: Measurement of Growth (Direct and Indirect methods): cell number, Cell Mass and Cell Activity. Cell Count: Turbidometric method, Plate count method, Membrane count method, Dry weight and Wet method by measurement of cellular activity.

Unit 3

Basics of Immunology: Basics of Immunology: Concept of Innate and Acquired immunity, Phagocytosis, complement and Inflammatory responses. Immune cells and organs: Structure, Function and Properties of immune cells - Stem cell, T-cell, B-cell, NK-cell, Macrophagus, Neutrophil, Eosinophil, Basophil, Mastcell, Dentic cell. Immune organ: Bone marrow, Thymus, Lymph Node, Spleen, Lymphatic System.

Unit 4

Immunoglobulins and Immune response: Immunoglobulins, Antigens: Characteristics of an antigen: Foreignness, Molecular size, Chemical composition and Heterogeneity. Antigen Adjuvants, Epitopes, Haptens. Antibodies: Structure, Types, Functions and Properties of

B.Sc Biotechnology Syllabus

antibodies Antigenic determinant on antibodies (Isotypic, Allotypic, Idiotypic). Monoclonal, Polyclonal and Chimeric antibody. Immune response: Generation of immune response: Primary and Secondary immune response, generation of Humoral response (Plasma and Memory cell), Generation of cell mediated immune response (self MHC restriction, T-cell activation, Co-stimulatory signals), Killing Mechanisms by CTL and NK cells, Introduction to tolerance.

Unit 5

Microbial, Immunological Techniques and Vaccination: Microbial Techniques, Principle, Working and applications of instruments -Laminar airflow, Autoclave, Hot air oven. Immunological techniques, RIA, ELISA, Western blotting, Principles of Precipitation, Agglutination, Immunodiffusion, Immunoelectrophoresis. Vaccination: Vaccines and vaccination: Rubella, Varicella (Chickenpox), Polio, Diphtheria, Hepatitis vaccine.

List of Experiments/Exercise/Practicals:

1. To perform Aseptic technique, Cleaning of glassware s, preparation of Cotton Plugging and Sterilization.
2. To prepare Bacterial and Fungal media.
3. To isolate microbes from Air, Water and Soil.
4. To Study dilution and plating by Pour Plate, Spread Plate methods.
5. To Study microorganisms by Staining method - Simple staining, Gram staining, Endospore staining, Fungal staining, Negative staining.
6. To identify bacteria based on staining, Shape and Size.
7. To enumerate microorganism - Total and Viable count.
8. To study Antibiotic sensitivity of microbes by the use of antibiotic discs.
9. To isolate and identify pathogenic bacteria from sewage and waste water.
10. To Determine growth curve and generation time of E. coli.
11. To identify of human blood groups.
12. To enumerate total WBC of the given blood sample by hemocytometer.
13. To enumerate differential Leukocyte of the given blood sample.
14. To enumerate total RBC of the given blood sample by hemocytometer.
15. To isolate and Identify aquatic Fungi from Local water body.

B.Sc III SEMESTER (NEP) Biotechnology

Part A - Introduction			2023-24	
Program : Diploma Course		Class: B.Sc.	Year: Second Year	Session :
Subject: Biotechnology				
1.	Course Code	S2-BTEC1T		
2.	Course Title	Basic Molecular Biology		
3.	Course Type	Major- 1 Core Course		
4.	Pre-requisites	To study this course a student must have the subject Biotechnology in certificate course.		

B.Sc Biotechnology Syllabus

5.	Course Learning outcomes	<ol style="list-style-type: none"> Students will be able to explain role of different protein/ enzymes involved in cell signalling. They will be able to understand mechanism of genetic damage caused by mutation and role of various repair system in neglecting the effect of these mutation. Students will be able to explain mechanism of DNA replication, transcription, translation and other related processes 	
6.	Credit Value	Theory- 4	
7.	Total Marks	Max. Marks-30+70	Min Marks : 33

Part B – Content of the Course

Total Lectures: 60 hours

Total numbers of Lectures (in hours per week): 2 hours per week

Unit	Topics	Number of Lectures
I.	<p>1.1 Genome organization: Anatomy of gene, gene structure of prokaryotes and eukaryotes. Flow of genetic information.</p> <p>1.2 Cell signalling: Hormones and their receptors, second messengers, signalling through G protein coupled receptors</p> <p>1.3 Cancer: Oncogenes, Tumor suppressor genes, Cancer and the cell cycle; Apoptosis, Necrosis.</p>	12
II.	<p>2.1 Replication: Prokaryotic and Eukaryotic replication: models for replication, Unit of replication, replication initiation, elongation and termination, replication inhibitors</p> <p>2.2 DNA repair: Direct reversal, Excision repair -nucleotide and base excision, Mismatch repair Trans lesion DNA synthesis, Recombination repair, SOS Response</p> <p>2.3 DNA recombination: Models for recombination, Enzymes and proteins involved in recombination, Site-specific recombination</p>	12
III.	<p>Transcription: Prokaryotic and Eukaryotic transcription: RNA polymerases, General and specific transcription factors, Promoters, insulator, repressor, enhancer.</p>	12
IV.	<p>Translation: Prokaryotic and eukaryotic translation: Translation machinery, initiation, elongation and termination factors, translational inhibitors.</p> <p>Regulation of translation.</p>	12
V.	<p>5.1 Control of gene expression in Prokaryotes: DNA binding proteins, posttranscriptional control of gene expression. Gene regulation in Bacteria, Gene silencing, Overview of ribozyme technology</p> <p>5.2 Control of gene expression in Eukaryotes: enhancers, chromatin remodeling.</p> <p>5.3 Mutation: Types and causes, mutant types – lethal, conditional, biochemical, loss of function, gain of function</p>	12
		60

B.Sc Biotechnology Syllabus

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks : 100		
Continuous Comprehensive Evaluation (CCE) : 30 marks University Exam (UE) 70 marks		
Internal Assessment : Continuous Comprehensive Evaluation (CCE):30	Class Test Assignment/Presentation	Total 30
External Assessment : University Exam Section: 70 Time : 03.00 Hours	Section(A) : Objective Type Questions Section (B) : Short Questions Section (C) : Long Questions	Total 70

Part B – Content of the Practical Course	
Total Lectures: 30	
Total numbers of Lectures (in hours per week): 2 hours per week	
List of Experiments/Exercise/Practicals:	
<ol style="list-style-type: none"> 1. Isolation of genomic DNA 2. Isolation of Plasmid DNA 3. Visualization of DNA using EtBr 4. Electrophoresis of DNA-linear, circular and super coiled plasmid 5. Isolation of DNA from Tissue Blood Microorganism 6. Plasmid restriction map 7. Quantification of DNA using UV/VIS spectrophotometer 8. Effect of UV on microbial plant cell 	

B.Sc IV SEMESTER (NEP) Biotechnology

Part A Introduction			
Program: Diploma Course	Class: B.Sc.	SEM:IV	Session: 2023-24
Subject: Biotechnology			
1	Course Code	- S2-BTE C2 T	
2	Course Title	Recombinant DNA Technology	

B.Sc Biotechnology Syllabus

3	Course Type	Major-2 / Minor/ Elective- Core Course	
4	Pre-requisites (if any)	To study this course a student must have the subject Biotechnology in certificate course.	
5	Course Learning outcomes (CLO)	<ol style="list-style-type: none"> 1. The objectives of this course are to teach students with various approaches to conduct genetic engineering and their applications in biological research as well as in biotechnology industries. 2. Genetic engineering is a technology that has been developed based on our fundamental understanding of the principles of molecular biology and this is reflected in the contents of this course. 3. Given the impact of genetic engineering in modern society, the students should be endowed with strong theoretical knowledge of this technology. 4. In conjunction with the practicals in molecular biology and genetic engineering, the students should be able to take up biological research as well as placement in the relevant biotech industry 	
6	Credit Value	Theory- 4	
7	Total Marks	Max. Marks-40+60	Min Marks : 33

Part B – Content of the Course		
Total Lectures: 60 hours		
Total numbers of Lectures (in hours per week): 2 hours per week		
Unit	Topics	Numbers of Lecture
I	The Basic Principles of Gene Cloning and DNA Analysis: - Introduction, History, The advent and importance of gene cloning and the polymerase chain reaction, Purification of DNA from Living Cells, Manipulation of Purified DNA, Introduction of DNA into Living Cells, Plasmids,	12
II	Vectors for Cloning: - Cloning Vectors: PBR 322, Bacteriophage, Cosmid, Phagemid, Shuttle vectors Cloning Vectors for E. coli, λ and other high-capacity vectors, Cloning Vectors for Eukaryotes, Genomics & cDNA Libraries	12

B.Sc Biotechnology Syllabus

III	Enzymology of genetic manipulation: - Enzymes useful in molecular cloning: Restriction endonuclease, DNA ligases, polynucleotide kinase, klenow enzyme, DNA Polymerase- I, reverse transcriptase, alkaline phosphatase, terminal nucleotidyltransferase	12
IV	Gene editing: - Gene Recombination and Gene transfer: Bacterial Conjugation, Transformation, Transduction, Gene transfer techniques: Approaches, gene silencing, Mutagenesis: random, site directed, Knock-in, Knock-out	12
V	Applications and Techniques of Gene Cloning: - Polymerase Chain Reaction and qPCR. Labeling nucleic acids and blotting techniques (Southern, Northern, Western, Zooblot), DNA Sequencing, DNA Fingerprinting, Applications of recombinant DNA technologies- Agriculture, Medicine, health	12
	TOTAL	60

List of Experiments/Exercise/Practicals:

1. Isolation of DNA from bacterial plant animal cells
2. Demonstration of Polymerase Chain Reaction
3. Bacterial Transformation (Selection of transformants with blue white selection).
4. Demonstration of southern blotting
5. Demonstration of Restriction digestion of DNA
6. Demonstration of conjugation.
7. Demonstration of Transduction.

**B.Sc.
THIRD YEAR SYLLABUS**

**DSC Group A
Paper 1: Industrial Biotechnology
Part B - Content of the Course**

Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:		
Subject: Biotechnology Paper 1:		
Unit	Topics	Number of Lectures (1 Hour Each) 12
I.	Discovery, classifications and nomenclature of enzymes; Physico chemical characterization of enzymes; Enzyme kinetics: Enzyme catalysis in solution kinetics and thermodynamic analysis, effects of organic solvents on enzyme catalysis and structural consequences. Kinetics of enzyme inhibition.	12
II.	Immobilization of enzymes: principle and mechanism: Mechanism of enzyme function and reactions in process techniques; Enzymatic bioconversions e.g. starch and sugar conversion processes; High Fructose Corn Syrup; Interesterified fat; Hydrolyzed protein etc. and their downstream processing; baking by amylases, deoxygenation and desugaring by glucoses oxidase, beer mashing and chill proofing; cheese making by proteases and various other enzyme catalytic actions in food processing.	12
III.	Bioprocess technology Basic principles in bioprocess technology; Media Formulation; Sterilization; Thermal death kinetics; Batch and continuous sterilization systems; Primary and secondary metabolites; Extracellular enzymes; Biotechnologically important intracellular products; exopolymers;	12
IV.	Bioreactor designs: Types of fermentation and fermenters; Concepts of basic modes of fermentation Batch, fed batch and continuous. Conventional fermentation vs biotransformation. Solid substrate, surface and submerged fermentation. Fermentation economics. Fermentation media; Fermenter design mechanically agitated, Pneumatic and hydrodynamic fermenters, Large scale animal and plant cell cultivation and air sterilization; Upstream processing. Media formulation; Sterilization; Aeration and agitation in bioprocess. Measurement and control of bioprocess parameters; Scale up and scale down process.	12
V.	Techniques of enzyme isolation, purification and enzyme assay techniques used for the immobilization of enzymes; Applications of immobilized enzyme in Biotechnology; Bioprocess control and monitoring variables such as temperature, agitation, pressure, pH; Microbial processes production, optimization, screening, strain improvement, factors affecting downstream processing and recovery Representative examples of ethanol, organic acids, antibiotics etc.	12

B.Sc Biotechnology Syllabus

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Martin F. Chaplin and Christopher Bucke; Enzyme Technology, Cambridge, Univ Press
2. Anil Kumar and Sarika Garg; Enzymes and Enzyme Technology, Anshan Publishing; 1st edition 3. Jackson AT., Bioprocess in Biotechnology, Prentice Hall, Engelwood cliffs, 1991
4. Shufler ML and Kargi F., Bioprocess Engineering: Basic Concepts, 2nd Edition, Prentice Hall, Engelwood Cliffs, 2002.
5. Stanburry RF and Whitaker A., Principles of Fermentation Technology, Pergamon press, Oxford, 1977
6. Baily JE and Ollis DF., Biochemical Engineering fundamentals, 2nd edition, McGraw-Hill Book Co., New York, 1986.
7. Aiba S, Humphrey AE and Millis NF, Biochemical Engineering, 2nd Edition, University of Tokyo Press, Tokyo 1973.
8. Young M.M., Comprehensive Biotechnology: The Principles, applications and regulations of Biotechnology in Industry, Agriculture and Medicine, Vol 1, 2, 3 and 4. Reed Elsevier India Private Ltd, India, 2004.
9. Mansi EMTEL, Bryle CFA, Fermentation Microbiology and Biotechnology, 2nd Edition, Taylor & Francis Ltd. UK
10. Books published by Madhya Pradesh Hindi Granth Acadmey, Bhopal.

Suggestive digital platforms/web links- www.biologyonline.com

Suggested equivalent online courses: Coursera, NPTEL, Career's 360

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment:	Class Test	30
Continuous Comprehensive Evaluation (CCE)	Assignment/Presentation	
External Assessment:	Section(A): Very Short Questions	70
University Exam Section	Section (B): Short Questions	
Time: 03.00 Hours	Section (C): Long Questions	
Any remarks/suggestions:		

Part A Introduction

Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Biotechnology			
1.	Course Code	S3-BTEC1Q	
2.	Course Title	Industrial Biotechnology	
3.	Course Type (Core Course/ Discipline)	Discipline Specific Elective 1 (Practical)	

Specific B.Sc Biotechnology Syllabus		
Elective/Elective/ Generic Elective /Vocational/....)		
4.	Pre-requisite (if any)	To study this course, Student must have Diploma in Biotechnology
5.	Course Learning outcomes (CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Student will get concept of industrial and human beneficial living organism, their exploitation and application. 2. Student will get insight on industrially important organism, recent development in fermentation processes and various optimization strategies at fermenter level. 3. Create interest about design, types of fermenter and various critical components of bioreactors.
6.	Credit Value	2
7.	Total Marks	Max. Marks-100 Min. Passing Marks: 35

Part B-Content of the Course		
Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:		
Unit	Topics	Number of Lectures (2 Hours Each)
	<ol style="list-style-type: none"> 1. Determination of oxygen transfer rate and volumetric oxygen mass transfer coefficient (K_La) under variety of 30 operating conditions in shake flask and bioreactor. 2. Determination of mixing time and fluid flow behavior in bioreactor under variety of operating conditions. 3. Rheology of microbial cultures and biopolymers and determination of various rheological constants. 4. Production of microbial products in bioreactors. 5. Studying the kinetics of enzymatic reaction by microorganisms. 6. Production and purification of various enzymes from microbes. 7. Comparative studies of Ethanol production using different substrates. 8. Microbial production and downstream processing of an enzyme, e.g. amylase. 9. Various immobilization techniques of cells/enzymes, use of alginate for cell immobilization. 	30
Keywords/Tags:		

B.Sc Biotechnology Syllabus

Part C-Learning Resources
Text Books, Reference Books, Other resources
Suggested Readings:
<ol style="list-style-type: none"> 1. Martin F. Chaplin and Christopher Bucke; Enzyme Technology, Cambridge, Univ Press 2. Anil Kumar and Sarika Garg; Enzymes and Enzyme Technology, Anshan Publishing; 1st edition 3. Jackson AT., Bioprocess in Biotechnology, Prentice Hall, Engelwood cliffs, 1991 4. Shufler ML and Kargi F., Bioprocess Engineering: Basic Concepts, 2nd Edition, Prentice Hall, Engelwood Cliffs, 2002. 5. Stanburry RF and Whitaker A., Principles of Fermentation Technology, Pergamon press, Oxford, 1977 6. Baily JE and Ollis DF., Biochemical Engineering fundamentals, 2nd edition, McGraw-Hill Book Co., New York, 1986. 7. Aiba S, Humphrey AE and Millis NF, Biochemical Engineering, 2nd Edition, University of Tokyo Press, Tokyo 1973. 8. Young M.M., Comprehensive Biotechnology: The Principles, applications and regulations of Biotechnology in Industry, Agriculture and Medicine, Vol 1, 2, 3 and 4. Reed Elsevier India Private Ltd, India, 2004. 9. Mansi EMTEL, Bryle CFA, Fermentation Microbiology and Biotechnology, 2nd Edition, Taylor & Francis Ltd. UK. 10. Books published by Madhya Pradesh Hindi Granth Acadmey, Bhopal.
Suggestive Digital Platforms/Web Links- Nil
Suggested Equivalent Online Courses: Coursera, NPTEL, Career's 360

Part D-Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment:	Marks	External Assessment	Marks
Class interaction/ quiz	30	Viva voce on practical	70
Attendance		Practical record file	
Assignment (Chart/Model Seminar/Rural Service/ Technology Dissertation/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit		Table work/ Experiments	
		Total Marks: 100	

St. Aloysius' College
Department of Biotechnology
Session 2023-24
DSC Group A
Paper I: Agriculture Biotechnology

Part A - Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session :2023-24
Subject: Biotechnology			
1.	Course Code	S3-BTEC2D	
2.	Course Title	Agriculture Biotechnology	
3.	Course Type (Core Course/Discipline Specific Elective/ Elective/ Generic Elective/Vocational/....)	Discipline Specific Elective 2 (Theory) (Group A Paper II)	
4.	Pre-requisites	To study this course, Student must have Diploma in Biotechnology	
5.	Course Learning outcomes	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. The student will empower with the fundamental of the agriculture biotechnology such as organic farming agrobiolgy and techniques. 2. The learner will get the deep understanding of soil microbiology, microbial diversity of soil and importance of organic farming. 3. Student will empower through the hand on training on composting, vermiculture and methane production. 4. Learned molecular tetchiness will provide knowledge of further application. 5. Basic principle biofertilizer and biopecticide development will impart field knowledge. 	
6.	Credit Value	4	
7.	Total Marks	Max. Marks-30+70	Min. Passing Marks: 35

B.Sc Biotechnology Syllabus

Part B - Content of the Course		
Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:		
Subject: Biotechnology		
Unit	Topics	Number of Lectures (1 Hour Each) 12
I.	Organic farming- Biofertilizers and Biopesticides Biological N ₂ fixation, H ₂ production, biofertilizers and biopesticides, solid wastes, sources and management (composting, vermiculture and methane production). Single cell protein (Spirulina, yeast, mushroom)	12
II.	National and international status of organic farming Agencies and institutions related to organic agriculture. Organic and Indian National Standards for organic products. Organic Food Quality and Human Health	12
III.	Agrobiology Agrobacterium plant interaction, Virulence, Ti and Ri plasmids, Opines and their significance, TDNA transfer, Disarming the Ti plasmid, Genetic Transformation Agrobacterium mediated gene delivery, Co-integrate and binary vectors and their utility, Direct gene transfer PEG mediated, electroporation, particle bombardment and alternative methods, Screen able and selectable markers, Characterization of transgenics, Chloroplast transformation, Marker free methodologies, Gene targeting, Genetically modified crops	12
IV.	Gene Editing- Gene transfer technique-physical chemical, Biological method, Gen isolation and gene silencing, mutagenesis-random & site directed, RNA structure of Ribozymes, Regulation of gene editing, Gene editing tools- CRISPR-Cass & TALEN, R Applications in crop improvement, seed industry and nutritional security	12
V.	Techniques and Applications; enzyme detection, hybridization, PCR, Gene probe technology etc., Strategies for controlling pathogen transfer, Biopesticides in integrated pest management	12

B.Sc Biotechnology Syllabus

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test Assignment Presentation	30
External Assessment: University Exam Section Time: 03.00 Hours	Section(A): Very Short Questions Section (B): Short Questions Section (C): Long Questions	70
Any remarks/suggestions:		

Part A Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Biotechnology			
1.	Course Code	S3-BTEC2Q	
2.	Course Title	Agriculture Biotechnology	
3.	Course Type (Core Course/ Discipline Specific Elective/Elective/ Generic Elective /Vocational/...)	Discipline Specific Elective 2 (Practical) Group A Paper II	
4.	Pre-requisite (if any)	To study this course, Student must have Diploma in Biotechnology	
5.	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: <ol style="list-style-type: none"> 1. The student will empower with the fundamental of the agriculture biotechnology such as organic farming agrobiolgy and techniques. 2. The learner will get the deep understanding of soil microbiology, microbial diversity of soil and importance of organic farming. 3. Student will empower through the hand on training on 	

B.Sc Biotechnology Syllabus		composting, vermiculture and methane production.	
		4. Learned molecular techniques will provide knowledge of further application.	
		5. Basic principle biofertilizer and biopesticide development will impart field knowledge.	
8.	Credit Value	2	
9.	Total Marks	Max. Marks-100	Min. Passing Marks: 35

Part B-Content of the Course		
Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:		
Unit	Topics	Number of Lectures (2 Hours Each)
	1. To study pollution stress by chlorophyll and carotenoid ratio from algae sample 2. To study of effect of heavy metal on growth of bacteria 3. Isolation and Enumeration of the microorganism from soil by serial dilution agar plate method 4. Isolation of fungi from soil by warcup's method 5. Isolation of azotobacter species from soil 6. Isolation of microorganism from rhizosphere 7. Isolation of microorganism from phyllosphere (phyloplane) by serial dilution, agar plate method or leaf impression method 8. Plant diseases - leaf curl of papaya, rust of wheat, citrus canker, red rot of sugarcane. Study of weeds- Parthenum, water hyacinth 9. Visit to Apiculture area 10. Visit to Mushroom industry 11. Visit to terrace farming area 12. Study of policies and incentives of organic production 13. Study of farm inspection and certification 14. Determination of amount of bleaching powder required to disinfect a water sample by Horrock's test 15. To determine pH, electrical conductivity, total solids, total suspended solids and total dissolved solids in given sample of water 16. To determine the amount of oil and grease content present in the given water sample	30
Keywords/Tags:		

B.Sc Biotechnology Syllabus

Part D-Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment:	Marks	External Assessment	Marks
Class interaction/ quiz	30	Viva voce on practical	70
Attendance		Practical record file	
Assignment (Chart/Model Seminar/Rural Service/ Teachnology Dissertation/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit		Table work/ Experiments	
		Total Marks: 100	
Any remarks/ suggestions:			

St. Aloysius' College
Department of Biotechnology
Session 2023-24
DSC Group B
Paper 1: Environmental Biotechnology

Part A - Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session :2023-24
Subject: Biotechnology			
1.	Course Code	S3-BTEC3D	
2.	Course Title	Environmental Biotechnology	
3.	Course Type (Core Course/Discipline Specific Elective/ Elective/ Generic Elective/Vocational/....)	Discipline Specific Elective 3 (Theory) (Group B Paper I)	
4.	Pre-requisites	To study this course, Student must have Diploma in Biotechnology	
5.	Course Learning outcomes	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Deep understanding of existing and emerging technologies that are important in the area of environment and the principles and techniques which underline the environmental issues including air and water pollution. 2. Empowers the students with the knowledge of Domestic waste water treatment, Classification of wastewater treatment (physical, chemical and biological) 3. Students learn about concepts of Biodegradation, Biodegradation of hydrocarbon, and Measurement of biodegradation. Bioremediation- Concept, Methods of Bioremediation (In-situ and Ex-situ Bioremediation), and Xenobiotic biodegradation. 4. Learners will understand the concept of biodiversity: 	

B.Sc Biotechnology Syllabus		
6.	Credit Value	1
7.	Total Marks	Max. Marks-30+70 Min. Passing Marks: 35

Part B - Content of the Course		
Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:		
Subject: Biotechnology		
Unit	Topics	Number of Lectures (1 Hour Each) 12
I.	Environmental Pollution: Definition, principles and scope of ecology types of pollution, Oil pollution, Methods for the measurement of pollution, Methodology of environmental management - the problem solving approach, its limitations.	12
II.	Solid and Water wastes: sources and management (composting, vermiculture and methane production). Treatment of waste water, primary, secondary & Assessment of water quality.	12
III.	Global Environmental Problems: Ozone depletion, UV-B, green - house effect and acid rain. Biogas H ₂ Production	12
IV.	Degradation of Xenobiotics in Environment. Ecological considerations, decay behaviour & degradative plasmids, Hydrocarbons, substituted hydrocarbons, surfactants, pesticides, microbial leaching. Bioremediation of contaminated soils and waste land.	12
V.	Techniques and Applications: Methods of monitoring Pollution, Biological methods; Detection methods for DO, BOD, Pathogen monitoring by heterotrophic plate count, Multiple tube method, Membrane filtration methods; Strategies for controlling pathogen transfer, Chemical methods- Detection methods for COD, pH, alkalinity, TSS, TDS, Total organic carbon, oil, grease etc., Biosensors for pollution	12

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks		
Internal Assessment:	Class Test	30
Continuous Comprehensive Evaluation (CCE)	Assignment/Presentation	
External Assessment:	Section(A): Very Short Questions	70
University Exam Section	Section (B): Short Questions	
Time: 03.00 Hours	Section (C): Long Questions	
Any remarks/suggestions:		

B.Sc Biotechnology Syllabus

Part A Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Biotechnology			
1.	Course Code	S3-BTEC3Q	
2.	Course Title	Environmental Biotechnology	
3.	Course Type (Core Course/ Discipline Specific Elective/Elective/ Generic Elective /Vocational/...)	Discipline Specific Elective 3 (Practical) (Group B Paper I)	
4.	Pre-requisite (if any)	To study this course, Student must have Diploma in Biotechnology	
5.	Course Learning outcomes (CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Deep understanding of existing and emerging technologies that are important in the area of environment and the principles and techniques which underline the environmental issues including air and water pollution. 2. Empowers the students with the knowledge of Domestic waste water treatment, Classification of wastewater treatment (physical, chemical and biological) 3. Students learn about concepts of Biodegradation, Biodegradation of hydrocarbon, Measurement of biodegradation, Bioremediation-Concept, Methods of Bioremediation (In-situ and Ex-situ Bioremediation), and Xenobiotic biodegradation. 4. Learners will understand the concept of biodiversity: conservation and management, rules and acts. 	
6.	Credit Value	2	
7.	Total Marks	Max. Marks-100	Min. Passing Marks: 35
Part B-Content of the Course			
Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:			
Unit	Topics	Number of Lectures (2 Hours Each)	
	<ol style="list-style-type: none"> 1. Isolation of Cyanobacteria (blue green algae) 2. Estimation of nitrate 3. Estimation of nitrite 4. Estimation of ammonia 5. Determination of biological oxygen demand (BOD) of water sample. 6. Determination of chemical oxygen demand (COD) of water sample. 7. To study air born microbes by agar plate technique. 8. To study pollution stress by chlorophyll and carotenoid ratio from algae sample. 9. To study of effect of heavy metal on growth of bacteria. 	30	
Keywords/Tags:			

B.Sc Biotechnology Syllabus

Part D-Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment:	Marks	External Assessment	Marks
Class interaction/ quiz	30	Viva voce on practical	70
Attendance		Practical record file	
Assignment (Chart/Model Seminar/Rural Service/ Teachnology Dissertation/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit		Table work/ Experiments	
		Total Marks: 100	
Any remarks/ suggestions:			

B.Sc Biotechnology Syllabus

St. Aloysius' College
Department of Biotechnology
Session 2023-24
DSC Group B

Paper 1: Bioinformatics

Part A - Introduction

Program: Degree	Class: B.Sc.	Year: III Year	Session :2023-24
Subject: Biotechnology			
1.	Course Code	S3-BTEC4D	
2.	Course Title	Bioinformatics	
3.	Course Type (Core Course/Discipline Specific Elective/ Elective/ Generic Elective/Vocational/....)	Discipline Specific Elective 4 (Theory) (Group B Paper II)	
4.	Pre-requisites	To study this course, Student must have Diploma in Biotechnology	
5.	Course Learning outcomes	On successful completion of this course, the students will be able to: <ol style="list-style-type: none"> 1. Will know the use of Bioinformatics tools and their applications. 2. Develop an understanding of basic theory of these computational tools. 3. Gain working knowledge of these computational tools and methods. 4. Appreciate their relevance for investigating specific contemporary biological questions. 5. Critically analyse and interpret results of their study. 	
6.	Credit Value	4	
7.	Total Marks	Max. Marks-30+70	Min. Passing Marks: 35

Part B - Content of the Course

Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:

Subject: Biotechnology

Unit	Topics	Number of Lectures (1 Hour Each)
I.	Introduction to computers and Bioinformatics; History of Bioinformatics, Computer Organization: components, Memory devices; Comparison of different operating systems DOS, Windows, Linux. Comparison of different operating systems DOS, Windows, Linux. Computers in biology and medicine;	12

	Internet Technologies: Web Services - WWW; URL; Servers: Client/Server essentials - Domain Name Server; FTP server; E-mail server; WEB servers; Web publishing-Browsers-IP Addressing. Sequence file formats: GenBank, FASTA, PIR, ALN/Clustal W2, GCG/MSF, and PDB.	
II.	Proteomics and genomics: Aims, strategies and challenges in proteomics; proteomics technologies; Brief overview of prokaryotic and eukaryotic genome organization; extra-chromosomal DNA: bacterial plasmids, mitochondria and chloroplast. Genetic and physical maps; markers for genetic mapping; methods and techniques used for gene mapping, physical mapping, linkage analysis, cytogenetic techniques, FISH technique in gene mapping, somatic cell hybridization, radiation hybrid maps, in situ hybridization, comparative gene mapping.	12
III.	Overview of biological databases, nucleic acid & protein databases, primary, secondary, functional, composite, structural classification database, Sequence formats & storage, Access databases, Extract and create sub databases, limitations of existing databases. databases and search tools: biological background for sequence analysis; Identification of protein sequence from DNA sequence; searching of databases similar sequence; NCBI; publicly available tools; resources at EBI; resources on web; database mining tools.	12
IV.	Database: Database concept, Database management system; Data generating techniques, Database browsing and Data retrieval; Data structures and Databases. Sequence and Genome Databases: Databases such as GenBank; EMBL; DDBJ; Swissprot etc	12
V.	Applications and techniques: clinical and biomedical applications of proteomics; Identification and classification of organisms using molecular markers- 16S rRNA typing/sequencing, SNPS; use of genomes to understand evolution of eukaryotes, track emerging diseases and design new drugs; determining gene location in genome sequence.	12

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Sinha P K & Sinha Priti, Computer Fundamentals, Fourth Edition.
2. Greg Perry, SAMS teach your self open office.org.
3. Alexis & Mathews Leon, Fundamentals of information technology
4. Sharma Vinay, Munjal Ashok, Shankar Asheesh, A text book of Bioinformatics, Rastogi publications.
5. Rastogi SC, Mandirreta Namita, Rastogi Parag, Bioinformatics Concepts, Skill and applications, Rastogi Publications
6. Books published by Madhya Pradesh Hindi Granth Academy, Bhopal

Suggestive digital platforms/web links

<https://www.ncbi.nlm.nih.gov/>
<https://www.rcsb.org/>
<http://www.mbio.ncsu.edu/BioEdit/bioedit.html>
<https://www.expasy.org/>
<https://swissmodel.expasy.org/>
<http://molprobit.biochem.duke.edu/>
<https://web.expasy.org/protparam/>

Suggested equivalent online courses:

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30
External Assessment: University Exam Section Time: 03.00 Hours	Section(A): Very Short Questions Section (B): Short Questions Section (C): Long Questions	70
Any remarks/suggestions:		

Part A Introduction

Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Biotechnology			
1.	Course Code	S3-BTEC4Q	
2.	Course Title	Bioinformatics	
3.	Course Type (Core Course/ Discipline Specific Elective/Elective/ Generic Elective /Vocational/....)	Discipline Specific Elective 4 (Practical) (Group B Paper II)	
4.	Pre-requisite (if any)	To study this course, Student must have Diploma in	

B.Sc Biotechnology Syllabus		
5.	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: 1. Will know the use of Bioinformatic tools and their applications. 2. Develop an understanding of basic theory of these computational tools. 3. Gain working knowledge of these computational tools and methods. 4. Appreciate their relevance for investigating specific contemporary biological questions. 5. Critically analyse and interpret results of their study.
6.	Credit Value	2
7.	Total Marks	Max. Marks-100 Min. Passing Marks: 35

Part B-Content of the Course		
Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:		
Unit	Topics	Number of Lectures (2 Hours Each)
	1. Searching PubMed, Introduction to NCBI, NCBI data bases, 2. Multiple sequence alignment, Primer designing, Phylogenetic Analysis, 3. Sequence information resource: Understanding and use of various web resources: EMBL, Genbank, Entrez, Unigene, Protein information resource (PIR) 4. Understanding and using PDB, Swissprot, TREMBL 5. Using various BLAST and interpretation of results	30
Keywords/Tags:		

Part D-Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment:	Marks	External Assessment	Marks
Class interaction/ quiz	30	Viva voce on practical	70
Attendance		Practical record file	
Assignment (Chart/Model Seminar/Rural Service/ Teachnology Dissertation/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit		Table work/ Experiments	
		Total Marks: 100	
Any remarks/ suggestions:			

Part A - Introduction			
Program : Degree		Class:	Year: III Year
Session :2023-24			
Subject: Biotechnology			
1.	Course Code	S3-BTEC2T	
2.	Course Title	Applied Biotechnology	
3.	Course Type (Core Course/Discipline Specific Elective/ Elective/ Generic Elective /Vocational/....)	Minor/Elective (Theory)	
4.	Pre-requisites	This course can be opted as an elective by the students/Open for all	
5.	Course Learning outcomes	<p>On completion of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Students can depict about design, types of fermentor. Recent development in fermentation process & various optimization strategic of fermentation. 2. Learners can get inside of biofertilizer and biopesticide, global environmental problem agrobiolgy techniques regulation and application. 3. Students depict about concept of environment principal technique and pollution as well as bioremediation, biodiversity, conservation and management. 4. They may creat interest in the bioinformatics tools and their application computational tools and method. Rational for and against IPR and patent and trade and entrepreneurship. 	
6.	Credit Value	4	
7.	Total Marks	Max. Marks-30+70	Min. Passing Marks: 35




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Part B – Content of the Course

Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:

Unit	Topics	Number of Lectures (1 Hour Each)
I.	Environmental Pollution - Basic concepts, significance, public awareness, public assessment water quality, treatment of waste water. biopesticide-bacterial and fungal, microbial leaching, biodegradation modern fuels.	12
II.	National & International strategies of organic farming, organic food, quality & human health. Strategies for controlling pathogen transfer, integrated pest management , biofertilizers genetically modified crops.	12
III.	Fermentation technology, basic principle of bioprocess technology, primary & secondary screening, strain improvement, inoculum development, industrial sterilization process, scale up & product recovery. Types of fermentation, factor affecting, fermentation design.	12
IV.	Bioinformatics & Biostatics History of bioinformatics, computer organization, Computer in biology, computer in biological data & their types, introduction to measurement of dispersion & central tendency, their types & application, data types & presentation modes.	12
V.	IPR forms & scope, types, international organization like, WTO, TRIPS, & GATT. Biotechnology & IPR- plant variety protection, act. Animal breeder's, rights, patenting microbes organism and genes potential markers & variants.	12


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Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Khan Irfan A. Fundamental of Biostatistics.
2. Wanganeo & Singh, Application of statics in Biological Science by Parihar, (2012) Book Enclave publication.
3. Rao, P.S. Sunder An introduction to Biostatistics.
4. De. A. K., Environmental Chemistry, Wilaey Eastron Ltd. New Delhi.
5. Purohit S. S., Microbiology.
6. Dubey R. C., Advanced Biotechnology.
7. Kumar Anil & Garg Sarika, Enzymes and enzyme technology, Anshan publishing.
8. Jackson AT, Bioprocess in Biotechnology (1991), Prentice Halls Engalwood Cliff.
9. Stranburge RF, Whitakar A, Principles of fermentation technology (1997) Pergammers press exfer.
10. Kristerson P., Taji, A. and Reganold J ,Organic Agriculture- A global perspective 2006) . CSIRA Press, Australia.
11. Altieri M, Agroecology: The Science of sustainable agriculture (1990) West view press
12. Joshi, M., Setty, T.K.V., and Prabhakara Setty, Sustainability through organic farming (2006) , Kalyani Publishers, Ludhiana, India.
13. Sinha P. K. & Sinha Priti, Computer fundamentals.
14. Sharma Vinay, Ashok Munjal, Asheesh Shankar, A text book of Bioinformatics Rastogi Publication.
15. Nambisan Padma, An introduction to ethical , Safety & intellectual property rights issue in Biotechnology .
16. Goel, & Parashar, IPR, Biosefty & Bioethics.
17. Gupta CB & Khanka SS., Entrepreneurship and small business management ,S chand & sons.
18. Tiwary P. & Pandey, P. ,Practical Guide for basic bioinformatics and biostatistics .
19. Agrawal S. K. Environmental Biotechnology.
20. Books published by Madhya Pradesh Hindi Granth Academy, Bhopal.

Suggestive digital platforms/web links- www.biologyonline.com

Suggested equivalent online courses: Coursera, NPTEL


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Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks : 100		
Continuous Comprehensive Evaluation (CCE) : 30 marks University Exam (UE) 70 marks		
Internal Assessment : Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30
External Assessment : University Exam Section Time : 03.00 Hours	Section(A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions	70
Any remarks/suggestions:		



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Part A - Introduction			
Program : Degree		Class:	Year: III Year
Session :2023-24			
Subject: Biotechnology			
1.	Course Code	S3-BTEC2P	
2.	Course Title	Applied Biotechnology	
3.	Course Type (Core Course/Discipline Specific Elective/ Elective/ Generic Elective /Vocational/....)	Minor/Elective (Practical)	
4.	Pre-requisites	This course can be opted as an elective by the students/Open for all	
5.	Course Learning outcomes	<p>On completion of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Students can depict about design, types of fermentor. Recent development in fermentation process & various optimization strategic of fermentation. 2. Learners can get inside of biofertilizer and biopesticide, global environmental problem agrobiolgy techniques regulation and application. 3. Students depict about concept of environment principal technique and pollution as well as bioremediation, biodiversity, conservation and management. 4. They may creat interest in the bioinformatics tools and their application computational tools and method. Rational for and against IPR and patent and trade and entrepreneurship. 	
6.	Credit Value	2	
7.	Total Marks	Max. Marks-100	Min. Passing Marks: 35



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Part B – Content of the Course		
Total No. of Lectures- Tutorials-Practical (in hours per week): L-T-P:		
Unit	Topics	Number of Lectures (2 Hours Each)
	<ol style="list-style-type: none"> 1. Prepare a marksheet of class subjects. 2. Prepare a bar chart, pie chart for analysis of election results. 3. Problem based on probability and standard deviation. 4. Retrieval of biological data resources & data. 5. Use M.S. Word to insert a table in to document. 6. Demonstration of fermentor. 7. Demonstration of PCR. 8. Production of ethanol by yeast. 9. Isolation of Agotobacter, Rhizobium and Cyanobacteria from soil. 10. Isolation of microorganism from polluted site/ industrial waste. 11. Degradation of 2,4-D by bacteria. 12. Immobilization of microbial cells by Ca alginate. 13. Isolation of microorganism from rhizosphere. 14. Study of policies and incentives of organic production. 15. Study of air borne microorganism by agar plate techniques. 16. Understanding the use of NCBL phylogenetic analysis. 17. Proxy filling of Indian product patent. 	30
Keywords/ Tags:		


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Part C - Learning Resources	
Text Books, Reference Books, Other Resources	
Suggested Readings:	
<ol style="list-style-type: none"> 1. Parihar, Wanganeo & Singh, Application of statistics in Biological Science by Parihar, (2012) Book Enclave publication. 2. De. A. K., Environmental Chemistry, Wiley Eastern Ltd. New Delhi. 3. Dubey R. C., Advanced Biotechnology. 4. Kumar Anil & Garg Sarika, Enzymes and enzyme technology, Anshan publishing. 5. Stranburge RF, Whitakar A, Principles of fermentation technology (1997) Pergamers press exfer. 6. Joshi, M., Setty, T.K.V., and Prabhakara Setty, Sustainability through organic farming (2006) , Kalyani Publishers, Ludhiana, India. 7. Sinha P. K. & Sinha Priti, Computer fundamentals. 8. Sharma Vinay, Ashok Munjal, Asheesh Shankar, A text book of Bioinformatics Rastogi Publication. 9. Nambisan Padma, An introduction to ethical , Safety & intellectual property rights issue in Biotechnology . 10. Gupta CB & Khanka SS., Entrepreneurship and small business management ,S chand & sons. 11. Tiwary P. & Pandey, P., Practical Guide for basic bioinformatics and biostatistics. 12. Books published by Madhya Pradesh Hindi Granth Academy, Bhopal. 	
Suggestive digital platforms/web links- www.biologyonline.com	
Suggested equivalent online courses: Coursera, NPTEL	

Part D-Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	
Any remarks/ suggestions:			

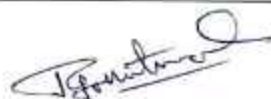
T. Rastogi

भाग अ - परिचय			
कार्यक्रम: उपाधि	कक्षा :	वर्ष: तृतीय	सत्र: 2023-24
विषय: जैव प्रौद्योगिकी			
1	पाठ्यक्रम का कोड	S3-BTEC2T	
2	पाठ्यक्रम का शीर्षक	अनुप्रयुक्त जैवप्रौद्योगिकी	
3	पाठ्यक्रम का प्रकार :(कोर कोर्स/ डिसिप्लिन स्पेसिफिक इलेक्टिव /इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/.....)	माइनर/इलेक्टिव (सैद्धांतिक)	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस पाठ्यक्रम को सभी छात्रों द्वारा एक वैकल्पिक विषय के रूप में चुना जा सकता है / सभी के लिए उपलब्ध (Open For all)	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<p>पाठ्यक्रम के पूरा होने पर छात्र, निम्न बातों में सक्षम बनेंगे।</p> <ol style="list-style-type: none"> 1. छात्र फरमेंटर की डिजाईन एवं प्रकार फरमेंटेशन प्रक्रिया के आधुनिक विकास और किण्वन की विभिन्न ऑप्टिमाइजेशन प्रक्रिया की जानकारी प्राप्त करेंगे। 2. प्रशिक्षार्थी जैव उर्वरक, जैव कीटनाशक एग्रो बायोलॉजी, नियमन की तकनीकों और अनुप्रयोग की आन्तरिकता को जानेंगे। 3. छात्र पर्यावरण के सिद्धान्तों और प्रदूषण की तनकीक अवधारणा तथा बायोरिमेडियेशन, जैव विविधता, संरक्षण और प्रबंधन के बारे में जानेंगे। 4. छात्र बायोइन्फोरमेटिक्स एवं कम्प्यूटर के टूल और इनके अनुप्रयोग और विधियां, आरपीआई, पेटेंट टुडे और उद्यमिता से संबंधित मुद्दों को समझेंगे। 	
6	क्रेडिट मान	4	
7	कुल अंक	अधिकतम अंक: 30+70	न्यूनतम उत्तीर्ण अंक: 35



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भाग ब- पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-थ्यूटोरियल- प्रायोगिक (प्रति सप्ताह घंटे में): L-T-P:		
इकाई	विषय	व्याख्यान की संख्या (1 घंटा/ व्याख्यान)
I	पर्यावरण प्रदूषण-मूल सिद्धांत, महत्व, सामाजिक जागरूकता और निगरानी, जल गुणवत्ता-अपशिष्ट जल का उपचार, जैविक कीटनाशक- जीवाण्विक एवम् कवकीय, सूक्ष्म जैविक लीचिंग, बायोडीग्रेडेशन आधुनिक इंधन	12
II	जैविक कृषि, जैविक खाद्य की रणनीति, गुणवत्ता एवं मानव स्वास्थ्य की राष्ट्रीय एवं अंतर्राष्ट्रीय रणनीति, पैथोजन के स्थानान्तरण के रोकथाम की रणनीति, समग्र पेस्ट प्रबंधन, जैव उर्वरक, अनुवांशिक परिवर्तित फसलें	12
III	किण्वन तकनीक, बायोप्रोसेस तकनीक के मूल सिद्धान्त, प्राथमिक एवं द्वितीयक छटनी, सेहत सुधार, इन्आक्यूलम का विकास, औद्योगिक निर्जमीकरण विधि, स्केल अप और उत्पाद रिकवरी, किण्वन की डिजाइन प्रकार और प्रभावित करने वाले कारक	12
IV	बायोइनफोरमेटिक्स और जैव सांख्यिकीय-बायोइनफोरमेटिक्स का इतिहास, संगणक का संगठन, जीवविज्ञान में संगणक, जैवीय डाटा और इनके प्रकार, विश्लेषण और क्रेन्डीय प्रवृत्ति का मापन इनके प्रकार एवं अनुपयोग, डाटा प्रकार और प्रस्तुतीकरण मोड	12
V	आई.पी.आर. के रूप प्रकार और संभावनायें (स्कोप), अंतरराष्ट्रीय संस्थान जैसे डब्ल्यू टीओ, टीआरआई पी एस और जी ए टी टी, जैवप्रौद्योगिकी और आई.पी.आर. पादप प्रकार सुरक्षा एक्ट, जन्तु ब्रीडर राईट, सूक्ष्मजीव, जीव और जीनों की पैरेंटिंग सक्षम मार्कर और वेरियंट	12
सार बिंदु (की वर्ड)/टिप:		



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भाग स- अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें /ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

संदर्भ पुस्तकें

1. Khan Irfan A. Fundamental of Biostatistics.
2. Wanganeo & Singh, Application of statics in Biological Science by Parihar, (2012) Book Enclave publication.
3. Rao, P.S. Sunder An introduction to Biostatistics.
4. De. A. K., Environmental Chemistry, Wilaey Easton Ltd. New Delhi.
5. Purohit S. S., Microbiology.
6. Dubey R. C., Advanced Biotechnology.
7. Kumar Anil & Garg Sarika, Enzymes and enzyme technology, Anshan publishing.
8. Jackson AT, Bioprocess in Biotechnology (1991), Prentice Halls Engalwood Cliff.
9. Stranburge RF, Whitakar A, Principles of fermentation technology (1997) Pergammers press exfer.
10. Kristerson P., Taji, A. and Reganold J ,Organic Agriculture- A global perspective 2006) . CSIRA Press, Australia.
11. Altieri M, Agroecology: The Science of sustainable agriculture (1990) West view press
12. Joshi, M., Setty, T.K.V., and Prabhakara Setty, Sustainability through organic farming (2006) , Kalyani Publishers, Ludhiana, India.
13. Sinha P. K. & Sinha Priti, Computer fundamentals.
14. Sharma Vinay, Ashok Munjal, Asheesh Shankar, A text book of Bioinformatics Rastogi Publication.
15. Nambisan Padma, An introduction to ethical , Safety & intellectual property rights issue in Biotechnology .
16. Goel, & Parashar, IPR, Biosefty & Bioethics.
17. Gupta CB & Khanka SS., Entrepreneurship and small business management ,S chand & sons.
18. Tiwary P. & Pandey, P. ,Practical Guide for basic bioinformatics and biostatistics .
19. Agrawal S. K. Environmental Biotechnology.
20. Books published by Madhya Pradesh Hindi Granth Academy, Bhopal.

अनुशंसित डिजिटल प्लेटफॉर्म/ वेब लिंक- www.biologyonline.com

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम: Coursera, NPTEL


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भाग द - अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियां:

अधिकतम अंक: 100

सतत व्यापक मूल्यांकन (CCE) अंक : 30 विश्वविद्यालयीन परीक्षा (UE) अंक: 70

आंतरिक मूल्यांकन:	क्लास टेस्ट	30
सतत व्यापक मूल्यांकन (CCE):	असाइनमेंट/ प्रस्तुतीकरण (प्रेजेंटेशन)	
आकलन :	अनुभाग (अ): अति लघु प्रश्न	
विश्वविद्यालयीन परीक्षा:	अनुभाग (ब): लघु प्रश्न	70
समय- 03.00 घंटे	अनुभाग (स): दीर्घ उत्तरीय प्रश्न	

कोई टिप्पणी/सुझाव:

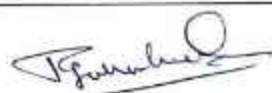

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भाग अ - परिचय			
कार्यक्रम: उपाधि	कक्षा :	वर्ष: तृतीय	सत्र: 2023-24
विषय: जैव प्रौद्योगिकी			
1	पाठ्यक्रम का कोड	S3-BTEC2P	
2	पाठ्यक्रम का शीर्षक	अनुप्रयुक्त जैवप्रौद्योगिकी	
3	पाठ्यक्रम का प्रकार :(कोर कोर्स/ डिसिप्लिन स्पेसिफिक इलेक्टिव /इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल/.....)	माइनर/इलेक्टिव (प्रायोगिक)	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	इस पाठ्यक्रम को सभी छात्रों द्वारा एक वैकल्पिक विषय के रूप में चुना जा सकता है / सभी के लिए उपलब्ध (Open For all)	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<p>पाठ्यक्रम के पूरा होने पर छात्र, निम्न बातों में सक्षम बनेंगे।</p> <ol style="list-style-type: none"> 1. छात्र फरमेंटर की डिजाइन एवं प्रकार फरमेंटेशन प्रक्रिया के आधुनिक विकास और किण्वन की विभिन्न ऑप्टिमाइजेशन प्रक्रिया की जानकारी प्राप्त करेंगे। 2. प्रशिक्षार्थी जैव उर्वरक, जैव कीटनाशक एग्रो बायोलाॉजी, नियमन की तकनीकों और अनुप्रयोग की आन्तरिकता को जानेंगे। 3. छात्र पर्यावरण के सिद्धान्तों और प्रदूषण की तनकीक अवधारणा तथा बायोरिमेडियेशन, जैव विविधता, संरक्षण और प्रबंधन के बारे में जानेंगे। 4. छात्र बायोइन्फोरमेटिक्स एवं कम्प्यूटर के टूल और इनके अनुप्रयोग और विधियों, आरपीआई, पेटेंट टुडे और उद्यमिता से संबंधित मुद्दों को समझेंगे। 	
6	क्रेडिट मान	2	
7	कुल अंक	अधिकतम अंक: 30+70	न्यूनतम उत्तीर्ण अंक: 35



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भाग ब- पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-क्यूटोरियल- प्रायोगिक (प्रति सप्ताह घंटे में): L-T-P:		
इकाई	विषय	व्याख्यान की संख्या (2 घंटे/ व्याख्यान)
	<ol style="list-style-type: none"> 1. कक्षा विषयों की अंक तालिका बनाये 2. चुनाव विक्षेपण हेतु बार चार्ट, पाई चार्ट, बनाये 3. प्रोबेलिटी और स्टैण्डर्ड विक्षेपण पर आधारित प्रश्न हल करें 4. जैवीय द्वारा रिसर्च और डाटा को पुनः प्राप्त करें 5. एम. एस. वर्ड का उपयोग दस्तावेज में तालिका समाहित करें हेतु करें 6. फर्मेटशन का प्रदर्शन करना 7. पी. सी. आर. का प्रदर्शन करना 8. यीस्ट के द्वारा इथेनोल का उत्पादन करना 9. मृदा से एजेटोबेक्टर, राईजोबियम एवम् नील हरित शैवाल का पृथक्करण 10. प्रदूषित क्षेत्र / औद्योगिक अपशिष्ट से सूक्ष्म जीवों का पृथक्करण 11. जीवाणु द्वारा 2,4-डी का अपघटन का अध्ययन करना 12. कैल्सियम एलजीनेट द्वारा सूक्ष्म जैविक कोशा का स्थरीकरण 13. राईजोस्फियर से सूक्ष्म जीवों का पृथक्करण 14. जैविक उत्पादन की पालिसी और लाभान्सो का अध्ययन करना 15. अगार प्लेट तकनीक द्वारा वायु जनित सूक्ष्म जीवों का अध्ययन करना 16. एन सी बी आई, फ्लोजेनेटिक एनालिसिस और ब्लास्ट के उपयोग को समझना 17. भारतीय उत्पाद पेटेंट की कृत्रिम फायलिंग करना 	30
सार बिंदु (की बर्ड)/टैग:		



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Barkatullah University, Bhopal-462026

भाग द - अनुशंसित मूल्यांकन विधियां:			
अनुशंसित सतत मूल्यांकन विधियां:			
आंतरिक मूल्यांकन	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद / प्रश्नोत्तरी	30	प्रायोगिक मौखिकी (वायवा)	70
उपस्थिति		प्रायोगिक रिकॉर्ड फाइल	
असाइनमेंट		टेबल वर्क/ प्रयोग	
(चार्ट/मॉडल/सेमिनार/ग्रामीण सेवा/प्रौद्योगिकी प्रसार/भ्रमण (एक्सकर्सन) की रिपोर्ट/ सर्वेक्षण/प्रयोगशाला भ्रमण (लैब विजिट)/औद्योगिक यात्रा			
		कुल अंक : 100	
कोई टिप्पणी/सुझाव:			


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ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS

UG

PHYSICS

St. Aloysius College (Autonomous), Jabalpur
DEPARTMENT OF PHYSICS
SYLLABUS 2023-24

Programme Specific Outcomes for B.Sc Program

PSO No.	Programme Specific Outcomes Upon completion of these courses the student would be able to:
PSO-1	Analyse the concepts and theories of Physics.
PSO-2	Analyse real world problems and develop mathematical equations to find acceptable solutions.
PSO-3	Develop problem solving skills and scientific reasoning by learning laboratory skills.
PSO-4	Develop written and oral communication skills in communicating with diverse stakeholders.
PSO- 5	Create and collaborate in emergent physical, mathematical and computing technologies leading to innovative solutions for industry and academia.
PSO- 6	Crack various competitive exams for higher studies and employment.

B. Sc. I Semester

2023-24

Mechanics and General Properties of Matter

Major & Minor

Course Code: SIPHYST

Pre-requisite: To study this course, a student must have had the subject Physics in 12th class.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 4 (60 hrs)

Course Objectives (CO)

The objectives of the course are:

	Course Objectives	Cognitive Level
CO-I	To become aware of the contribution to science by Indians.	R,U, Ap,E
CO-II	To develop required mathematical skills to analyse simple, damped and forced harmonic oscillation	R,U, Ap,E
CO-III	To study Rigid body, Centre of mass, Moment of inertia, Poisson's ratio and various elastic constant	U, Ap, R, E

CO-IV	To study the concept of stress/strain and in its relation to force/displacement. To determine axial forces, shear forces and bending moments in relation to rigid bodies.	R, U, An, Ap, E
CO-V	To acquire knowledge of Moment of Inertia for various regular bodies. To study, viscosity, surface tension and Bernoulli's theorem	R, U, An, Ap, E, R
CO-VI	To study Conservative force field, Gravitational potential, Gravitational self-energy, Central force, reduced mass, Kepler's law, Scattering.	U,R,Ap,An
CO-VII	To introduce students to the concept of AstroPhysics, special theory of relativity and its consequences	Ap, E, C

Course Learning Outcome (CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO-I	The learner will use second order linear differential equations to study and solve problems in Harmonic oscillations	1,2,3,6	U, R, Ap,E
CLO-II	Learner will be able to understand / recall Rigid body, Centre of mass, the connection between Rotational Dynamics and moment of inertia. Learner will be able to determine the Moment of inertia about a given axis of symmetry for different uniform mass distributions.	1,2,3,6	R, U, Ap, An, R, E
CLO-III	Learner will be able to understand and apply the law of conservation of linear momentum and understand the concept of center of mass, Elasticity and various elastic moduli	3,4,5,6	R, U, An, Ap, E
CLO-IV	Learner will be able to understand Principles of fluid flow and the equations governing fluid dynamics such as equation of continuity, Bernoulli's Theorem etc.	3,4,5,6	R, U, Ap, An, E
CLO-V	Learner will be able to understand / recall Conservative force field, Gravitational potential, Gravitational selfenergy, Central force, reduced mass, Kepler's law, Scattering.	1,2,6	U,R,Ap,An
CLO-VI	Learner will be able to understand the concept of AstroPhysics, special theory of relativity.	3,4,5,6	U,Ap, E, C

CO-Course Objectives; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

Historical background and Oscillations

1.1 Historical background [12 Lectures]

1.1.1 A brief historical background of mathematics and mechanics in the context of India and Indian culture.

1.1.2 A brief biography of Varahamihira and Vikram Sarabhai with their major contribution to science and society.

1.2 Oscillations

1.2.1 SHM: Simple Harmonic Oscillations. Differential equation of SHM and its solution. Kinetic energy, potential energy, total energy and their time-average values. Damped oscillation. Forced oscillations: Transient and steady states; Resonance, sharpness of resonance; Power dissipation and Quality factor.

Keywords: SHM, Gravitation, Oscillation, Quality factor.

UNIT-II

Mechanics of Rigid and deformable bodies

2.1 Rigid body mechanics [12 Lectures]

2.1.1 System of particles and concept of Rigid body, Torque, Centre of mass: position of the centre of mass, Motion of the centre of mass, Conservation of linear & angular momentum with examples, Systems of variable mass : Single stage and multistage rocket, Conveyor belt hoppers.

2.1.2 Rotatory motion and concept of moment of inertia, Theorems on moment of inertia: theorem of addition, theorem of perpendicular axis, theorem of parallel axis, Calculation of moment of inertia of rectangular lamina, disc, solid cylinder, solid sphere.

2.2 Mechanics of deformable bodies:

2.2.1 Hook's law, Young's modulus, Bulk modulus, Modulus of rigidity and Poisson's ratio, Relationship between various elastic moduli.

2.2.2 Possible values of Poisson's ratio, Finding Poisson's ratio of rubber in the laboratory, Torsion of a cylinder, Strain energy of twisted cylinder.

2.2.3 Finding the modulus of rigidity of the material of a wire by Barton's method, Torsional pendulum and Maxwell's needle, Searle's method to find Y , ν and μ of the material of wire, Bending of beam, Cantilever, Beam supported at its ends and loaded in the middle.

Keywords/Tags: Rigid body, Centre of mass, Moment of inertia, Poisson's ratio.

UNIT-III Fluid mechanics

3.1 Surface Tension [12 Lectures]

3.1.1 Inter- molecular forces and potential energy curve, force of cohesion and adhesion.

3.1.2 Surface tension, Explanation of surface tension on the basis of intermolecular forces, Surface energy, Effect of temperature and impurities on surface tension, Daily life application of surface tension.

3.1.3 Angle of contact, The pressure difference between the two sides of a curved liquid surface, Excess pressure inside a soap bubble, Capillarity, determination of surface tension of a liquid –capillary rise method, Jaeger's method.

3.2 Viscosity

3.2.1 Ideal and viscous fluid, Streamline and turbulent flow, Equation of continuity, Rotational and irrotational flow, Energy of a flowing fluid, Euler's equation of motion of a non-viscous fluid and its physical significance.

3.2.2 Bernoulli's theorem and its applications (Velocity of efflux, shapes of wings of airplane, Magnus effect, Filter pump, Bunsen's burner)

3.2.3 Viscous flow of a fluid, Flow of liquid through a capillary tube, Derivation of Poiseuille's formula and limitations, Stoke's formula, Motion of a spherical body falling in a viscous fluid.

Keywords/Tags: Inter-molecular force, Surface tension, Angle of contact, Capillarity, Viscosity, Euler's equation, Poiseuille's formula.

UNIT-IV Gravitational potential and central forces

4.1 Gravitational potential [12 Lectures]

4.1.1 Conservative and non-conservative force field, Conservation of energy in motion under the conservative and non-conservative forces, Potential energy.

4.1.2 Conservative force, Conservation of energy, Gravitational potential and gravitational potential energy, Gravitational potential and intensity of gravitational field due to a uniform spherical shell and a uniform solid sphere.

4.1.3 Gravitational self-energy, Gravitational self-energy of a uniform spherical shell and a uniform solid sphere.

4.2 Central forces

4.2.1 Motion under Central forces, Conservative characteristics of central forces.

4.2.2 The motion of a two particles system in central force, Concept of reduced mass, Reduced mass of positronium and hydrogen.

4.2.3 Motion of particle in an inverse-square central force, Motion of celestial bodies and derivation of Kepler's laws

4.2.4 Elastic and inelastic scattering (elementary idea).

Keywords/Tags: Conservative force field, Gravitational potential, Gravitational self-energy, Central force, reduced mass, Scattering.

UNIT-V

Relativistic Mechanics and Astrophysics

5.1 Relativistic Mechanics: [12 Lectures]

5.1.1 Frame of references, Galilean transformation, and Michelson-Morley experiment.

5.1.2 Postulates of special theory of relativity, Lorentz Transformation, Simultaneity and order of events, Length contraction, Time dilation, Relativistic transformation of velocities, Variation of mass with velocity.

5.1.3 Mass-energy equivalence and its experimental verification.

5.2 Astrophysics

5.2.1 Introduction to the universe, Properties of the Sun, Concept of Astronomical Distance.

5.2.2 Life cycle of stars, Chandrasekhar Limit, H-R diagram, Red giant star, White dwarf star, Neutron star, Black hole.

5.2.3 Big Bang Theory (elementary idea).

Keywords/Tags: Transformation, Mass-energy equivalence, Astronomical distance, Chandrasekhar limit, Black hole.

Learning Resources:

Suggested Readings:

- 1) Spiegel M. R., —Vector Analysis: Schaum Outline Series —, McGraw Hill Education, 2017.
- 2) Mathur D. S., —Mechanics —, S.Chand, 2012.
- 3) Mathur D. S., —Properties of Matter —, Shyamal Charitable trust, New Delhi.
- 4) Ghatak A. K., Goyal I. C., and Chua S. J. —Mathematical Physics, Laxmi Publications Private Limited, 2017.
- 5) Hans and Puri , —Mechanics — Tata McGraw Hill
- 6) Sears and Zeemansky, —University Physics, Pearson Education.
- 7) Kleppner and Kolenkov , An Introduction to Mechanics, Tata McGraw Hill.
- 8) Resnick and Halliday —Fundamentals of Physics, 1966.

Digital resources:

Suggested equivalent online courses:

1. <https://nptel.ac.in/courses/115/103/115103036/> Mathematical Physics by Dr. Saurabh Basu, IIT, Guwahati.
2. <https://nptel.ac.in/courses/115/106/115106090/> Mechanics, Heat, Oscillations and Waves by Prof. V. Balakrishanan, IIT, Chennai.

Mode of Evaluation: Digital Assignments, Quiz, Class test /Mid Semester Exam, Final (end semester) examination.

Evaluation Scheme:

Internal Assessment : 15+15+10 =40 Marks

Main (End Semester) Written Exam: 60 Marks

Total : 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words)	: 5 Marks (05 X 01= 05 Marks)
Short answer type question (200 words)	: 10 Marks (05 X 02= 10 Marks)
Long answer type question (500 words)	: 45 Marks (05 X 9 = 45 Marks)

List of Experiments

Credit Value: 2

No. of Practical hours: 30

1. Determination of Young's modulus, modulus of rigidity and Poisson's ratio of material of wire using Searle's method.
2. Determination of Young's modulus of material of a metallic bar by bending of beam method.
3. Determination of acceleration due to gravity (g) using bar pendulum.
4. Determination of acceleration due to gravity (g) using Kater's reversible pendulum.
5. Determination of modulus of rigidity of a rod with the help of Barton's apparatus.
6. Determination of coefficient of viscosity of liquid using Poiseuille's method.
7. Determination of moment of inertia of a fly wheel about its axis of rotation.
8. Determination of the moment of inertia of a given body (irregular body) with the help of inertia table.
9. Verification of the theorem of parallel/perpendicular axes of moment of inertia.
10. Determination of modulus of rigidity of material of wire with the help of Maxwell's needle.
11. Determination of Young's modulus of a rod using Cantilever method.
12. Determination of modulus of rigidity of material of wire with the help of torsional pendulum.
13. Determination of force constant of a spring.
14. Determination of Poisson's ratio of rubber.
15. Determination of surface tension of a liquid by Jaeger's method.
16. Determination of Young modulus of brass bar using Flexural Vibration. (SPONSARED BY DBT STAR)
17. Determination of Rigidity of Brass. (SPONSARED BY DBT STAR)

Other experiments of the same difficulty level may be added. ##
Student needs to perform at least 10 experiments.

Learning Resources:

Suggested Readings:

1. Indu Prakash, Ram Krishna and A.K.Jha, —A text book of practical physicsI, Vol.1, Kitab Mahal.
2. Worsnop and Flint, —Advance practical physics —, Asia Publications.
3. Advanced Practical Physics (Vol. 1 & Vol. 2) B.Ghosh and K.G.Mazumder, Sreedhar Pub.
4. Practical Physics ,G. L. Squires, Cambridge University press
5. Instruction Manual for doing experiments in Physics by R.Shrinivasan and K.R. Pariolkar

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral): 15 Marks

Attendance : 10 Marks

Assignment/Presentation/Sessional viva: 15 Marks

Total (Each Paper) : 40 Marks

(B) External Assessment :

Practical Viva : 15 Marks

Practical File/Record: 05 Marks

Experimental work: 40 Marks

Total (Each Paper): 60 Marks

Grand Total: 100 Marks

Min. Passing Marks:35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

B. Sc. I Semester
2023-24
Mechanics and General Properties of Matter
Elective
Course Code: S1PHYSET

Pre-requisite: To study this course, a student must have had the subject Physics in 12th class.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 3(45 hrs)

Course Objectives (CO) The

objectives of the course are:

	Course Objectives	Cognitive Level
CO-I	To develop required mathematical skills to analyse simple, damped and forced harmonic oscillation. To introduce students to the concept of AstroPhysics.	U, R, E, C
CO-II	To study Rigid body, Centre of mass, Moment of inertia, Poisson's ratio and various elastic constant	U, Ap, R, E
CO-III	To study the concept of stress/strain and in its relation to force/displacement. To determine axial forces, shear forces and bending moments in relation to rigid bodies.	R, U, An, Ap, E
CO-IV	To acquire knowledge of Moment of Inertia for various regular bodies. To study, viscosity, surface tension and Bernoulli's theorem	R, U, An, Ap, E, R
CO-V	To study Conservative force field, Gravitational potential, Gravitational self-energy, Central force, reduced mass, Kepler's law, Scattering.	U, R, Ap, An

Course Learning Outcome (CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO-I	The learner will use second order linear differential equations to study and solve problems in Harmonic oscillations	1,2,3,6	U, R, E, C

CLO-II	Learner will be able to understand / recall Rigid body, Centre of mass, the connection between Rotational Dynamics and moment of inertia. Learner will be able to determine the Moment of inertia about a given axis of symmetry for different uniform mass distributions.	1,2,3,6	R, U, Ap, An, R, E
CLO-III	Learner will be able to understand and apply the law of conservation of linear momentum and understand the concept of center of mass, Elasticity and various elastic moduli	3,4,5,6	R, U, An, Ap, E
CLO-IV	Learner will be able to understand Principles of fluid flow and the equations governing fluid dynamics such as equation of continuity, Bernoulli's Theorem etc.	3,4,5,6	R, U, Ap, An, E
CLO-V	Learner will be able to understand / recall Conservative force field, Gravitational potential, Gravitational selfenergy, Central force, reduced mass, Kepler's law, Scattering.	1,2,6	U,R,Ap, An

CO-Course Objectives; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

Oscillations and Introduction to Astrophysics

1.1 Oscillations

1.1.1 SHM: Simple Harmonic Oscillations. Differential equation of SHM and its solution.

Kinetic energy, potential energy, total energy and their time-average values. Damped oscillation. Forced oscillations: Transient and steady states; Resonance, sharpness of resonance; Power dissipation and Quality factor.

1.2 Astrophysics

1.2.1 Introduction to the universe, Properties of the Sun, Concept of Astronomical Distance.

1.2.2 Life cycle of stars, Chandrasekhar Limit, H-R diagram, Red giant star, White dwarf star, Neutron star, Black hole.

1.2.3 Big Bang Theory (elementary idea).

Keywords: SHM, Gravitation, Oscillation, Quality factor, Astronomical distance, Chandrasekhar limit, Black hole.

UNIT-II

Mechanics of Rigid and deformable bodies

2.1 Rigid body mechanics:

[11 Lectures]

2.1.1 System of particles and concept of rigid body, Torque, Centre of mass: position of the centre of mass, Motion of the centre of mass, Conservation of linear & angular momentum with examples, Systems of variable mass: Single stage and multistage rocket, Conveyor belt hoppers.

2.1.2 Rotatory motion and concept of moment of inertia, Theorems on moment of inertia: theorem of addition, theorem of perpendicular axis, theorem of parallel axis, Calculation of moment of inertia of rectangular lamina, disc, solid cylinder, solid sphere.

2.2 Mechanics of deformable bodies:

2.2.1 Hook's law, Young's modulus, Bulk modulus, Modulus of rigidity and Poisson's ratio, Relationship between various elastic moduli.

2.2.2 Possible values of Poisson's ratio, Finding Poisson's ratio of rubber in the laboratory, Torsion of a cylinder, Strain energy of twisted cylinder.

2.2.3 Finding the modulus of rigidity of the material of a wire by Barton's method, Torsional pendulum and Maxwell's needle, Searle's method to find Y , Δ and Π of the material of wire, Bending of beam, Cantilever, Beam supported at its ends and loaded in the middle.

Keywords/Tags: Rigid body, Centre of mass, Moment of inertia, Poisson's ratio.

UNIT-III

Fluid mechanics

3.1 Surface Tension:

[11 Lectures]

3.1.1 Inter-molecular forces and potential energy curve, force of cohesion and adhesion.

3.1.2 Surface tension, Explanation of surface tension on the basis of intermolecular forces, Surface energy, Effect of temperature and impurities on surface tension, Daily life application of surface tension. Angle of contact, The pressure difference between the two sides of a curved liquid surface, Excess pressure inside a soap bubble, Capillarity, determination of surface tension of a liquid –capillary rise method, Jaeger's method.

3.2 Viscosity

3.2.1 Ideal and viscous fluid, Streamline and turbulent flow, Equation of continuity,

Rotational and irrotational flow, Energy of a flowing fluid, Euler's equation of motion of a non-viscous fluid and its physical significance

3.2.2 Bernoulli's theorem and its applications (Velocity of efflux, shapes of wings of airplane, Magnus effect, Filter pump, Bunsen's burner)

3.2.3 Viscous flow of a fluid, Flow of liquid through a capillary tube, Derivation of Poiseuille's formula and limitations, Stoke's formula, Motion of a spherical body falling in a viscous fluid.

Keywords/Tags: Inter-molecular force, Surface tension, Angle of contact, Capillarity, Viscosity, Euler's equation, Poiseuille's formula.

UNIT-IV

Gravitational potential and central forces

5.1 Gravitational potential: [12 Lectures]

5.1.1 Conservative and non-conservative force field, Conservation of energy in motion under the conservative and non-conservative forces, Potential energy.

5.1.2 Conservative force, Conservation of energy, Gravitational potential and gravitational potential energy, Gravitational potential and intensity of gravitational field due to a uniform spherical shell and a uniform solid sphere.

5.1.3 Gravitational self-energy, Gravitational self-energy of a uniform spherical shell and a uniform solid sphere.

5.2 Central forces :

5.2.1 Motion under Central forces, Conservative characteristics of central forces.

5.2.2 The motion of a two particles system in central force, Concept of reduced mass, Reduced mass of positronium and hydrogen.

5.2.3 Motion of particle in an inverse-square central force, Motion of celestial bodies and derivation of Kepler's laws

5.2.4 Elastic and inelastic scattering (elementary idea).

Keywords/Tags: Conservative force field, Gravitational potential, Gravitational self-energy, Central force, reduced mass, Scattering.

Learning Resources:

Suggested Readings:

- 1) Spiegel M. R., —Vector Analysis: Schaum Outline Series —, McGraw Hill Education, 2017.
- 2) Mathur D. S., —Mechanics —, S.Chand, 2012.
- 3) Mathur D. S., —Properties of Matter —, Shyamalal Charitable trust, New Delhi.
- 4) Ghatak A. K., Goyal I. C., and Chua S. J. —Mathematical Physics!, Laxmi Publications Private Limited, 2017.
- 5) Hans and Puri , —Mechanics — Tata McGraw Hill
- 6) Sears and Zeemansky, —University Physics!, Pearson Education.
- 7) Kleppner and Kolenkov,| An Introduction to Mechanics| Tata McGraw Hill.
- 8) Resnick and Halliday —Fundamentals of Physics!, 1966.

Digital resources:

Suggested equivalent online courses:

1. <https://nptel.ac.in/courses/115/103/115103036/> Mathematical Physics by Dr. Saurabh Basu, IIT, Guwahati.
2. <https://nptel.ac.in/courses/115/106/115106090/> Mechanics, Heat, Oscillations and Waves by Prof. V. Balakrishanan, IIT, Chennai.

Mode of Evaluation: Digital Assignments, Quiz, Class test /Mid Semester Exam, Final (end semester) examination.

Evaluation Scheme:

Internal Assessment : 15+15+10 =40 Marks

Main (End Semester) Written Exam: 60 Marks

Total : 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 5 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 10 Marks (05 X 02= 10 Marks)

Long answer type question (500 words) : 45 Marks (05 X 09 = 45 Marks)

List of Experiments

Credit Value: 1

No. Of Practical hours: 15

1. Determination of Young's modulus, modulus of rigidity and Poisson's ratio of material of wire using Searle's method.
2. Determination of Young's modulus of material of a metallic bar by bending of beam method.
3. Determination of acceleration due to gravity (g) using bar pendulum.
4. Determination of acceleration due to gravity (g) using Kater's reversible pendulum.
5. Determination of modulus of rigidity of a rod with the help of Barton's apparatus.
6. Determination of coefficient of viscosity of liquid using Poiseuille's method.
7. Determination of moment of inertia of a fly wheel about its axis of rotation.
8. Determination of the moment of inertia of a given body (irregular body) with the help of inertia table.
9. Verification of the theorem of parallel/perpendicular axes of moment of inertia.
10. Determination of modulus of rigidity of material of wire with the help of Maxwell's needle.
11. Determination of Young's modulus of a rod using Cantilever method.
12. Determination of modulus of rigidity of material of wire with the help of torsional pendulum.
13. Determination of force constant of a spring.
14. Determination of Poisson's ratio of rubber.
15. Determination of surface tension of a liquid by Jaeger's method.
16. **Determination of Young modulus of brass bar using Flexural Vibration.**

Other experiments of the same difficulty level may be added.

Student needs to perform at least 06 experiments.

Learning Resources:

Suggested Readings:

1. Indu Prakash, Ram Krishna and A.K.Jha, — A text book of practical physics, Vol.1, Kitab Mahal.
2. Worsnop and Flint, —Advance practical physics —, Asia Publications.
3. Advanced Practical Physics (Vol. 1 & Vol. 2) B.Ghosh and K.G.Mazumder, Sreedhar Pub.
4. Practical Physics ,G. L. Squires, Cambridge University press

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral): 15 Marks

Attendance : 10 Marks

Assignment/Presentation/Sessional viva: 15 Marks

Total (Each Paper) : 40 Marks

(B) External Assessment :

Practical Viva : 15 Marks

Practical File/Record: 05 Marks

Experimental work: 40 Marks

Total: 60

Grand Total: 100 Marks

Min. Passing Marks:35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

B. Sc.II Semester
2023-24
Major & Minor
Thermodynamics and Statistical Physics
Course Code: S2PHYST

Pre-requisite: To study this course, a student must have had the subject Physics in 12th class.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 4(60 hrs)

Course Objectives (CO) The

objectives of the course are:

	Course Objectives	Cognitive Level
CO-I	To know the important contributions of various physicist in the field of Physics	U,R
CO-II	To understand the basic concepts of thermodynamics and to have an idea about conversion of heat in to work.	U, R, E
CO-III	To learn the idea of entropy, Maxwell's relation and their applications.	U, Ap, R, E
CO-IV	To apply the principles of probability in distribution of particles in various systems and to calculate thermodynamic probability. To create basic ideology of phase space, microstate, macrostate.	R, U, An, Ap, E,C
CO-V	To provide insight of postulates of statistical physics. To learn the different types of statistical distribution (which particles follow which statistics and why).	R, U, An, Ap, E, R

Course Learning Outcome(CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO-I	Learner will be able to recollect the Specific Contributions of Indians in thermodynamics and statistical mechanics.	3,5,6	U, C
CLO-II	Learner will be able to make use of Basic concepts of thermodynamics & apply Maxwell's thermodynamic relations to derive various formulae.	1,2	U, R, E, Ap
CLO-III	Learner will be able to use and apply the idea of Micro and Macro states, Ensembles, Statistical Probability and Phase Space.	1,3,6	R, U, An, Ap, E
CLO-IV	Learner will be able to apply the idea of partition function and distribution function to classical and quantum statistics.	4,5,6	R, U, Ap, An, E

COB-Course Objective; COt – Course Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

Historical background & Laws of Thermodynamics

1.1 Historical background: [12 Lectures]

1.1.1 A brief historical background of thermodynamics and statistical Physics in the context of India and Indian culture, Contribution of S.N Bose in thermodynamics & Statistical physics.

1.2 Laws of thermodynamics:

1.2.1 Thermodynamical system and thermodynamical coordinates, Thermal equilibrium, Zeroth Law of thermodynamics, The concept of path function and point function, Work done by and on the system.

1.2.2 First law of thermodynamics, Internal energy as a state function, Reversible and irreversible change, Heat engine and its efficiency, Carnot's cycle, Carnot's engine and its efficiency, Carnot's theorem, Otto engine, Otto cycle, Diesel engine, Diesel cycle. 1.2.3 Second law of thermodynamics, Statement of Kelvin-Planck and Clasius Clapeyron, Absolute scale of temperature: Zero of absolute scale, Size of degree, Identity of perfect gas scale and absolute scale.

Keywords/Tags : Thermodynamics, Internal energy, Heat engine, Absolute scale

UNIT-II

Entropy and Thermodynamic potentials [12 Lectures]

- 2.1 Concept of entropy, Clausius theorem, Entropy as a point function, Second law of thermodynamics in terms of entropy, Change in entropy in reversible and irreversible processes.
- 2.2 Change in entropy of an ideal gas, Change in entropy when two liquids at different temperatures are mixed (or two bodies at different temperatures are kept in contact).
- 2.3 Principle of increase of entropy, Change in entropy of the universe in an irreversible process, connection of Entropy with Disorder, Entropy as unavailable energy for work, Entropy and heat death of universe.
- 2.4 Physical Significance of entropy, Temperature-entropy (T-S) diagram, third law of thermodynamics.
- 2.5 Thermodynamic potentials, Thermal equilibrium, Internal energy, Helmholtz free energy, Enthalpy and Gibbs free energy.
- 2.6 Derivation of Maxwell's relations from thermodynamic potentials, Gibbs-Helmholtz equation, Thermodynamic energy equation for ideal and van der Waal gas.

Keywords/Tags: Reversible process, Entropy, Ideal gas, Thermodynamic potentials

UNIT-III

Applications of Thermodynamic potentials and Kinetic theory of gases [12 Lectures]

3.1 Applications of Thermodynamic potentials:

- 3.1.1 TdS equation, Derivation of expressions for C_p - C_v and their special cases for ideal and Van der Waal gases, derivation of the expression $E_s/E_T=C_p/C_v$.
- 3.1.2 Clausius-Clapeyron latent heat equation, Temperature change in adiabatic process, Principle of refrigeration, Joule-Thomson effect, cooling by adiabatic demagnetization, Production and measurement of very low temperatures.

3.2 Kinetic theory of gases :

- 3.2.1 Behavior of a real gas and its deviation from an ideal gas, Andrews experiment on CO_2 gas, Virial equation.
- 3.2.2 Critical constant, Continuity of the liquid and gaseous state, Vapor and gas state, Boyle temperature, Van der Waals equation for real gas, Values of critical constants, Laws of the corresponding state.

Keywords/ Tags: Potential, Enthalpy, Adiabatic, Real gas, Critical constant.

UNIT –IV

Classical Statistics

[12 Lectures]

- 4.1 Probability, Distribution of N particles in two identical boxes, Probability of occurrence of either event, probability of composite events, Weightage probability.
- 4.2 Probability distribution and its narrowing with the increase in number of particles, Expression for average properties Constraints, Accessible and non-accessible microstates.
- 4.3 Ensemble theory (Micro-canonical, canonical and Grand canonical), Macro and micro states with examples, Principle of equal a priori probability, Concept of phase space.
- 4.4 Derivation of law of equipartition of energy from statistics. Equilibrium between two system in thermal contact and β parameter. Derivation of relation $S = k \log W$ (Boltzmann entropy probability relation) and Statistical interpretation of entropy.
- 4.5 Boltzmann Canonical distribution law: Application: average energy of one-dimensional harmonic oscillator.
- 4.6 Boltzmann partition function and derivation of expression for internal energy, Helmholtz free energy, Enthalpy and Gibbs free energy.

Keywords/ Tags: Probability, micro states, Ensemble theory, Partition function

UNIT –V

Quantum Statistics

[12 Lectures]

- 5.1 Distinguishable and Indistinguishable particles and its consequences (in terms of microstates). Maxwell-Boltzmann statistics and its distribution law (Classical Statistics), MaxwellBoltzmann distribution law of velocity and speed.
- 5.2 **Quantum statistics:**
 - a) **Bose –Einstein statistics** and distribution law, Derivation of Planck's radiation law from B-E statistics, Rayleigh-Jeans law, Wein's displacement law and Stefan's law.
 - b) Fermi-Dirac statistics and its distribution law, Qualitative explanation of free electron theory, Fermi level and Fermi energy.
 - c) Comparison between the Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics.

Keywords/ Tags: Indistinguishability, classical and quantum statistics, velocity distribution, Fermi Level.

Learning Resources:

Suggested Readings:

1. Zemansky M. W & Dittman R., —Heat and Thermodynamics, Tata McGraw Hill.

2. Sears and Salinger, —Thermodynamics, Kinetic Theory and Statistical Thermodynamics| Narosa.
3. Garg and Ghosh —Thermal Physics|, Tata McGraw Hill.
4. Subrahmanyam, Brij Lal and Hemne, —Heat Thermodynamics and Statistical Physics| S. Chand.

Digital resources:

Suggested equivalent online courses:

1. <https://www.edx.org/course/thermodynamics> Thermodynamics course.

Mode of Evaluation: Digital Assignments, Quiz, Class test / Mid Semester Exam, Final (end of the semester) examination.

Evaluation Scheme:

Internal Assessment	: 15+15+10 =40 Marks
Main (End Sem) Written Exam:	60 Marks
Total	: 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 5 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 10 Marks (05 X 02= 10 Marks)

Long answer type question (500 words) : 45 Marks (05 X 09 =45 Marks) **

Question paper must contain Numerical/conceptual questions of 10 marks.

List of Experiments

Credit Value: 2

No. of Practical hours: 30

1. Determination of the mechanical equivalent of heat by Callendar & Barne's method.
2. Determination of efficiency of electrical Kettle with variable voltages.
3. Determination of temperature coefficient of a resistance using platinum resistance thermometer.
4. Determination of electromotive force of a thermocouple.
5. Determination of thermal conductivity of a bad conductor by Lee's disc method.
6. Verification of Newton's law of cooling.
7. Determination of the ratio of specific heat of air by Clement-Desorme's method.
8. Determination of specific heat of a liquid with the help of Newton's law of cooling.
9. Determination of the coefficient of thermal conductivity of a metal by Searle's method.
10. Determination of thermal conductivity of the rubber using calorimeter.
11. Determination of mechanical equivalent of heat (J) using Joule calorimeter.
12. Determination of Stefan's constant using thermocouple.

13. Study of statistical distribution and determination of standard deviation with the help of black and white dice.
14. Determination of the temperature coefficient of a resistance with the help of Carey-Foster bridge.
15. Determination of the critical constant of a gas/vapour.
16. Thermo-EMF Analyser: Inversion temperature of Fe-Cu Thermocouple. (SPONSARED BY DBT STAR)
17. Relaxation (Thermal) Time of a Serial Light Bulb (SPONSARED BY DBT STAR)

Other experiments of the same difficulty level may be added. ##
 Student needs to perform at least 10 experiments.

Learning Resources:

Suggested Readings:

1. Indu Prakash, Ram Krishna and A.K.Jha, —A text book of practical physics, Vol.1, Kitab Mahal.
2. Worsnop and Flint, —Advance practical physics —, Asia Publications.
3. Advanced Practical Physics (Vol. 1 & Vol. 2) B.Ghosh and K.G.Mazumder, Sreedhar Publ.
4. Practical Physics, G. L. Squires, Cambridge University press.
5. Instruction Manual for doing experiments in Physics by R. Shrinivasan and K.R. Pariolkar

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral): 15 Marks

Attendance : 10 Marks

Assignment/Presentation/Sessional viva: 15 Marks

Total (Each Paper) : 40 Marks (B)

External Assessment :

Practical Viva : 15 Marks

Practical File/Record: 05 Marks

Experimental work: 40 Marks

Total (Each Paper): 60 Marks

Grand Total: 100 Marks

Min. Passing Marks: 35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

B. Sc.II Semester

2023-24

Elective

Thermodynamics and Statistical Physics

Course Code: S2PHYSET

Pre-requisite: To study this course, a student must have had the subject Physics in 12th class.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 3(45 hrs)

Course Objectives (CO) The

objectives of the course are:

	Course Objectives	Cognitive Level
CO-I	To understand the basic concepts of thermodynamics and to have an idea about conversion of heat in to work.	U, R, E
CO-II	To learn the idea of entropy, Maxwell's relation and their applications.	U, Ap, R, E
CO-III	To learn the idea of entropy, Maxwell's relation and their applications.	U, Ap, R, E
CO-IV	To apply the principles of probability in distribution of particles in various systems and to calculate thermodynamic probability. To create basic ideology of phase space, microstate, macrostate.	R, U, An, Ap, E, C
CO-V	To provide insight of postulates of statistical physics. To learn the different types of statistical distribution (which particles follow which statistics and why).	R, U, An, Ap, E, R

Course Learning Outcome(CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO-I	Learner will be able to make use of Basic concepts of thermodynamics	1,2,6	U, R, E
CLO -II	Learner will be able to apply Maxwell's thermodynamic relations to derive various formulae.	1,2	U, R, E,Ap
CLO-III	Learner will be able to use and apply the idea of Micro and Macro states, Ensembles, Statistical Probability and Phase Space.	1,3,6	R, U, An, Ap, E
CLO-IV	Learner will be able to apply the idea of partition function and distribution function to classical and quantum statistics.	4,5,6	R, U, Ap, An, E

CO-Course Objective; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

1. Laws of Thermodynamics

[11 Lectures]

- 1.1 Thermodynamical system and thermodynamical coordinates, Thermal equilibrium, Zeroth Law of thermodynamics, The concept of path function and point function, Work done by and on the system.
- 1.2 First law of thermodynamics ,Internal energy as a state function, Reversible and irreversible change, Heat engine and its efficiency, Carnot's cycle, Carnot's engine and its efficiency, Carnot's theorem, Otto engine, Otto cycle, Diesel engine, Diesel cycle.
- 1.3 Second law of thermodynamics, Statement of Kelvin-Planck and Clausius - Clapeyron, Absolute scale of temperature: Zero of absolute scale, Size of degree, Identity of perfect gas scale and absolute scale.

Keywords/Tags : Thermodynamics, Internal energy, Heat engine, Absolute scale.

UNIT-II

- 2. Entropy and Thermodynamic Potentials and its application [11 Lectures]**
- 2.1 Concept of entropy, Clausius theorem, Entropy as a point function, Second law of thermodynamics in terms of entropy, Physical Significance of entropy, Temperature-entropy (T-S) diagram, third law of thermodynamics. Change in entropy in reversible and irreversible processes.
- 2.2 Change in entropy of an ideal gas, Change in entropy when two liquids at different temperatures are mixed (or two bodies at different temperatures are kept in contact).
- 2.3 Principle of increase of entropy, Change in entropy of the universe in an irreversible process, connection of Entropy with Disorder, Entropy as unavailable energy for work, Entropy and heat death of universe.
- 2.4 Thermodynamic potentials, Thermal equilibrium, Internal energy, Helmholtz free energy, Enthalpy and Gibbs free energy.
- 2.5 Derivation of Maxwell's relations from thermodynamic potentials, Gibbs-Helmholtz equation, Thermodynamic energy equation for ideal and van der Waal gas.
- 2.6 TdS equation, Derivation of expressions for C_p-C_v and their special cases for ideal and Van der Waal gases, derivation of the expression $E_p/E_t=C_p/C_v$.
- 2.7 Clausius-Clapeyron latent heat equation, Temperature change in adiabatic process, Principle of refrigeration, Joule-Thomson effect, cooling by adiabatic demagnetization, Production and measurement of very low temperatures.

Keywords/Tags: Reversible process, Entropy, Ideal gas, Potentials.

UNIT -III

Classical Statistics

[12 Lectures]

- 3.1 Probability, Distribution of N particles in two identical boxes, Probability of occurrence of either event, probability of composite events, Weightage probability.
- 3.2 Probability distribution and its narrowing with the increase in number of particles, Expression for average properties Constraints, Accessible and non-accessible microstates.
- 3.3 Ensemble theory (Micro-canonical, canonical and Grand canonical), Macro and micro states with examples, Principle of equal a priori probability, Concept of phase space.
- 3.4 Boltzmann Canonical distribution law: Application: average energy of one-dimensional harmonic oscillator.
- 3.5 Derivation of law of equipartition of energy from statistics, Equilibrium between two system in thermal contact and β parameter, Statistical interpretation of entropy and relation $S = k \log W$.
- 3.6 Boltzmann partition function and derivation of expression for internal energy, Helmholtz free energy, Enthalpy and Gibbs free energy.

Keywords/ Tags: Probability, micro states, Ensemble theory, Partition function

UNIT –IV

Quantum Statistics

[11 Lectures]

4.1 Distinguishable and Indistinguishable particles and its consequences (in terms of microstates). Maxwell-Boltzmann statistics and its distribution law (Classical Statistics), Maxwell-Boltzmann distribution law of velocity and speed.

4.2 Quantum statistics:

- Bose –Einstein statistics and distribution law, Derivation of Planck's radiation law from B-E statistics, Rayleigh-Jeans law, Wein's displacement law and Stefan's law.
- Fermi-Dirac statistics and its distribution law, Qualitative explanation of free electron theory, Fermi level and Fermi energy.
- Comparison between the Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics.

Keywords/ Tags: Indistinguishability, classical and quantum statistics, velocity distribution, Fermi Level.

Learning Resources:

Suggested Readings:

- Zemansky M. W & Dittman R., —Heat and Thermodynamics, Tata McGraw Hill.
- Sears and Salinger, —Thermodynamics, Kinetic Theory and Statistical Thermodynamics, Narosa.
- Garg and Ghosh —Thermal Physics, Tata McGraw Hill.
- Subrahmanyam, Brij Lal and Hemne, —Heat Thermodynamics and Statistical Physics, S. Chand.

Digital resources:

Suggested equivalent online courses:

<https://www.edx.org/course/thermodynamics> Thermodynamics course.

Mode of Evaluation: Digital Assignments, Quiz, Class test / Mid Semester Exam, Final (end of the semester) examination.

Evaluation Scheme:

Internal Assessment	: 15+15+10 =40 Marks
Main (End Sem) Written Exam:	60 Marks
Total	: 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 5 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 15 Marks (05 X 02= 10 Marks)

Long answer type question (500 words) : 45 Marks (05 X 09 =45 Marks) **

Question paper must contain Numerical/conceptual questions of 10 marks.

List of Experiments

Credit Value: 1

No. of Practical hours: 15

- 1) Determination of the mechanical equivalent of heat by Callendar & Barne's method.
- 2) Determination of efficiency of electrical Kettle with variable voltages.
- 3) Determination of temperature coefficient of a resistance using platinum resistance thermometer.
- 4) Determination of electromotive force of a thermocouple.
- 5) Determination of thermal conductivity of a bad conductor by Lee's disc method. 6) Verification of Newton's law of cooling.
- 7) Determination of the ratio of specific heat of air by Clement-Desorme's method.
- 8) Determination of specific heat of a liquid with the help of Newton's law of cooling.
- 9) Determination of the coefficient of thermal conductivity of a metal by Searle's method.
- 10) Determination of thermal conductivity of the rubber using calorimeter.
- 11) Determination of mechanical equivalent of heat (J) using Joule calorimeter.
- 12) Determination of Stefan's constant using thermocouple.
- 13) Study of statistical distribution and determination of standard deviation with the help of black and white dice.
- 14) Determination of the temperature coefficient of a resistance with the help of CareyFoster bridge.
- 15) Determination of the critical constant of a gas/vapour.

Other experiments of the same difficulty level may be added.

Student needs to perform at least 6 experiments.

Learning Resources:

Suggested Readings:

1. Indu Prakash, Ram Krishna and A.K.Jha, —A text book of practical physics, Vol.1, Kitab Mahal.
2. Worsnop and Flint, —Advance practical physics —, Asia Publications.
3. Advanced Practical Physics (Vol. 1 & Vol. 2) B.Ghosh and K.G.Mazumder, Sreedhar Publ.
4. Practical Physics, G. L. Squires, Cambridge University press.

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral): 15 Marks

Attendance : 10 Marks

Assignment/Presentation/Sessional viva: 15 Marks

Total (Each Paper) : 40 Marks

(B) External Assessment :

Practical Viva : 15 Marks

Practical File/Record: 05 Marks

Experimental work: 40 Marks

Total (Each Paper) : 60 Marks

Grand Total: 100 Marks **Min.**

Passing Marks: 35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

Paper – (Open elective)

Non-Conventional Energy Sources

Course Code: S2-PHYSOE

Pre-requisite: Open to all.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 4 (60 hrs)

UNIT-I

Introduction to non-conventional energy sources [12 lectures]

1. Classification of energy resources, Consumption trend of primary energy resources, Importance of non-conventional energy resources.
2. Energy chain, Common form of energy, Limitations of non-conventional energy resources.
3. Salient features of non-conventional energy resources, Environmental aspect of energy.
4. World energy status, Energy scenario in India.

Keywords/ Tags: Energy resources, Energy chain, Non-conventional energy.

UNIT-II

Solar Energy

[12 lectures]

1. The sun as a source of energy, solar radiation at the Earth's surface.
2. Photo-thermal applications: Solar collectors, solar drying, solar cooker (box type), solar distillation, solar water heating systems, solar thermo-mechanical system.
3. Photovoltaic system : Photovoltaic principle, Basic photovoltaic system for power generation , Solar cells, Types of solar cells, Concentrator cells, Sun-tracking systems, Limitations and environmental aspect of cells.
4. Photovoltaic applications: Solar cell Panels, Solar light, solar pump, solar power plants, Solar cell in transportation, solar refrigeration and air conditioning.

Keywords/ Tags: Solar radiation, Photo-thermal, Photovoltaic, Solar cells.

UNIT-III

Biomass Energy

[12 lectures]

1. Biomass resources, Biomass conversion technology, Biomass generation.
2. List of factors affecting bio-digestion, Working of biogas plant (with block diagram), Biogas from plant waste.
3. Methods of obtaining energy from Biomass, Thermal gasification of biomass.
4. Biomass energy programme in India, Biodiesel production from non-edible oil seeds.

Keywords/ Tags: Biogas, Biomass, Thermal gasification, Bio-digestion.

UNIT-IV

Wind Energy

[12 lectures] 1. Concept of wind, Origin of wind climate, Wind profile, Limitations of extracted power from a wind turbine.

2. Wind resource map and site identification, Land requirement.
3. Wind turbine setting, Wind turbine aerodynamics, Wind turbine type: Upwind and downwind turbines, Blade count, Constant and variable speed wind turbines, Onshore and offshore wind turbines.
4. Wind turbine rotor, working of wind turbine, Drag principle, Lift principle.
5. Effect of wind turbine on environment, Wind energy storage, Wind energy program in India.

Keywords/ Tags: Wind climate, Wind energy, Wind turbine.

UNIT-V

Geothermal and Ocean Energy

[12 lectures]

1. Geothermal Energy: Origin and distribution of geothermal energy, Types of geothermal resources, Analysis of geothermal resources.
2. Exploration and development of geothermal energy.
3. Advantages and disadvantage of geothermal energy, Possibilities and limitations.
4. Ocean Energy: Tidal energy- origin and nature of tidal energy, Environmental impact, Energy and power in waves, Advantages and disadvantages of wave energy.
5. Ocean thermal energy, Ocean thermal conservation technology (OTEC), Environmental impact.

Keywords/ Tags: Geothermal Energy, Ocean Energy, Tidal Energy, OTEC.

Learning Resources:

Suggested Readings:

1. Rai G. D., —Non-conventional energy sources, Khanna Publishers.
2. Rai G. D., —Solar energy utilization, Khanna Publishers.
3. Sukhatme S. P. and Nayak J. K., —Solar energy: Principles of thermal collection and storage, Tata McGraw Hill Publications.
4. Khan B. H., —Non-conventional energy resources, McGraw Hill Publications.

Digital Resources:

1. <https://mnre.gov.in> Ministry of New and Renewable Energy.

Suggested equivalent online courses:

1. <https://nptel.ac.in/courses/121/106/121106014/> By Prof. Pratap Haridoss, IIT, Chennai.

Mode of Evaluation: Digital Assignments, Quiz, Class test /Mid Semester Exam, Final (end of the year) examination.

Evaluation Scheme:

Internal Assessment : 15+15+10 =40 Marks

Main Written Exam: 60 Marks

Total : 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 05 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 10 Marks (05 X 02= 10 Marks)

Long answer type question (500 words) : 45 Marks (05 X 9 = 45 Marks)

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

Department of Physics

Program: B.Sc.

B.Sc III Sem

PSO No.	Programme Specific Outcomes Upon completion of these courses the student would be able to:
PSO-1	Analyse the concepts and theories of Physics.
PSO-2	Analyse real world problems and develop mathematical equations and prepare computer programs to find acceptable solutions.
PSO-3	Develop problem solving skills and scientific reasoning by learning laboratory skills.
PSO-4	Develop written and oral communication skills in communicating with diverse stakeholders.
PSO- 5	Create and collaborate in emergent physical, mathematical and computing technologies leading to innovative solutions for industry and academia.
PSO- 6	Crack various competitive exams for higher studies and employment.

2023-24

(Waves and Optics)

Major & Minor

Course Code: S2-PHYS1T

Pre-requisite: To study this course, the student must have passed B.Sc. first year with Physics.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 4 (60 hrs)

Course Objective

The objectives of the course are:

	Course Objectives	Cognitive Level
CO -I	To make aware students about various aspects of harmonic oscillations and waves	U, R, E
CO -II	To make aware students about various phenomena of daily life based on acoustic and optics	U, R, Ap, E

CO -III	To understand interference and interferometry	R, U, Ap, An, E
CO -IV	To learn about like diffraction, optical instruments depending on diffraction, Rayleigh's criterion	R, U, An, Ap, E, C
CO -V	To study polarization, double refraction in anisotropic media, Huygen's principle, optical instruments depending on polarization	U, An, Ap, E, R

Course Learning Outcome (CLO)

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level*
CLO -I	Students will be able to understand the various aspects of harmonic oscillations and waves specially superposition of collinear and perpendicular harmonic oscillations	1,2,3,4	U, R, E
CLO -II	Students will be able to explain various phenomena of daily life based on acoustic and optics	1,2,3,4,5	U, R, Ap, E
CLO -III	Students will be able to understand interference and its applications	1,2,3,6	R, U, Ap, An, E
CLO -IV	Students will understand diffraction and be able to outline the use of optical instruments depending on diffraction. Will be able to apply Rayleigh's criterion to optical instruments	1,2,3,4,5	R, U, An, Ap, E, C
CLO -V	Students will understand polarization, double refraction in anisotropic media and will be able to make use of optical instruments depending on polarization. Will be able to apply Huygen's principle to the phenomenon of polarization	1,2,3,4,5	U, An, Ap, E, R

CO- Course Objective; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

[No. of Lectures: 12]

Waves

1.1 Superposition of Two Collinear Harmonic Oscillations:

Linearity and Superposition Principle- (i) Oscillations having equal frequencies and (ii) Oscillations having different frequencies (Beats).

1.2 Superposition of Two Perpendicular Harmonic Oscillations:

Graphical and Analytical Methods; Lissajous Figures (1:1 and 1:2 frequency ratio) and their uses.

1.3 Wave Motion :

Transverse wave in Stretched string ; Travelling and standing waves; Normal modes of string; Phase velocity; Group velocity ; Plane and Spherical waves; wave intensity.

Keywords/Tags: Harmonic Oscillation, Superposition Principle, Wave Motion.

UNIT-II

[No. of Lectures: 12]

Sound and Light Waves

2.1 **Sound:** Simple harmonic motion; Forced vibrations and resonance; Fourier Theorem; Application to saw tooth wave and square wave; Intensity and loudness of sound; Decibels, Intensity levels; Musical notes; Musical scale.

2.2 **Acoustics of buildings:** reverberation and time of reverberation; Absorption coefficient; Sabine's formula; Measurement of reverberation time; Acoustic aspects of halls and auditoria

2.3 **Wave optics:** Electromagnetic nature of light; Wave front; Huygens Principle.

2.4 Electro-optic, Magneto-optic and acousto-optic effects (elementary idea) **Keywords/Tags:** Sound, Musical notes, Acoustics of buildings, Wave optics

UNIT-III

[No. of Lectures: 12]

Interference of light

3.1 Interference: Conditions necessary for interference, Interference by Division of amplitude and division of wavefront; Young's Double Slit experiment; Lloyd's Mirror and Fresnel's Biprism.

3.2 Interference in Thin Films: Stokes' Law; Interference in parallel and wedge-shaped films; Fringes of equal inclination (Haidinger Fringes); Fringes of equal thickness (Fizeau Fringes); Applications of thin films interference: Antireflection coating; Dielectric Mirrors; Interference filter.

3.3 Newton's Ring: Measurement of wavelength and refractive index.

3.4 Michelson's Interferometer: (1) formation of fringes, (2) Determination of wavelength, (3) Wavelength difference, (4) Refractive index, (5) Visibility of fringes.

Keywords/Tags: Interference, Thin films interference, Michelson's Interferometer.

UNIT-IV

[No. of Lectures: 12]

Diffraction

- 4.1 Introduction; Distinction between interference and diffraction; Types of diffraction; Distinction between Fresnel and Fraunhofer diffraction.
- 4.2 Fresnel's diffraction: Fresnel's Assumptions; Huygens Fresnel's Theory; Half period zone; Construction and theory of Zone plate; Diffraction at straight edge; Diffraction at a circular aperture.
- 4.3 Fraunhofer diffraction: Diffraction due to single, double and N slits; Plane diffraction grating.
- 4.4 Resolving and dispersive power: Rayleigh's criterion; Limit of resolution of the eye; Resolving power of Grating and Telescope; Expression for dispersive power of prism.

Keywords/Tags: Diffraction, Zone plate, Plane diffraction grating, Resolving power.

UNIT-V

[No. of Lectures: 12]

Polarisation

- 5.1 Introduction: Polarized light and its representation; Difference in Polarized and unpolarized light; Types of Polarisation; Application of polarization: Sunglasses; Three-dimensional movies; Photography.
- 5.2 Production of polarized light: Production of polarized light by reflection, refraction, double refraction, scattering and selective absorption; Brewster's Law; Polaroid sheets; Polarizer and analyzer; Malus law.
- 5.3 Anisotropic Crystals: Doubly refracting crystals (Uniaxial); Extra-ordinary rays and Ordinary rays; Polarization by double refraction and Huygens theory; Nicol prism; Retardation plates: Quarter-wave plate and Half-wave plate.
- 5.4 Optical Activity: Optical rotation; Specific rotation; Half shade & Biquartz polarimeter.

Keywords/Tags: Polarized light, Anisotropic Crystals, Optical Activity.

Learning Resources

Text Books, Reference Books, Other resources Suggested

Readings:

1. **Fundamentals of Optics**, F.A. Jenkins and H.E. White, 1996 ,McGraw Hill.
2. **The Physics of Waves and Oscillations**, N. K. Bajaj, 1998, McGraw Hill.

3. **Principles of Optics**, B. K. Mathur , 1995, Gopal Printing
4. **University Physics**, F.W. Sears, M.W.Zemansky and H.D.Young 1986, Addison Wesley
5. **Optics**, A.K.Ghatak , McGraw Hill
6. **Principles of Optics**, Max Born and Wolf , Pergamon Press
7. **Optics and Atomic Physics**, D.P.Khandelwal Himalaya Publication
8. **Optics**, Brijlal and Subramaniam , S.Chand Publications
9. **Physics for Degree Students**, C. L. Arora and P.S. Hemne, S.Chand Publications.
10. **The Physics of Vibrations and Waves**, H. J Pain, 2013 John Wiley and Sons,
11. **Fundamental of Optics**, A Kumar., H. R Gulati. and D. R Khanna., S. Chand Publications

Suggested equivalent online courses:

1. <https://youtu.be/olTD-mpsU4E> Waves and Oscillations by Prof. M S Santhanam, Department of Physics, IISER Pune.
2. <https://youtu.be/SUVXHfUVSY> Video Demonstrations in Laser and Optics by Professor Shaoul Ezekiel, MIT.

Evaluation Scheme:

Internal Assessment: 15+15+10 =40 Marks

Main (End Semester) Written Exam: 60 Marks

Total : 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 5 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 10 Marks (05 X 02= 10 Marks) **Long**

answer type question (500 words) : 45 Marks (05 X 9 = 45 Marks)

List of Experiments

Credit Value: 2

No. Of Practical hours: 30

- 1) To determine the dispersive power of the material of prism using spectrometer.
- 2) To plot the $i-\delta$ curve for a given prism using spectrometer and then determines the refractive index of the material of the prism.
- 3) To determine the wavelength of main spectral lines of mercury light with the help of plane transmission grating.
- 4) To determine the wavelength of monochromatic light source with the help of Newton's ring method.

- 5) To determine the radius of curvature of a Plano-convex lens with the help of Newton's ring method.
 - 6) To determine the wavelength of monochromatic light source using Fabry Perot Etalon.
 - 7) To determine the dispersive power of plane transmission grating.
 - 8) To determine the resolving power of grating.
 - 9) To determine the diameter / thickness of a thin wire by diffraction method 10) Study of diffraction at Straight edge.
 - 11) To determine the resolving power of telescope.
 - 12) To determine the polarising angle of the prism and to determine the refractive index of the material of prism using Brewster's law.
 - 13) To determine wavelength of sodium light using Fresnel Biprism.
 - 14) To determine the specific rotation of a given sugar solution by bi-quartz polarimeter.
 - 15) To determine the refractive indices of O-ray and E-ray for calcite prism using spectrometer. 16) To determine the refractive indices of O-ray and E-ray for quartz prism using spectrometer.
 - 17) Study of Laser holography and Interferometry. (SPONSARED BY DBT STAR)
 - 18) Study of Malus Law. (SPONSARED BY DBT STAR)
 - 19) To study Lissajous Figures with the help of CRO 20) Verification of Faraday's law. (SPONSARED BY DBT STAR)
- ## Other experiments of the same difficulty level may be added. ##
- ## Student needs to perform at least 10 experiments.

Learning Resources

Suggested Readings:

1. Prakash I. & Ramakrishna, —**A Text Book of Practical Physics**l, Kitab Mahal, 2011,11/e.
2. Squires G. L., "**Practical Physics**l, Cambridge University Press, 2015, 4/e.
3. Flint B. L. and Worsnop H. T., —**Advanced Practical Physics for students**l, Asia Publishing House, 197.
4. Chattopadhyay D. & Rakshit P. C., —**An Advanced Course in Practical Physics**l, New Central Book Agency.
5. Chattopadhyay D., Rakshit P.C. and Saha B., —**An Advanced Course in Practical Physics**l, New Central Book Agency P. Ltd.
6. Singh S.P., —**Advanced Practical Physics**l, Pragati Prakashan.
7. Tayal D. C., —**University Practical Physics**l, Himalaya Publishing House
8. Kumar P. R. Sasi, — **Practical Physics**l, PHI Publication
9. Srivastava Anchal, Shukla R. K., —**Practical Physics**l, New Age International Publishers.
10. Agarwal D. C., —**Experimental electronics**l, Technical Publishing House.
11. Srivastava J. P., —**Elements of Solid state Physics**l, PHI Publication.
12. Instruction Manual for doing experiments in Physics by R. Shrinivasan and K.R. Pariolkar

Suggestive digital platforms web links

1. <https://www.vlab.co.in/broad-area-physical-sciences> , Virtual Labs (Physical Sciences),Ministry of Education
2. <https://storaye.yoouleapis.com/uniquecourses/online.html>, SWAYAM Online

Courses

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral)	: 15 Marks
Attendance	: 10 Marks
Assignment/Presentation/Sessional viva	: 15 Marks
Total (Each Paper)	: 40 Marks

(B) External Assessment :

Practical Viva	: 15 Marks
Practical File/Record	: 05 Marks
Experimental work	: 40 Marks
Total (Each Paper)	: 60 Marks
Grand Total	: 100 Marks
Min. Passing Marks	: 35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination

B.Sc III Sem

2023-24

(Waves and Optics)

Elective

Course Code: S2-PHYS1T

Pre-requisite: To study this course, the student must have passed B.Sc. first year with Physics.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 3 (45 hrs)

Course Objective

The objectives of the course are:

	Course Objectives	Cognitive Level
Cob -I	To make aware students about various aspects of harmonic oscillations and waves	U, R, E
Cob -II	To make aware students about various phenomena of daily life based on acoustic and optics	U, R, Ap, E
Cob -III	To understand interference and interferometry	R, U, Ap, An, E
Cob -IV	To learn about like diffraction, optical instruments depending on diffraction, Rayleigh's criterion	R, U, An, Ap, E, C
Cob -V	To study polarization, double refraction in anisotropic media, Huygen's principle, optical instruments depending on polarization	U, An, Ap, E, R

Course Learning Outcome (CLO)

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level*
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COT -I	Students will be able to understand the various aspects of harmonic oscillations and waves specially superposition of collinear and perpendicular harmonic oscillations	1,2,3,4	U, R, E
COT -II	Students will be able to explain various phenomena of daily life based on acoustic and optics	1,2,3,4,5	U, R, Ap, E
COT -III	Students will be able to understand interference and its applications	1,2,3,6	R, U, Ap, An, E
COT -IV	Students will understand diffraction and be able to outline the use of optical instruments depending on diffraction. Will be able to apply Rayleigh's criterion to optical instruments	1,2,3,4,5	R, U, An, Ap, E, C
COT -V	Students will understand polarization, double refraction in anisotropic media and will be able to make use of optical instruments depending on polarization. Will be able to apply Huygen's principle to the phenomenon of polarization	1,2,3,4,5	U, An, Ap, E, R

COB- Course Objective; COT – Course Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

[No. of Lectures: 12]

Waves

1.1 Superposition of Two Collinear Harmonic Oscillations:

Linearity and Superposition Principle- (i) Oscillations having equal frequencies and (ii) Oscillations having different frequencies (Beats).

1.2 Superposition of Two Perpendicular Harmonic Oscillations:

Graphical and Analytical Methods; Lissajous Figures (1:1 and 1:2 frequency ratio) and their uses.

1.3 Wave Motion :

Transverse wave in Stretched string ; Travelling and standing waves; Normal modes of string; Phase velocity; Group velocity ; Plane and Spherical waves; wave intensity.

Keywords/Tags: Harmonic Oscillation, Superposition Principle, Wave Motion.

UNIT-II

[No. of Lectures: 12]

Sound and Light Waves

2.1 Sound: Simple harmonic motion; Forced vibrations and resonance; Fourier Theorem; Application to saw tooth wave and square wave; Intensity and loudness of sound; Decibels, Intensity levels; Musical notes; Musical scale.

2.2 Acoustics of buildings: reverberation and time of reverberation; Absorption coefficient; Sabine's formula; Measurement of reverberation time; Acoustic aspects of halls and auditoria

2.3 Wave optics: Electromagnetic nature of light; Wave front; Huygens Principle.

2.4 Electro-optic, Magneto-optic and acousto-optic effects (elementary idea)

Keywords/Tags: Sound, Musical notes, Acoustics of buildings, Wave optics

UNIT-III [No. of Lectures: 12]

Interference of light

1.1 Interference: Conditions necessary for interference, Interference by Division of amplitude and division of wavefront; Young's Double Slit experiment; Lloyd's Mirror and Fresnel's Biprism.

1.2 Interference in Thin Films: Stokes' Law; Interference in parallel and wedge-shaped films; Fringes of equal inclination (Haidinger Fringes); Fringes of equal thickness (Fizeau Fringes); Applications of thin films interference: Antireflection coating; Dielectric Mirrors; Interference filter.

1.3 Newton's Ring: Measurement of wavelength and refractive index.

1.4 Michelson's Interferometer: (1) formation of fringes, (2) Determination of wavelength, (3) Wavelength difference, (4) Refractive index, (5) Visibility of fringes.

Keywords/Tags: Interference, Thin films interference, Michelson's Interferometer.

UNIT-IV [No. of Lectures: 12]

Diffraction and Polarisation

5.5 Diffraction: Distinction between interference and diffraction; Types of diffraction; Distinction between Fresnel and Fraunhofer diffraction.

5.6 Fresnel's diffraction: Fresnel's Assumptions; Huygens Fresnel's Theory; Half period zone.

5.7 Fraunhofer diffraction: Diffraction due to single, N slits; Plane diffraction grating.

5.8 Polarisation: Polarized light and its representation; Difference in Polarized and unpolarized light; Types of Polarisation; Application of polarization: Sunglasses; Three-dimensional movies; Photography.

5.9 Production of polarized light: Production of polarized light by reflection, refraction, double refraction, scattering and selective absorption; Brewster's Law; Polaroid sheets; Polarizer and analyzer; Malus law.

Keywords/Tags: Diffraction, Zone plate, Plane diffraction grating Polarized light.

Learning Resources

Text Books, Reference Books, Other resources Suggested

Readings:

1. **Fundamentals of Optics**, F.A. Jenkins and H.E. White, 1996 ,McGraw Hill.
2. **The Physics of Waves and Oscillations**, N. K. Bajaj, 1998, McGraw Hill.
3. **Principles of Optics**, B. K. Mathur , 1995, Gopal Printing
4. **University Physics**, F.W. Sears, M.W.Zemansky and H.D.Young 1986, Addison Wesley
5. **Optics**, A.K.Ghatak ,McGraw Hill
6. **Principles of Optics**, Max Born and Wolf ,Pregmon Press
7. **Optics and Atomic Physics**, D.P.Khandelwal Himalaya Publication
8. **Optics**, Brijlal and Subramaniyam , S.Chand Publications
9. **Physics for Degree Students**, C. L. Arora and P.S. Hemne, S.Chand Publications.
10. **The Physics of Vibrations and Waves**, H. J Pain, 2013 John Wiley and Sons,
11. **Fundamental of Optics**, A Kumar., H. R Gulati. and D. R Khanna., S. Chand Publications

Suggested equivalent online courses:

1. <https://youtu.be/olTD-mpsU4E> Waves and Oscillations by Prof. M S Santhanam, Department of Physics, IISER Pune.
2. <https://youtu.be/SUVXHfUVSY> Video Demonstrations in Laser and Optics by Professor Shaoul Ezekiel, MIT.

Evaluation Scheme:

Internal Assessment: 15+15+10 =40 Marks

Main (End Semester) Written Exam: 60 Marks

Total : 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 5 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 10 Marks (05 X 02= 10 Marks) **Long**

answer type question (500 words) : 45 Marks (05 X 9 = 45 Marks)

List of Experiments

Credit Value: 1

No. Of Practical hours: 15

1. To determine the dispersive power of the material of prism using spectrometer.
2. To plot the i - δ curve for a given prism using spectrometer and then determines the refractive index of the material of the prism.
3. To determine the wavelength of main spectral lines of mercury light with the help of plane transmission grating.
4. To determine the wavelength of monochromatic light source with the help of Newton's ring method.
5. To determine the radius of curvature of a Plano-convex lens with the help of Newton's ring method.
6. To determine the wavelength of monochromatic light source using Fabry Perot Etalon.
7. To determine the dispersive power of plane transmission grating.
8. To determine the resolving power of grating.
9. To determine the diameter / thickness of a thin wire by diffraction method
10. Study of diffraction at Straight edge.
11. To determine the resolving power of telescope.
12. To determine the polarising angle of the prism and to determine the refractive index of the material of prism using Brewster's law.
13. To determine wavelength of sodium light using Fresnel Biprism.
14. To determine the specific rotation of a given sugar solution by bi-quartz polarimeter.
15. To determine the refractive indices of O-ray and E-ray for calcite prism using spectrometer.
16. To determine the refractive indices of O-ray and E-ray for quartz prism using spectrometer.
17. Study of Laser holography and Interferometry. (SPONSARED BY DBT STAR)
18. Study of Malus Law. (SPONSARED BY DBT STAR)
19. To study Lissajous Figures with the help of CRO
20. Verification of Faraday's law. (SPONSARED BY DBT STAR)

Other experiments of the same difficulty level may be added.

Student needs to perform at least 06 experiments.

Learning Resources

Suggested Readings:

1. Prakash I. & Ramakrishna, —A Text Book of Practical Physics, Kitab Mahal, 2011, 11/e.
2. Squires G. L., “Practical Physics”, Cambridge University Press, 2015, 4/e.
3. Flint B. L. and Worsnop H. T., —Advanced Practical Physics for students, Asia Publishing House, 197.
4. Chattopadhyay D. & Rakshit P. C., —An Advanced Course in Practical Physics, New Central Book Agency.
5. Chattopadhyay D., Rakshit P.C. and Saha B., —An Advanced Course in Practical Physics, New Central Book Agency P. Ltd.
6. Singh S.P., —Advanced Practical Physics, Pragati Prakashan.
7. Tayal D. C., —University Practical Physics, Himalaya Publishing House
8. Kumar P. R. Sasi, — Practical Physics, PHI Publication
9. Srivastava Anchal, Shukla R. K., —Practical Physics, New Age International Publishers.
10. Agarwal D. C., —Experimental electronics, Technical Publishing House.
11. Srivastava J. P., —Elements of Solid state Physics, PHI Publication.
12. Instruction Manual for doing experiments in Physics by R. Shrinivasan and K.R. Pariolkar

Suggestive digital platforms web links

1. <https://www.vlab.co.in/broad-area-physical-sciences> , Virtual Labs (Physical Sciences), Ministry of Education
2. <https://storaye.yoouleapis.com/uniquecourses/online.html>, SWAYAM Online Courses

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral)	: 15 Marks
Attendance	: 10 Marks
Assignment/Presentation/Sessional viva	: 15 Marks

Total (Each Paper) : 40 Marks

(B) External Assessment :

Practical Viva	: 15 Marks
Practical File/Record	: 05 Marks
Experimental work	: 40 Marks
Total (Each Paper)	: 60 Marks
Grand Total	: 100 Marks
Min. Passing Marks	: 35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

B.Sc IV Sem

2023-24

(Electricity, Magnetism and Electromagnetic theory)

Major & Minor

Course Code: S2-PHYS2T

Pre-requisite: To study this course, the student must have passed B.Sc. III Sem with Physics.

Max. Marks: 40+60

Min. Passing Marks: 35

Credit Value: 4 (60 hrs)

Course Objective The

objectives of the course are:

	Course Objectives	Cognitive Level
CO -I	To study electrostatics, Gauss's theorem and its application, to arrive at various mathematical models in electrostatics.	U, R, E, Ap
CO -II	To understand Magnetostatics with emphasis on Lorentz force, Biot-Savart law and its application, Ampere's law, free and bound currents, magnetic substances.	U, Ap, R, E
CO -III	To understand steady and ac, dc current circuits and various network theorem.	R, U, C
CO -IV	To understand the motion of charged particles in electric and magnetic fields, the relevant equipment's and their use	U, R, Ap
CO -V	To understand electrodynamics with emphasis on Faraday's laws, Maxwell equations and their application, Fresnel's equations.	U, R, Ap, C
CO -VI	To study electromagnetic waves with emphasis on, reflection, refraction and polarization at different media.	U, Ap, E, C, An

Course Learning Outcome

CO No.	Course Learning Outcomes	PSOs Addressed	Cognitive Level*
CLO -I	The student will arrive at an understanding of electrostatics, Gauss's theorem, Gauss's law and their application,	1,2,3,4	U, R, E, Ap
CLO -II	The student will arrive at an understanding of Magnetostatics with emphasis on Lorentz force, Biot-Savart law and its application, Ampere's law, free and bound currents, magnetization vector, magnetic substances.	1,2,3,4,5	U, Ap, R, E
CLO -III	The student will arrive at an understanding of steady & non steady current, a-c & dc circuits, and various network theorem.	1,2,3,4	R, U, C
CLO -IV	The student will arrive at an understanding of the motion of charged particles in electric and magnetic fields, the relevant equipment and their use	1,2,3,4	U, R, Ap
CLO -V	The student will arrive at an understanding of electrodynamics with emphasis on Faraday's laws, Maxwell equations and their application, Fresnel's equations,	1,2,3,4	U, R, Ap, C
CLO -VI	The student will arrive at an understanding of electromagnetic waves with emphasis on, reflection, refraction and polarization at different media	1,2,3	U, Ap, E, C, An

CO- Course Objective; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

[No. of Lectures: 12]

Electrostatics

1 An overview of thermal and hydroelectric power plants in Madhya Pradesh.

2. Electrostatic field; Electric flux; Gauss's theorem of electrostatics; Applications of Gauss theorem: Electric field due to infinite long charged wire; Uniformly charged spherical shell and solid sphere; Charged plate; Conservative nature of electrostatic field Laplace and Poisson's equations; Uniqueness theorem.

3. Dielectrics; Polar and non-polar molecules; Parallel plate capacitor with a dielectric; Electrical susceptibility and dielectric constant; Polarization and Polarization vector (P); Displacement vector (D); Intensity of Electric field (E); Relationship between D, E and P.

4. Gauss's law in dielectrics; Clausius-Mossotti relation, Langevin-Debye formula; Ferroelectric and Paraelectric materials; Hysteresis loop for ferroelectrics.

Keywords/Tags: Hydroelectric power plant, Electrostatic field, Dielectrics, Polarization vector Displacement vector

UNIT-II

[No. of Lectures: 12]

Magnetostatics

1. Lorentz force equation and magnetic field B ; Biot-Savart's law; Calculation of magnetic intensity H for solenoid and anchor ring.
2. Ampere's circuital law and its applications for solenoid and Toroid; Basic law of magnetostatics in differential form $\nabla \times B = \mu_0 J$, $\nabla \cdot B = 0$; Free and bound currents; Magnetization and magnetization vector M ; Magnetic permeability and susceptibility; Derivation of $\nabla \times M = J_b$ for a non-uniformly magnetized substance; Relationship between B , H and M .
3. Diamagnetic, Paramagnetic and Ferromagnetic substances; B-H Curve and Hysteresis loss.
4. General idea about AC and DC motors, Motor winding.

Keywords/Tags: Magnetic field, Magnetization, Hysteresis loss, Motor winding.

UNIT-III

[No. of Lectures: 12]

Current electricity

1. Network theorems: Concept of ideal current and voltage sources; Thevenin's theorem; Norton's theorem; Millman's theorem; Maximum power transfer theorem.
2. Transient current: Growth and decay of current in LR circuit; Charging and discharging of a capacitor through resistor; Measurement of high resistance by leakage; Charging and discharging of a condenser through an inductance and resistance.
3. Alternating current: Complex number and their applications in alternating current circuits (RL, RC and LC); Series LCR (acceptor) and parallel LCR (rejector) circuits; Power factor.
4. A.C. bridges: Maxwell's bridge; Owen's bridge; Anderson's bridge; Kelvin's bridge.

Keywords/Tags: Network theorems, Transient current, A.C. bridges.

Motion of charged particles in electric and magnetic field

1. Motion of charged particles in electric and magnetic field, Construction and working principle of Cyclotron and Betatron; Thomson's method for the determination of specific charge (e/m) of electron.
2. Ballistic galvanometer: Torque on a current loop; Current and charge sensitivity; Electromagnetic damping, Logarithmic damping; CDR.
3. Introduction to CRO: Block Diagram of CRO; Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage, Current, Frequency, and Phase Difference.
4. Electromagnetic induction: Faraday's law; Lenz's law; Integral and differential forms of Faraday's law, Self and mutual inductance; Reciprocity theorem; Self-mutual of coil; Mutual inductance of two coils; Energy stored in magnetic field.

Keywords/Tags: Motion of charged particles, specific charge, Ballistic galvanometer, CRO, Electromagnetic induction.

Electrodynamics

1. Equation of Continuity for current; Maxwell's displacement current; Derivation of Maxwell's equations; Poynting theorem.
2. Electromagnetic wave equations; Plane electromagnetic wave in vacuum and dielectric media; Reflection and refraction at a plane boundary of dielectric; Polarization by reflection and Fresnel's equation; Brewster's Law.
3. Electromagnetic Waves in conducting medium; Reflection and refraction of Electromagnetic wave by the ionosphere; Secant law; Skip distance and maximum usable frequency.

Keywords/Tags: Displacement current, Poynting vector, Electromagnetic wave, Polarization by reflection.

Learning Resources

Text Books, Reference Books, Other resources Suggested

Readings:

1. Electricity, Magnetism & Electromagnetic Theory: Mahajan S. and Choudhury, ,2012, Tata McGraw.
2. Electricity and Magnetism: Griffiths D.J.,3rd Edn., 1998, Benjamin Cummings.
3. Electricity and magnetism: Murugesan, S. Chand & Co.
4. Feynman Lectures Vol.2: Feynman R. P., Leighton R.B., Sands M., 2008, Pearson Education
5. Electromagnetic field theory: Kshetrimayun R. S., 2012, Cengage Learning.
6. Physics For Degree Students: C.L. Arora and P.S. Hemne, S.Chand Publications.
7. Electrodynamics : Gupta, Kumar and Singh, Pragati Prakashan 8. Electricity and Magnetism : S.S.Atwood, Dover Publication

Suggested equivalent online courses:

1. <https://youtu.be/NED2C18u9Q0> Electromagnetic Theory by Prof D.K. Ghosh, Department of Physics, IIT Bombay
2. <https://storaye.yoouleapis.com/uniquecourses/online.html>, SWAYAM Online Courses
3. <https://www.vlab.co.in/broad-area-physical-sciences>, Virtual Labs (Physical Sciences),

Evaluation Scheme:

Internal Assessment: 15+15+10 =40 Marks

Main (End Semester) Written Exam: 60 Marks

Total : 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 5 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 10 Marks (05 X 02= 10 Marks) **Long**

answer type question (500 words) : 45 Marks (05 X 9 = 45 Marks)

List of Experiments

Credit Value: 2

No. Of Practical hours: 30

- 1) To study the frequency response curve of series LCR Circuit. and determination of resonant frequency, Quality factor and Band width.
- 2) To study the charging and discharging of a capacitor through high resistance.
- 3) To determine the frequency of A.C. Mains with the help of wire vibrating under Lorentz force.
- 4) To Plot Graph showing variation of magnetic field with distance along axis of a circular coil carrying current.
- 5) To draw the B-H curve and determination of Hysteresis loss. (SPONSARED BY DBT STAR) 6) Determination of voltage, frequency and phase difference using CRO.
- 7) Study of sensitivity of CRO.
- 8) Verification of the Thevenin's theorem.
- 9) Verification of the Norton's Theorem.
- 10) Verification of the maximum power transfer theorem 11) Verification of the superposition theorem.
- 12) Measurement of self-inductance using Maxwell's bridge.
- 13) Measurement of unknown inductance using Kelvin's bridge.
- 14) Determination of self-inductance by Anderson's bridge.
- 15) Determination of impedance and power factor using LCR Circuit.
- 16) To study of frequency response curve of a parallel LCR circuit and determination of antiresonant frequency and Quality factor.
- 17) Determination of Dielectric constant of Kerosene by resonance method.
- 18) Determination of Self Inductance of a Coil by Rayleigh's 19) Method using Ballistic Galvanometer.
- 20) Verification of Millman's theorem
- 21) To study the magnetic field along the axis of a circular coil.
- 22) Determination of M and H using vibrational Magnetometer and Deflection Magnetometer.
- 23) Comparison of capacity of two capacitors using Ballistic Galvanometer.

- 24) Serial and Parallel Resonant Circuits (SPONSARED BY DBT STAR)
- 25) Maxwell's Bridge : Determination of Self-inductance of a coil (SPONSARED BY DBT STAR)
- 26) Dipole Moment of an organic Molecule Acetone (SPONSARED BY DBT STAR)
- 27) Measurement of low resistance.(SPONSARED BY DBT STAR)
- 28) To study the Faraday Effect & to determine Verdet's constant(SPONSARED BY DBT STAR)
- 29) Study of LCR transient response(SPONSARED BY DBT STAR)

Other experiments of the same difficulty level may be added.

Student needs to perform at least 06 experiments.

Part C-Learning Resources

Suggested Readings:

1. Prakash I. & Ramakrishna, "A Text Book of Practical Physics", Kitab Mahal, 2011,11/e.
2. Squires G. L., "Practical Physics", Cambridge University Press, 2015, 4/e.
3. Flint B. L. and Worsnop H. T., "Advanced Practical Physics for students", Asia Publishing House, 197.
4. Chattopadhyay D. & Rakshit P. C., "An Advanced Course in Practical Physics", New Central Book Agency.
5. Chattopadhyay D., Rakshit P.C. and Saha B., "An Advanced Course in Practical Physics", New Central Book Agency P. Ltd.
6. Singh S.P., "Advanced Practical Physics", Pragati Prakashan.
7. Tayal D. C., "University Practical Physics", Himalaya Publishing House
8. Kumar P. R. Sasi, " Practical Physics", PHI Publication
9. Srivastava Anchal, Shukla R. K., "Practical Physics", New Age International Publishers.
10. Agarwal D. C., "Experimental electronics", Technical Publishing House.
11. Srivastava J. P., "Elements of Solid state Physics", PHI Publication.
12. Advanced Practical Physics (Vol. 1 & Vol. 2) B.Ghosh and K.G.Mazumder, Sreedhar Publ.
13. Instruction Manual for doing experiments in Physics by R.Shrinivasan and K.R. Pariolkar

Suggestive digital platforms web links

<https://www.vlab.co.in/broad-area-physical-sciences>, Virtual Labs (Physical Sciences),

Ministry of Education

<https://storage.googleapis.com/uniquecourses/online.html>, SWAYAM Online Courses

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral)	: 15 Marks
Attendance	: 10 Marks
Assignment/Presentation/Sessional viva	: 15 Marks
Total (Each Paper)	: 40 Marks

(B) External Assessment :

Practical Viva	: 15 Marks
Practical File/Record	: 05 Marks
Experimental work	: 40 Marks
Total (Each Paper)	: 60 Marks
Grand Total	: 100 Marks
Min. Passing Marks	: 35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

B.Sc IV Sem

2023-24

(Electricity, Magnetism and Electromagnetic theory)**Elective****Course Code: S2-PHYS2T****Pre-requisite: To study this course, the student must have passed B.Sc. III Sem with Physics.****Max. Marks: 40+60****Min. Passing Marks: 35****Credit Value: 3 (45 hrs)****Course Objective****The objectives of the course are:**

	Course Objectives	Cognitive Level
CO -I	To study electrostatics, Gauss's theorem and its application, to arrive at various mathematical models in electrostatics	U, R, E, Ap
CO -II	To understand Magnetostatics with emphasis on Lorentz force, Biot-Savart law and its application, Ampere's law, free and bound currents, magnetic substances	U, Ap, R, E
CO -III	To understand steady and a.c, d.c current circuits and various network theorem	R, U, C
CO -IV	To understand the motion of charged particles in electric and magnetic fields, the relevant equipment's and their use	U, R, Ap

Course Learning Outcome

CO No.	Course Learning Outcomes	PSOs Addressed	Cognitive Level*
CLO -I	The student will arrive at an understanding of electrostatics, Gauss's theorem, Gauss's law and their application,	1,2,3,4	U, R, E, Ap

CLO -II	The student will arrive at an understanding of Magnetostatics with emphasis on Lorentz force, Biot-Savart law and its application, Ampere's law, free and bound currents, magnetization vector, magnetic substances.	1,2,3,4,5	U, Ap, R, E
CLO -III	The student will arrive at an understanding of steady & non steady current, a-c & dc circuits, and various network theorem.	1,2,3,4	R, U, C
CLO -IV	The student will arrive at an understanding of the motion of charged particles in electric and magnetic fields, the relevant equipment and their use	1,2,3,4	U, R, Ap

CO- Course Objective; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

UNIT-I

[No. of Lectures: 12]

Electrostatics

1. An overview of thermal and hydroelectric power plants in Madhya Pradesh.
2. Electrostatic field; Electric flux; Gauss's theorem of electrostatics; Applications of Gauss theorem; Electric field due to infinite long charged wire; Uniformly charged spherical shell and solid sphere; Charged plate; Conservative nature of electrostatic field Laplace and Poisson's equations; Uniqueness theorem.
3. Dielectrics; Polar and non-polar molecules; Parallel plate capacitor with a dielectric; Electrical susceptibility and dielectric constant; Polarization and Polarization vector (P); Displacement vector (D); Intensity of Electric field (E); Relationship between D, E and P.
4. Gauss's law in dielectrics; Clausius-Mossotti relation, Langevin-Debye formula; Ferroelectric and Paraelectric materials; Hysteresis loop for ferroelectrics.

Keywords/Tags: Hydroelectric power plant, Electrostatic field, Dielectrics, Polarization vector Displacement vector

UNIT-II

[No. of Lectures: 12]

Magnetostatics

5. Lorentz force equation and magnetic field B; Biot-Savart's law; Calculation of magnetic intensity H for solenoid and anchor ring.

6. Ampere's circuital law and its applications for solenoid and Toroid; Basic law of magnetostatics in differential form $\nabla \times \mathbf{B} = \mu_0 \mathbf{J}$, $\nabla \cdot \mathbf{B} = 0$; Free and bound currents; Magnetization and magnetization vector \mathbf{M} ; Magnetic permeability and susceptibility; Derivation of $\nabla \times \mathbf{M} = \mathbf{J}_b$ for a non-uniformly magnetized substance; Relationship between \mathbf{B} , \mathbf{H} and \mathbf{M} .
7. Diamagnetic, Paramagnetic and Ferromagnetic substances; B-H Curve and Hysteresis loss.
8. General idea about AC and DC motors, Motor winding.

Keywords/Tags: Magnetic field, Magnetization, Hysteresis loss, Motor winding.

UNIT-III

[No. of Lectures: 12]

Current electricity

5. Network theorems: Concept of ideal current and voltage sources; Thevenin's theorem; Norton's theorem; Millman's theorem; Maximum power transfer theorem.
6. Transient current: Growth and decay of current in LR circuit; Charging and discharging of a capacitor through resistor; Measurement of high resistance by leakage; Charging and discharging of a condenser through an inductance and resistance.
7. Alternating current: Complex number and their applications in alternating current circuits (RL, RC and LC); Series LCR (acceptor) and parallel LCR (rejector) circuits; Power factor.
8. A.C. bridges: Maxwell's bridge; Owen's bridge; Anderson's bridge; Kelvin's bridge.

Keywords/Tags: Network theorems, Transient current, A.C. bridges.

UNIT-IV

[No. of Lectures: 12]

Motion of charged particles in electric and magnetic field

5. Motion of charged particles in electric and magnetic field, Construction and working principle of Cyclotron and Betatron; Thomson's method for the determination of specific charge (e/m) of electron.
6. Ballistic galvanometer: Torque on a current loop; Current and charge sensitivity; Electromagnetic damping, Logarithmic damping, CDR.
7. Introduction to CRO: Block Diagram of CRO; Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage, Current, Frequency, and Phase Difference.

8. Electromagnetic induction: Faraday's law; Lenz's law; Integral and differential forms of Faraday's law, Self and mutual inductance; Reciprocity theorem; Self-mutual of coil; Mutual inductance of two coils; Energy stored in magnetic field.

Keywords/Tags: Motion of charged particles, specific charge, Ballistic galvanometer, CRO, Electromagnetic induction.

Learning Resources

Text Books, Reference Books, Other resources Suggested

Readings:

- 1 **Electricity, Magnetism & Electromagnetic Theory:** Mahajan S. and Choudhury, ,2012, Tata McGraw.
- 2 **Electricity and Magnetism:** Griffiths D.J.,3rd Edn., 1998, Benjamin Cummings.
- 3 **Electricity and magnetism:** Murugesan, S. Chand & Co.
- 4 **Feynman Lectures Vol.2:** Feynman R. P., Leighton R.B., Sands M., 2008, Pearson Education
- 5 **Electromagnetic field theory:** Kshetrimayun R. S., 2012, Cengage Learning.
- 6 **Physics for Degree Students:** C.L. Arora and P.S. Hemne, S.Chand Publications.
- 7 **Electricity and Magnetism :** S.S.Atwood, Dover Publication

Evaluation Scheme:

Internal Assessment: 15+15+10 =40 Marks

Main (End Semester) Written Exam: 60 Marks

Total : 100 Marks

Written Exam: 3 hours

Very Short answer type question (50 words) : 5 Marks (05 X 01= 05 Marks)

Short answer type question (200 words) : 10 Marks (05 X 02= 10 Marks) **Long**

answer type question (500 words) : 45 Marks (05 X 9 = 45 Marks)

List of Experiments

Credit Value: 1

No. Of Practical hours: 15

1. To study the frequency response curve of series LCR Circuit. and determination of resonant frequency, Quality factor and Band width.
2. To study the charging and discharging of a capacitor through high resistance.
3. To determine the frequency of A.C. Mains with the help of wire vibrating under Lorentz force.
4. To Plot Graph showing variation of magnetic field with distance along axis of a circular coil carrying current.
5. To draw the B-H curve and determination of Hysteresis loss. (SPONSARED BY DBT STAR)
6. Determination of voltage, frequency and phase difference using CRO.
7. Study of sensitivity of CRO.
8. Verification of the Thevenin's theorem.
9. Verification of the Norton's Theorem.
10. Verification of the maximum power transfer theorem
11. Verification of the superposition theorem.
12. Measurement of self-inductance using Maxwell's bridge.
13. Measurement of unknown inductance using Kelvin's bridge.
14. Determination of self-inductance by Anderson's bridge.
15. Determination of impedance and power factor using LCR Circuit.
16. To study of frequency response curve of a parallel LCR circuit and determination of antiresonant frequency and Quality factor.
17. Determination of Dielectric constant of Kerosene by resonance method.
18. Determination of Self Inductance of a Coil by Rayleigh's
19. Method using Ballistic Galvanometer.
20. Verification of Millman's theorem
21. To study the magnetic field along the axis of a circular coil.
22. Determination of M and H using vibrational Magnetometer and Deflection Magnetometer.
23. Comparison of capacity of two capacitors using Ballistic Galvanometer.

24. Serial and Parallel Resonant Circuits (SPONSARED BY DBT STAR)
 25. Maxwell's Bridge : Determination of Self-inductance of a coil (SPONSARED BY DBT STAR)
 26. Dipole Moment of an organic Molecule Acetone (SPONSARED BY DBT STAR)
 27. Measurement of low resistance.(SPONSARED BY DBT STAR)
 28. To study the Faraday Effect & to determine Verdet's constant(SPONSARED BY DBT STAR)
 29. Study of LCR transient response(SPONSARED BY DBT STAR)
- ## Other experiments of the same difficulty level may be added.
Student needs to perform at least 06 experiments.

Suggested Readings:

14. Prakash I. & Ramakrishna, "A Text Book of Practical Physics", Kitab Mahal, 2011,11/e.
15. Squires G. L., "Practical Physics", Cambridge University Press, 2015, 4/e.
16. Flint B. L. and Worsnop H. T., "Advanced Practical Physics for students", Asia Publishing House, 197.
17. Chattopadhyay D. & Rakshit P. C., "An Advanced Course in Practical Physics", New Central Book Agency.
18. Chattopadhyay D., Rakshit P.C. and Saha B., "An Advanced Course in Practical Physics", New Central Book Agency P. Ltd.
19. Singh S.P., "Advanced Practical Physics", Pragati Prakashan.
20. Tayal D. C., "University Practical Physics", Himalaya Publishing House
21. Kumar P. R. Sasi, " Practical Physics", PHI Publication
22. Srivastava Anchal, Shukla R. K., "Practical Physics", New Age International Publishers.
23. Agarwal D. C., "Experimental electronics", Technical Publishing House.
24. Srivastava J. P., "Elements of Solid state Physics", PHI Publication.
25. Advanced Practical Physics (Vol. 1 & Vol. 2) B.Ghosh and K.G.Mazumder, Sreedhar Publ.
26. Instruction Manual for doing experiments in Physics by R.Shrinivasan and K.R. Pariolkar

Suggestive digital platforms web links

<https://www.vlab.co.in/broad-area-physical-sciences>, Virtual Labs (Physical Sciences),

Ministry of Education

<https://storage.googleapis.com/uniquecourses/online.html>, SWAYAM Online Courses

Evaluation Scheme: Practical Examination

(A) Internal Assessment :

Question answer during class (Oral)	: 15 Marks
Attendance	: 10 Marks
Assignment/Presentation/Sessional viva	: 15 Marks
Total (Each Paper)	: 40 Marks

(B) External Assessment :

	Practical Viva	: 15 Marks
	Practical File/Record	: 05 Marks
Experimental work	: 40 Marks	
	Total (Each Paper)	: 60 Marks
	Grand Total	: 100 Marks
	Min. Passing Marks	: 35 Marks

Mode of Evaluation: Digital Assignments, Quiz, CCE, Presentation, Tutorial, Class / Lab Activity, Final examination.

Course Title: Electrical Technology (Module I)

Course Type: Vocational

2023-24

Pre-requisite (if any): To study this course, a student must have had the subject Science in class10th.

Course Learning outcomes (CLO) On completion of this course, learners will be able to:

1. To understand maintenance of electrical equipment
2. Able to safe himself from any electrical shock
3. Able to work in Service centre to repair latest useful domestic and office use equipment

Expected Job role /career opportunity: After completing this course

1. Student can work in Electric goods shops and service centres.
2. He can start his own Electric goods shops
3. He can start Electric goods repair service by investing vary small fund.

Credit Value: 4(60 hrs)

Unit 1

1 Current Electricity:

Electricity as a source of energy, definition of resistance, voltage, current power, Energy and their units, relation between electrical, mechanical and thermalunits, factors affecting resistance of a conductor, temperature co-efficient of resistance, principle of thermostat, difference between AC and DC voltage and current

2. D.C Circuits :

Ohm's Law, series- parallel resistance circuits, calculation of equivalent resistance, Kirchoff's Laws and their applications.

3. Electric Cells:

Primary cell, wet cell, dry cell, batteries, series and parallel connections of cells, secondary cells, Lead acid cell, Discharging and recharging of cells, common charging methods preparation of electrolyte, care and maintenance of secondary cells.

4. Heating and Lighting Effects of Current :

Joule's Law of electric heating and its domestic applications, heating efficiency, lighting effect of electric current, filaments used in lamps, and gaseous discharge lamps, their working and applications.

5. Capacitor :

Capacitor and its capacity, concept of charging and discharging of capacitors, types of capacitors and their use in circuits series and parallel connection of capacitors, Energy stored in a capacitor.

Unit 2

1. Electromagnetic Effects

Permanent magnets and electromagnets, their construction and use, polarities of an electromagnet and rules of finding them Faraday's Law of Electromagnetic induction, dynamically induced e.m.f, its magnitude and induction, Static induction, self-induced e.m.f, its magnitude and direction, inductance and its unit, mutually induced e.m.f, its magnitude and direction, Energy stored in an inductance.

Force acting on a current carrying conductor in magnetic field, its magnitude and direction, torque produced on a current carrying coil in magnetic field, principles and construction of dynamo A.C and D.C motor, construction and working of single phase motor, principle of transformer and its type.

2. A.C Circuits

Generation of A.C voltage, its generation and wave shape. Cycle, frequency, peak value (maximum value), average value, instantaneous value, R.M.S value form factor, crest factor, phase, phase difference, power and power factor, A.C Series Circuits with (i) resistance and inductance (ii) resistance and capacitance and (iii) resistance inductance and capacitance, Q factor of R.L.C series circuits

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Tata M.CGraw Hill,2004 ,Electc circuits, Schaum'soutline series ,Nasar S.A
2. Nahvi M. and Edminister J., Electrical Circuits, Schaum's Outline Series, Tata McGraw Hill 2005 .
3. Chakrabarti A., Circuit theory, Dhanpat Rai & Co.
4. Tharaja **B.L.**, A Textbook of Electrical Technology volume 1. S Chand and Company New Delhi, 2005.
5. Mehta V.K, Mehta Rohit, Principle of Electrical Engineering. S Chand and Company New Delhi, 2005.
6. Gupta J.B,Text book of Electrical Technology, SK Kalaria and sons, 2012.
7. Kulshreshtra D.C, Basic Electrical Engineering, McGraw Hill first edition. **Part D-**

Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE) Marks: 30

Main Exam Marks: 70

Internal Assessment Continuous Comprehensive Evaluation (CCE):	Total Marks :30
External Assessment	Total Marks :70

Practical (Vocational)

1. Manufacturing of series lighting
2. Study about safety measure and tools
3. Fan repairing and its study
4. Mixer repairing and its study
5. Gezeer repairing and its study
6. Cooler repairing and its study
7. Invertor repairing and its study
8. Electrical iron repairing and its study
9. Electric kettle repairing and its study
10. Induction cooker repairing and its study
11. Water purifier repairing and its study
12. Solar panel maintenance - Basic knowledge
13. Study of MCB , ELCB
14. To find out unknown resistance
15. Soldering of wire by using soldering rod.
16. To detect and fix the problem in Doorbell.
17. To detect and fix the problem in Blender.
18. To understand the working and fix the problem in Regulator.
19. To detect and fix the problem in Mosquito Racquet.
20. To learn the working of Heater and how to construct it.
21. To detect and fix the problem in Hair Dryer
22. To detect and fix the problem in Heater blower.

Student needs to perform at least 10 experiments.

Project / Field trip - Student will visit Electrical Equipment Service Centres

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Tata M.CGraw Hill,2004 ,Electc circuits, Schaum'soutline series ,.Nasar S.A
2. Nahvi M. and Edminister J., Electrical Circuits, Schaum's Outline Series, Tata McGraw Hill 2005 .
3. Chakrabarti A., Circuit theory, Dhanpat Rai & Co.
4. Tharaja B.L., A Textbook of Electrical Technology volume 1. S Chand and Company New Delhi, 2005.
5. Mehta V.K, Mehta Rohit, Principle of Electrical Engineering. S Chand and Company New Delhi, 2005.
6. Gupta J.B,Text book of Electrical Technology, SK Kalaria and sons, 2012.
7. Kulshreshtra D.C, Basic Electrical Engineering, McGraw Hill first edition.

Suggested equivalent online courses:

National Digital Library —<https://ndl.iitkgp.ac.in/>

Lectures - <https://ocw.mit.edu/index.htm>

Video:<http://www.youtube.com.c.mitcw.search/query=circuit/020theory>

Part D-Assessment and Evaluation Evaluation Scheme: Practical Examination

(A) **Internal Assessment** : 50 Marks

(B) **External Assessment** :

Practical Viva : 10 Marks

Experimental work: 40 Marks

Total : 100 Marks

Min. Passing Marks: 35

B.Sc. III Year NEP Syllabus-2023-24

PSO No.	Programme Specific Outcomes Upon completion of these courses the student would be able to:
PSO-1	Analyse the concepts principle and theories of Physics
PSO-2	Analyse real world problems and develop mathematical equations to find acceptable solutions.
PSO-3	Develop problem solving skills and scientific reasoning by learning laboratory skills
PSO-4	Develop written and oral communication skills in communicating with diverse stakeholders.
PSO- 5	Create and collaborate in emergent physical, mathematical and computing technologies leading to innovative solutions for industry and academia.
PSO- 6	Crack various competitive exams for higher studies and employment.

Group- A Paper- I Quantum Mechanics, Atomic and Molecular Physics**Max. Marks: 30+70****Min. Passing Marks: 35****Credit Value: 4 (60 hrs)****Major****Course Objectives**

The objectives of the course are

	Course Objectives	Cognitive Level
CO-I	To understand the necessity of quantum mechanics. Develop an understanding of Concept of wave packet and wave function	U, R, An, Ap ,C, E
CO -II	Learn the formulation Schrodinger wave equation and its solution under various conditions.	U, R, An, Ap , E
CO -III	Learn the concept of Quantum Numbers/ Selection rules and explanation of Spectra of Alkali/Alkaline Earth metals.	R , U , Ap
CO -IV	Learn the behavior of an atom under magnetic field and elementary idea about X-Rays.	U,R,An

CO -V	Learn the basics of Rotational, vibrational and electronic spectra.	U, R,An, Ap, E
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Course Learning Outcome (CLO)

	Course Outcomes	PSOs Addressed	Cognitive Level
CLO-I	On completion of course Learner will be able to (a) understand aspects of the inadequacies of classical mechanics and historical development of quantum mechanics (b) build concepts of Wave packets, Phase and Group Velocities and Uncertainty principle.	1,2,3,6	U, R, An, Ap ,C, E
CLO -II	On completion of course Learner will be able to write the Schrodinger time dependent and time independent equations and Solve them for different cases.	2,3,4,5,6	U, R, An, Ap , E
CLO -III	On completion of course Learner will be able to extend the concept of Quantum Numbers and explanation of Spectra of Alkali/Alkaline Earth metals	1,3,6	R , U , Ap
CLO -IV	On completion of course Learner will be able to analyze the effect of Magnetic field on atoms.	1,2,3,6	U,R,An
CLO -V	On completion of course Learner will be able to build, compare & contrast the basic concepts of Rotational, Vibrational and Electronic spectra.	1,2	U, R,An, Ap, E

CO – Course Objectives; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

Unit-I

Quantum Mechanics-I

[12 Lectures]

1. Quantum technology in India : National Mission on Quantum Technologies & Applications(NM-QTA)
2. Particle nature of Wave: Limitations of Classical Mechanics, Blackbody radiation; Photoelectric effect; Planck's radiation law; Compton effect.
Wave nature of Particle: De-Broglie hypothesis; experimental verification of De-Broglie hypothesis; concept of wave packet; concept of phase and group velocities.
Heisenberg's uncertainty principle, experiments for the verification of uncertainty principle, Different forms of uncertainty principle.
- 4 The Schrodinger wave equation: Schrodinger's time dependent and time independent equation; Physical interpretation of wave function; Probability Current Density; Equation of Continuity and its physical significance, Normalisation of the wave function.

Keywords: Photoelectric effect, Compton Effect, Heisenberg uncertainty principle, Schrodinger equation.

Unit-II

Quantum Mechanics-II

[12 Lectures]

1. Operators in Quantum mechanics : Eigen functions and Eigenvalues; Hermitian operator; Position and Momentum operator; Total energy (Hamiltonian) operator; Expectation value; Concept of parity; Parity operator; Ehrenfest Theorem.
2. Application of Schrodinger equation: Free particle; Particle in one-dimensional box; Rectangular potential barrier; Tunnel effect, Applications of tunnel effect in barrier penetration(α -decay); One dimensional Harmonic Oscillator and concept of zero-point energy.

Keywords: Eigen function, Hermitian operator, Harmonic Oscillator.

Unit-III

Atomic Structure

[12 Lectures]

1. Brief review of Bohr and Sommerfeld model of atom; Electron orbits; Energy levels and spectra; Vector atom model; Concepts of space quantization ; Electron spin; SternGerlach experiment; One and two valence electron systems; Pauli's exclusion principle and electron configuration; Spectroscopic notations of energy states, Multiplicity of energy level state.

2. Spin Orbit interaction; Selection rules; Spectra of alkaline atom; Fine structure of Sodium D line; Spectral terms of two electron atoms; L-S and j-j coupling; Spectra of Helium atom; Franck-Hertz experiment.

Keywords: Electron orbits, Exclusion principle, Spin Orbit Interaction.

Unit-IV

Zeeman Effect and X-Ray Spectroscopy [12 Lectures]

1. Zeeman Effect: Early discoveries and developments; Experimental arrangements, Normal and Anomalous Zeeman Effect; Zeeman shift, Stark effect.
2. Nature and Production of X-Rays: Discrete and continuous X-ray spectra; Characteristics X-ray spectrum; Duane and Hunts rule; X-ray emission spectra; Moseley's law and its applications; Auger effect; doublet structure of X-ray spectra; X-ray absorption spectra.

Keywords: Zeeman effect, X-Rays, Doublet structure.

Unit-V

Molecular Spectroscopy [12 Lectures]

1. Molecular Spectroscopy : Various types of spectra; Quantization of Vibrational and Rotational energies; Pure Rotational spectra; Determination of Intermolecular Distance of Diatomic Molecules; Pure Vibrational Spectra of Diatomic Molecules; Electronic Spectra of Diatomic Molecules.
2. Raman Spectroscopy: Raman Effect; Stoke and Anti Stoke lines; Experimental Setup of Raman effect; Classical theory of Raman effect; Quantum theory of Raman effect; Applications of Raman effect; Electronic Spectrum; Born-Oppenheimer approximation; Franck-Condon principle; Fluorescence and Phosphorescence.

Keywords: Molecular Spectroscopy, Vibrational spectra, Raman effect, Electronic spectra

Suggested Books :

1. Beiser A. , —Concepts of Modern Physics, Mc-Graw Hill.
2. Ghatak & Loknathan, —Quantum Mechanics, McMillan.
3. Mani H S, Mehra G K, —Introduction to Modern Physics, East West Press.
4. Rajam J B, —Modern Physics, S. Chand
5. Schiff L I, —Quantum Mechanics, Mc-Graw Hill
6. White H E — Introduction to Atomic Spectra Mc-Graw Hill

Suggested Web links:

1. <https://www.eshiksha.mp.gov.in/mpdhe>

2. <https://youtu.be/KSgzRxzhzrQ?list=PLCvpYrhOPdiX6-GqRU3eVMKScNP4jedGi>

(Modern Physics by Prof. V. Ravishankar, IIT Delhi)

3. https://youtu.be/THZNfDdt_w0?list=PL8g67naApM8hnh2mw19NX4fP1663He9it

(Quantum Mechanics By Prof H C Verma, IIT Kanpur)

4. https://youtu.be/xlrvGLUsKqU?list=RDCMUCLI511QwKqQn0Cf4nz_dGKeQ

(Quantum Mechanics By Prof P Ramadevi, IIT Mumbai)

Assessment and Evaluation

Maximum Marks: 100 (End of the year Exam 70 + CCE 30)

Minimum Passing Marks : 35

<p>Mode of Evaluation: Digital Assignments, Quiz, Quarterly Exam, Half Yearly Exam, Final examination</p>
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List of Experiments

1. Determination of Planck's constant using Light Emitting Diode.
2. Determination of specific charge $-e/m$ by Thomson's method.
3. Determination of Planck's constant using solar cell.
4. Determination of Rydberg's constant using hydrogen discharge tube.
5. To Determine the Lande's g-factor using Zeeman Effect.
6. To observe the Zeeman splitting of green mercury line using Fabry-Parot Etalon for normal transverse and longitudinal configuration.
7. Determination of wavelength of sodium light with the help of Bi-Prism.
8. Determination of thickness of mica sheet with the help of Bi-Prism.
9. Determination of wavelength of monochromatic light source with the help of Michelson Interferometer.
10. Measurement of wavelength of mercury source spectrum by constant deviation spectrograph and calibration of drum.
11. Determination of wavelength of monochromatic light source with the help of plane transmission grating and spectrometer.
12. Verification of Fresnel's Law of reflection.
13. Verification of Cauchy's formula using spectrometer.
14. Determination of electric charge by Millikan's oil drop method.
15. Determination of Stefan's constant.
16. Determination of resolving power of plane transmission grating with the help of spectrometer.
17. To count the number of particles emitting from radioactive source with the help of G M

counter.

18. To draw the characteristic curves of Photo/Solar cell and determine stopping potential.

Learning Resources:

Texts:

1. Prakash I. & Ramkrishna, A Text Book of Practical Physics, Kitab Mahal, 2011.
2. Squires G.L., Practical Physics, Cambridge University Press, 2015.
3. Flint B. L. & Worsnop H. T. Advanced Course in Practical Physics, New Central Book Agency.
4. Ghosh And Majumdar, Practical Physics Vol.1 & 2 Sharda Publications, 2012.
5. Chattopadhyay and Rakshit, An Advanced Course in Practical Physics, New Central Book Agency.
6. Singh S P, Advanced Practical Physics, Pragati Prakashan.

Weblinks:

1. <https://www.eshiksha.mp.gov.in/mpdhe>
2. <https://www.vlab.co.in/broad-area-physical-sciences>
3. [https:// storage.googleapis.com/uniquecourses/online.html](https://storage.googleapis.com/uniquecourses/online.html)

Assessment & Evaluation:

Maximum Marks: 100 (End of the year Exam 70 + CCE 30)

Minimum Passing Marks: 35

Mode of Evaluation: Digital Assignments, Quiz, Quarterly Exam, Half Yearly Exam, Final examination

B.Sc. III Year NEP Syllabus-2023-24

Group- A Paper- II Solid State Physics and Electronics

Major

Max. Marks: 30+70

Min. Passing Marks: 35

Credit Value: 4 (60 hrs)

Course Objectives The

objectives of the course are :

	Course Objectives	Cognitive Level
CO-I	To get an idea about classification of solids, crystal structure and Diffraction of X-Rays.	U,R, Ap, An, E
CO -II	To understand lattice vibration and its consequences .Develop an understanding about specific heat of solids.	U,R,C, An, E
CO -III	To understand semiconductor physics and idea about two terminal electronic devices (diode) and their applications.	R , U , Ap ,An
CO -IV	To understand construction and operation of various three terminal devices eg. Bipolar junction transistor, Field Effect Transistor etc. and applications of transistor as amplifier.	U,R, An, C
CO -V	To learn the function of transistor as Oscillator also to get an idea about modulation and demodulation.	U, An, Ap

Course Learning Outcome (CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO-I	On completion of course Learner will be able to outline the idea about crystalline and amorphous solids, and diffraction of X-rays by Crystalline materials.	1,2,6	U,R, Ap, An, E
CLO-II	On completion of course Learner will be able to illustrate Lattice vibrations, phonons, theories of specific heat of solids.	4,5,6	U,R,C, An, E
CLO-III	On completion of course Learner will be able to formulate origin of energy bands in Solids, originate the idea of two terminal devices & their applications.	3,4,5,6	R, U, Ap, An
CLO-IV	On completion of course Learner will be able make-up the concept of three terminal devices (BJT, FET etc.) and their applications.	1,3,5	U,R, An, C
CLO-V	On completion of course Learner will be able to analyze various modulation processes.	2,3,5,6	U, An, Ap

CO – Course Objectives; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

Unit-I

Crystal Structures [12 Lectures]

1. Premier Indian Institutes and their contribution: Bhabha Atomic Research Centre, Mumbai, Advanced Materials and Processes Research Institute (AMPRI), Bhopal; Defense Research and Development Organization (DRDO), New Delhi; Indian Institute of Science,

Bangalore; Bose Institute, Kolkata, Raja Ramanna Centre for Advance Technology (RRCAT), Indore.

2. Classification of solids and space lattice: Crystalline and amorphous solids; Space lattice; Basis; Lattice translational vector; Unit cell; Primitive and non- primitive cells; Bravais lattice in two and three dimensions; Seven crystal systems; Fundamentals of elements of symmetry; Point groups and space groups; Lattice planes and miller indices; Relation between interplanar spacing and lattice constants.
3. Simple crystal structures: Simple cubic; Face centered cubic (NaCl); Body centered cubic (CsCl); Hexagonal closed packed; Diamond and Zinc sulfide structure; Coordination numbers and atomic packing fraction.
4. Reciprocal lattice and its properties, Diffraction in crystal: Laue's and Bragg's equations; Determination of crystal structure by X-rays (Powder method)

Keywords: Crystal structure, Miller indices, Coordination number, Diffraction in crystal.

Unit-II

Physical properties of matter

[12 Lectures]

1. Specific heat: Specific heat of solid and its variation with temperature; Classical theory of Dulong and Petit; Einstein model assumptions and derivation for specific heat; Debye model assumptions and derivation for specific heat; Outcomes of different models.
2. Lattice vibrations in crystal: Mono-atomic lattice vibration and dispersion relation; Brillouin Zones; Concept of phonons.
3. Motion of electrons in metals: Lorentz Drude theory, electrical resistivity and electrical conductivity; Ohm's Law($J = \sigma E$); Wiedemann Frenz law; Hall effect, Hall coefficients and experimental determination.

Keywords: Specific heat, Lattice vibration, Phonon, Electrical resistivity.

Unit-III

Solid state devices and applications

[12 Lectures]

1. Energy bands and semiconductors: Formation of energy bands in solid; Semi-conductors: Intrinsic and extrinsic; Concept of Fermi energy and Fermi energy level; Mobility and drift velocity of charge carriers; Conductivity of semiconductors; Derivation for expression of concentration of electrons and holes in an intrinsic and extrinsic semiconductor; P-N

Junction, depletion layer, expression for potential barrier; Current equation for P- N junction diode.

2. Construction, operation and characteristic curve of diodes: P-N Junction Diode in forward and reverse bias; Characteristics curve; Static and dynamic resistance; Avalanche and Zener Breakdown; Zener diode and its application as a voltage regulator; Photodiode, Light Emitting diode and Solar cell.
3. Rectification: Half wave, full wave and bridge rectifier: Electrical circuit and working; Determination of efficiency; Ripple factor and voltage regulation; Unregulated and regulated power supply.

Keywords: Energy bands, Semiconductors, Zener-diode, Photo-diode, Rectifier,

Regulated power supply.

Unit-IV

Transistor and Amplifier

[12 Lectures]

1. Transistors: Bipolar Junction Transistors (PNP and NPN); Biasing and operation; Operation of transistors in common base, common emitter and common collector modes and their characteristic curves; Relation between current gains (α , β and γ); Hybrid (h)- parameters of transistor, JFET and MOSFET and its characteristic curve.
2. Transistor biasing: Biasing stabilization in transistor; Thermal runaway and stability factor; Method of transistor biasing (voltage dividing method).
3. Amplifiers: Amplifiers and their classification in brief; Single stage common emitter amplifier, RC coupled Amplifier; Q -point, load line and frequency response curve, Power amplifiers (only introduction).

Keywords: Transistor, Amplifier.

Unit-V

Oscillators, Modulation and demodulation [12 Lectures]

1. Oscillators: Principle of feedback amplifiers; Positive and negative feedback amplifier; Principle of an oscillator and Barkhausen criterion; Introduction to Phase shift and Wien bridge oscillator.

2. Modulation: Definition; Theoretical analysis of amplitude modulation; Modulation index; Side bands and band width; Power dissipation in modulated wave.
3. Frequency modulation: Definition and mathematical analysis of frequency modulated wave; Modulation index, frequency spectrum and band width.
4. Phase modulation: Definition and theoretical analysis; Comparison among amplitude, frequency and phase modulation.
5. Demodulation: Principle of detection of Amplitude Modulated wave; P-N diode as square law detector.

Keywords/Tags: Modulation, Modulation index, Demodulation.

Learning Resources Text:

1. Kittel Charles, "Introduction to Solid State Physics", Wiley India Pvt. Ltd., India, (2007), 7th Edition.
2. Omar M.Ali, "Elementary Solid State Physics", Pearson Education, India, (2009), 6 Edition.
3. Singhal R. L., P. A. Alvi, et.Al., "Solid State Physics", Kedar Nath Ram Nath and Co., (2018),
4. Chattopadhyay D., Rakshit P.C., "Electronic Fundamentals and Application", New Age International,(2020).
5. Ashcroft Neil W., Mermin N. David., "Solid State Physics" Harcourt College Publishing, New York,2019.
6. Gupta S. L., Kumar V., "A Hand Book of Electronics", Pragati Prakashan, India, 2013, 19th Edition.
7. Kennedy George, Davis Bernard and Prasanna S. R. M., "Electronic Communication Systems" McGraw Hill Education, (2017), 6th Edition.
8. Malvino Albert Paul, Bates David, "Electronic Principles", McGraw Hill International Edition, India, (2006), 7 Edition.
9. Puri and Babbar, — Solid State Physics, S Chand Publications. **Suggested web links:**

1. <https://www.eshiksha.mp.gov.in/mpdhe>
2. <https://youtu.be/RJOCEz7wd0?list=PLUMVogViSn/QSiqiXDYuE6ETz5F5Kn4dA>
3. <https://youtu.be/L-eOdZF19BY>
4. <https://youtu.be/Kp-iS6NHsB8?list=PLF178600D851B098F> 5. <https://youtu.be/g7vYop46tU?list=PL708EEA8184EA8F53>

Assessment and Evaluation:
Maximum Marks: 100(End of the year Exam 70 Marks +CCE 30

Marks) Minimum Passing Marks: 35

Mode of Evaluation: Digital Assignments, Quiz, Quarterly Exam, Half Yearly Exam, Final examination

List of Experiments

1. To study characteristic curve of a PN Junction diode.
2. To study characteristics curve of a Zener diode.
3. To study characteristics curve of a light emitting diode (LED).
4. To determine the energy band gap of a semiconductor using P-N diode in reverse bias.
5. To determine ripple factor and voltage regulation of half wave and full wave rectifiers.
6. To determine ripple factor and voltage regulation of a full wave rectifiers using filter circuit.
7. To study unregulated and regulated power supply.
8. To study characteristics curves of PNP/ NPN transistor in common base mode configuration and determination current gain.
9. To study characteristics curves of PNP/ NPN transistor in common emitter mode configuration and determination current gain.
10. To study characteristics curves of Junction field effect transistor.
11. To study thermal bias stability of transistor in common emitter mode.
12. To study frequency response curve of single stage RC amplifier in CE mode.
13. Measurement of h-parameters of a transistor.
14. Find out closed loop gain of feedback amplifier.
15. Study of wave form of Wein bridge oscillator and to measure frequency of oscillations.
16. Study of amplitude modulated wave and determination of modulation index using CRO.
17. Study of frequency modulated wave and determination of modulation index using CRO.
18. Study of characteristic curve of Photodiode.
19. Measurement of unknown capacitance by schering bridge.
20. To study the characteristic curve of Tunnel diode.

Learning Resources :

Text:

1. Prakash I. & Ramakrishna, *A Text Book of Practical Physics", Kitab Mahal, 2011.
2. Squires G. L., "Practical Physics", Cambridge University Press, 2015, 4/e.
3. Flint B. L. and Worsnop H. T., "Advanced Practical Physics for students", Asia Publishing House, 197.
4. Chattopadhyay D. & Rakshit P. C., "An Advanced Course in Practical Physics", New Central Book Agency.
5. Chattopadhyay D., Rakshit P.C. and Saha B., "An Advanced Course in Practical Physics", New Central Book Agency P. Ltd.
6. Singh S.P., "Advanced Practical Physics", Pragati Prakashan.
7. Tayal D. C., *University Practical Physics", Himalaya Publishing House
8. Kumar P. R. Sasi, " Practical Physics*", PHI Publication
9. Srivastava Anchal, Shukla R. K., * Practical Physics", New Age International Publishers.
10. Agarwal D. C., "Experimental electronics", Technical Publishing House.
11. Srivastava J. P., " Elements of Solid state Physics", PHI Publication.
12. Books published by Madhya Pradesh Hindi Granth Academy, Bhopal.

Web links

1. <https://www.eshiksha.mp.gov.in/mpdhe>
2. <https://www.classcentral.com/course/edx-principle-of-semiconductor-devices-part-i-semiconductors-pn-junctions-and-bipolar-junction-transistors-11365>
3. <https://www.classcentral.com/csource/swayam-semiconductor-devices-and-circuits-19997>
4. <https://www.vlab.co.in/broad-area-physical-sciences>
5. <https://storage.googleapis.com/uniquecourses/online.html>

Assessment and Evaluation:

Maximum Marks: 100 (End of the year Exam 70 + CCE 30)

Minimum Passing Marks : 35

Mode of Evaluation : Digital Assignments, Quiz, Quarterly Exam, Half Yearly Exam, Final examination
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B.Sc. III Year NEP Syllabus-2023-24

Group- B Paper- I Astronomy and Space Physics

Major (Credits 6)

Course Objectives The

objectives of the course are :

	Course Objectives	Cognitive Level
CO -I	To get an idea about the basic concepts of Astronomy and Space Physics.	U,R
CO -II	To understand the working principle of astronomical tools and how to use them.	U,C, Ap,E
CO -III	To understand the physical processes in stars and evolution and classification of stars.	R, U, An
CO -IV	To understand the basics of sun & solar system.	U,R
CO -V	To learn the structure and dynamics of galaxies.	U, An

Course Learning Outcome (CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO-I	On completion of course Learner will be able to understand various terms of astronomy and astronomical coordinate systems.	1,2	U,R
CLO -II	On completion of course Learner will be able to understand the technique in observational astronomy.	3,5,6	U,C, Ap,E
CLO -III	On completion of course Learner will be able to Describe the classification and evolution of stars and their physical properties.	4,5,6	R, U, An
CLO -IV	On completion of course Learner	1,6	U,R

	will be able to detail the presently accepted theories of the solar system.		
CLO -V	On completion of course Learner will be able to understand morphology and classification of galaxies.	1,3,6	U, An

CO – Course Objectives; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

Unit-I

Introduction [18 Lectures]

1. A Brief historical background of Astronomy and space physics, Introduction of five ancient astronomical observatories (Jantar Mantar) of India (Ujjain, Jaipur, Delhi, Mathura, Varanasi), Contribution of Aryabhata, Brahmagupta, Bhaskara II, Vainu Bappu, Prof. Jayant Narlikar, Prof. Kasturi Rangan and Prof. S.K Mitra in the field of Astronomy and Space physics.
2. Astronomical Distances and their measurements, Determination of Mass, Concept of space and time, Luminosity, Temperature and distances of a stars.
3. Stellar classification and its interpretation, H.R. diagram of clusters, Empirical mass-luminosity relation.
4. Positional astronomy, Celestial Sphere, Astronomical Coordinate Systems, Conversion of Coordinates.

Keywords: Stars, Stellar classification, Astronomy, Celestial Sphere.

Unit-II

Astronomical techniques [18 Lectures]

1. Basic Optical Definitions for Astronomy: Magnification, Light Gathering Power, Resolving Power, Diffraction Limit and Atmospheric Windows, Optical Telescopes:Types of Reflecting Telescopes, Telescope Mountings.
2. Detectors and Their Use with Telescopes, Types of Detectors, Detection Limits with Telescopes, Spectrograph, CCD Camera, Photometers, Filters, Polarimeter.
3. Radio Telescope- Interferometry, UV, IR, X-ray and Gamma ray telescope, Space telescope- Himalayan Chandra telescope (HST) in India.

Keywords: Atmospheric Window, Telescopes, Himalayan Chandra telescope.

Unit-III

Evolution of Stars and their life cycle [18 Lectures]

1. Brightness, Radiant Flux and Luminosity, Apparent and Absolute magnitude scale, Distance Modulus, Determination of Temperature and Radius of a star, Stellar Interior, Energy generation in Stars, Contraction Hypothesis,
2. Evolution of Stars: Pre main sequence, Main sequence and post main sequence stages.
3. Classification of stars, Binary, Neutron star, Black hole, Chandrashekhar limit.

Keywords: Radiant Flux, Neutron star, Black hole.

Unit-IV

Sun and Solar System [18 Lectures]

1. Solar Structure and its processes, Solar Atmosphere, Photosphere, Chromosphere, Corona, Concept of quiet and active Sun. Development of centre of activity, Sunspots, Butterfly diagram, Solar Cycle, Solar flares.
2. Solar System: Age, Planetary orbits and distance, Physical size, rotation periods.
3. Origin of the Solar System: The Nebular Model, Tidal Forces and Planetary Rings, Extra-Solar Planets.

Keywords : Solar Structure, Sunspots, Planetary orbits.

Unit-V

Galaxies [18 Lectures]

1. The Milky Way (our own galaxy): Basic Structure and Properties, Nature of Rotation, Stars and Star Clusters of the Milky Way, Dark Matter.
2. Morphology of galaxies, Classification of Galaxies, basic properties of Elliptical, Spiral and Seyfert Galaxies, Galactic clusters, Pulsars and Quasars.
3. Gas and Dust in the Galaxy, Big Bang theory.

Keywords: Milky Way, Classification of Galaxies, Pulsars, Big Bang theory.

Learning Resources :

Text :

1. Carroll B. W. & Ostlie D.A., "Modern Astrophysics", Addison- Wesley Publishing Co.

2. Zeilik M. & Gregory S. A., "Introductory Astronomy and Astrophysics", 4th Edition, Saunders College Publishing.
3. Karttunen H. et al., "Fundamental of Astronomy", Springer.
4. Krishnasamy K.S., "Astro Physics a modern perspective*", Reprint, New Age International (p) Ltd, New Delhi, 2002.
5. Basu Baidyanath, "An introduction to Astro physics", Second printing, Prentice -Hall of India Private limited, New Delhi, 2001.
6. Bhatia V. B., "Textbook of Astronomy and Astrophysics with elements of cosmology" Narosa Publication.
7. Books published by Madhya Pradesh Hindi Granth Academy, Bhopal

Web

links:

1. <https://www.eshiksha.mp.gov.in/mpdhe>
2. [https://youtu.be/UpyiNpQW0?list=PLyQSN7X0ro2092IHnrUzShGPTm5nfO2Fr\[56\]](https://youtu.be/UpyiNpQW0?list=PLyQSN7X0ro2092IHnrUzShGPTm5nfO2Fr[56]) Lectures by Prof. Walter Lewin.
3. <https://youtu.be/vDv3iSMdYyc> Astrophysics and Cosmology by Prof. Somnath Bharadwaj, Department of Physics and Meteorology, IIT Kharagpur.

Assessment and Evaluation:

Maximum Marks: 100 (End of the year Exam 70 + CCE 30)

Minimum Passing Marks : 35

Mode of Evaluation: Digital Assignments, Quiz, Quarterly Exam, Half Yearly Exam, Final examination

Group- B Paper- II Nuclear and Particle Physics

Major

Max. Marks: 30+70

Min. Passing Marks: 35

Credit Value: 6 (90 hrs)

Course Objectives The

objectives of the course are :

	Course Objectives	Cognitive Level
CO-I	To get an idea about properties of nucleus, nuclear force, nuclear energy and radioactivity.	U,R, An
CO -II	To understand the concept of nuclear models and various decay processes.	U,Ap,An, E
CO -III	To develop an understanding about nuclear reactions, fusion and fission.	R, U, Ap, C
CO -IV	To understand construction and functioning of various nuclear detector and accelerators.	U,An, C
CO -V	To learn about elementary particles their classification and properties.	U,Ap

Course Learning Outcome (CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO -I	On completion of course Learner will be able to understand the ground state properties of a nucleus, process of radioactivity, the radioactive decay law, its uses .	1,3,6	U,R, An
CLO -II	On completion of course Learner will be able to understand (a)	3,4,6	U,Ap,An, E

	nuclear models and their roles in explaining the ground state properties of the nucleus (b) mechanisms of alpha, beta and gamma rays emission.		
CLO -III	On completion of course Learner will be able to formulate the basic aspects of nuclear reactions, the Qvalue of such reaction, fission and fusion reaction.	2,5	R , U , Ap ,C
CLO -IV	On completion of course Learner will be able to understand the principles and basic constructions of particle (radiation) detectors and accelerators	1,5	U,An, C
CLO -V	On completion of course Learner will Gain knowledge about the classifications of particles and various symmetry elements involved in particle physics.	1,4	U,Ap

CO – Course Objectives; CLO – Course Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

Unit-I

Nucleus, Nuclear Forces and Radioactivity [18 Lectures]

1. Introduction to Bhabha Atomic Research Centre (BARC), Defence Research and Development Organization (DRDO) and Indian Space Research Organization (ISRO), Raja Ramanna Centre for Advanced Technology,(RRCAT) Indus-1 and Indus-2 synchrotron. 2. Composition, charge, size, shape, mass and density of the nucleus; Nuclear angular momentum; Nuclear magnetic dipole moment; Electric quadrupole moment; Mass defect; Packing fraction and Binding energy; Binding energy of Deuteron; Stability of nuclei (N vs Z curve), Binding energy curve.
3. Nuclear Forces: General concept of Nuclear force; Yukawa Meson field theory of Nuclear forces; Properties of Nuclear forces.
4. Radioactive disintegration; Properties of alpha, beta, gamma rays; law of radioactive decay; successive radioactive decay; radioactive equilibrium; Radioisotopes; application of radioactivity (Agriculture, Medicinal, Industrial and Archaeological).

Keywords: Nuclear Forces, Binding energy, Deuteron, Radioactive disintegration.

Unit-II

Nuclear models and Nuclear Decay [18 Lectures]

1. Nuclear models: Shell model; magic number; Square well potential; Harmonic oscillator potential well; Spin-Orbit potential; Unified (collective) model; Liquid Drop model; Semi-empirical mass formula.
2. Two Body system: The ground state properties of the Deuteron; Deuteron in Central potential (Square well); Excited state of the deuteron; Neutron-Proton scattering at low energies; Scattering length.
3. Alpha decay: Alpha particles spectra; Gamow's theory of Alpha decay; Beta decay: Shape of Beta ray spectrum; Explanation of Beta decay on the basis of Neutrino and Antineutrino hypothesis; Fermi theory of Beta decay; Selection rules; Conservation of B-decay: Gamma ray emission: Multipole radiation.

Keywords: Shell model, Liquid Drop model, Scattering, Alpha decay, Beta decay Radioisotopes

Unit-III

Nuclear reactions and Nuclear Energy [18 Lectures]

1. Nuclear reactions: Kinds of Nuclear reactions; Nuclear reaction kinematics; Q-value; Compound Nucleus and concept of direct reactions; Conservation laws; Nuclear reaction cross- sections
2. Nuclear energy: Nuclear Fission; Chain reaction and Critical Mass; Nuclear Reactors and its basic components; Nuclear Fusion; Condition for the maintained Fusion reactions; Energy production in stars; Fusion reaction in Sun, Principle of atomic bomb and hydrogen bomb.

Keywords: Nuclear reactions, Nuclear Fission, Q-value.

Unit-IV

Nuclear counters and detectors [18 Lectures]

1. Ionization Chamber; Proportional counter; Geiger-Müller counter; Scintillation counter; semiconductor detectors; P-N junction detector; Lithium drifted; High purity Ge Detector; Gamma ray interactions NaI (TI) Scintillation.

2. Detector electronics and Pulse processing: Pulse counting systems; Pulse height analysis systems; Pulse timing; Pulse shape discrimination.

3. Accelerators: Cyclotron, Betatron, synchrotron.

Keywords: Ionization Chamber, Detector, Pulse processing.

Unit-V

Fundamental particle [18 Lectures]

1. Fundamental particles: Classification of particles-antiparticles and their interactions; Conservation laws; Charges; Isospin; Baryon number; Strangeness; Parity; Charge conjugation; CPT theorem; CP violation and natural K-decay.

2. Fundamental particle symmetry: SU(2) and SU(3) symmetry and their application to Multiplet Meson and Baryon state; Quark as the building blocks of Hadrons; Quark Model; Colour degree of freedom, Ghost particles, Higgs Boson Particle (God particle), Large Hadron collider (LHC).

Keywords: Fundamental particles, Isospin, Baryon, Quark.

Learning Resources :

Text :

1. Waghmare Y. R., "Introductory Nuclear Physics", Oxford & IBH Oub.
2. Kapoor S. S., Ramamurthy V. S., "Nuclear Radiation Detectors", New Age International Publishers.
3. Cohen B. L., "Concepts of Nuclear Physics", McGraw Hill Education.
4. Tayal D. C., "Nuclear Physics", Himalaya Publishing House.
5. Patel S. B., "Nuclear Physics: An Introduction", New Age International Publishers.
6. Singh Jahan, "Fundamental of Nuclear Physics", Pragati Publications.
7. Books published by Madhya Pradesh Hindi Granth Academy, Bhopal.

Web links:

1. <https://www.eshiksha.mp.gov.in/mpdhe>
2. <https://youtu.be/josqicH79PE?list=PLbMVogVj5nJRvq-w3zway7k3GzmUDte3a>

Nuclear Physics: Fundamentals and Applications by Prof. H.C. Verma, Department of Physics, IIT Kanpur.

3 <https://youtu.be/H7OipY8RzX0?list=PLOb6maW-5d1fvnUXykaaDOJPjEB0pTDF9>

Lecture Series on Nuclear and Particle Physics by Prof. Poulouse Poulouse, Department of Physics,
IIT Guwahati.

Assessment & Evaluation:

Maximum Marks: 100 (End of the year Exam 70 + CCE 30)

Minimum Passing Marks : 35

<p>Mode of Evaluation : Digital Assignments, Quiz, Quarterly Exam, Half Yearly Exam, Final examination</p>

B.Sc. III Year NEP Syllabus-2023-24**Quantum Mechanics, Solid State Physics and Devices****Minor/Elective (Credits: 3+1)****Max. Marks: 30+70****Min. Passing Marks: 35****Credit Value: 4 (60 hrs)****Course Objectives** The

objectives of the course are:

	Course Objectives	Cognitive Level
CO -I	To get an idea about necessity of quantum mechanics, concept of wave packet and operators in quantum mechanics.	U,R, Ap , An, E
CO -II	To learn the formulation Schrodinger wave equation and its applications (solution under various conditions).	U,R,An, E
CO -III	To understand and explain atomic structure, properties of X-Rays and molecular spectra.	R , U , Ap ,An
CO -IV	To get an idea about classification of solids, crystal structure and thermal properties of solids.	U,An
CO -V	To learn semiconductor physics and idea about two & three terminal electronic devices (diode, transistor etc.) and their applications.	U, An, Ap,C

Course Learning Outcome (CLO)

	Course Learning Outcomes	PSOs Addressed	Cognitive Level
CLO-I	On completion of course Learner will be able to (a) understand aspects of the inadequacies of classical mechanics and historical	1,3,6	U,R, Ap , An, E

	development of quantum mechanics (b) build the concepts of Wave packets, Phase and Group Velocities and Uncertainty principle.		
CLO -II	On completion of course Learner will be able to write the Schrodinger time dependent and time independent equations and Solve them for different cases.	2,4	U,R,An, E
CLO -III	On completion of course Learner will be able to (a) extend the concept of Quantum Numbers and explanation of Spectra of Alkali/Alkaline Earth metals (b)analyze the effect of Magnetic field on atoms.	1,2,3,5	R , U , Ap ,An
CLO -IV	On completion of course Learner will be able to analyze the effect of Magnetic field on atoms.	2,5	U,An
CLO -V	On completion of course Learner will be able to build, compare & contrast the basic concepts of Rotational, Vibrational and Electronic spectra.	1,2	U, An, Ap,C

CO – Course Objectives; CLO – Course Learning Outcome; R- Remember; U- Understand; Ap – Apply; An – Analyse; E- Evaluate; C – Create

Unit-I

Introduction to Quantum Mechanics

[12 Lectures]

1. A brief biography of Chandrasekhara Venkata Maman and their major contribution to science.
2. Limitations of classical mechanics and origin of quantum mechanics, Black body radiation, Photoelectric effect, Compton effect, de-Broglie hypothesis, Davisson-Germer experiment, Wave packet, Phase velocity and Group velocity.
3. Heisenberg uncertainty principle, Different forms of uncertainty principle, Schrödinger wave equation: Time dependent and independent equation, Physical interpretation of wave function, Equation of Continuity.
4. Operator in quantum mechanics: Eigenfunctions and Eigenvalues, Hermitian operator,

Position and Momentum operator, Total energy operator (Hamiltonian), Expectation value, Parity operator, Ehrenfest Theorem.

Keywords: Quantum mechanics, Uncertainty principle, Eigenfunctions.

Unit-II

Application of Quantum Mechanics and Atomic Structure [12 Lectures]

1. Application of Schrodinger equation: Free particle, Particle in one dimensional box, Rectangular potential barrier, Tunnel effect, One dimensional Harmonic Oscillator.
2. Three dimensional Schrodinger equation, the radial and angular equation, Hydrogen atom, electron probability density.
3. Bohr's atomic model, Atomic spectra of hydrogen, Sommerfeld model, electron spin, Stern-Gerlach experiment, Orbital and Spin angular momentum, Concept of space quantization, Quantum numbers.

Keywords: Tunnel effect, Harmonic Oscillator, Quantum numbers, Atomic model.

Unit-III

Many-Electron Atom [12 Lectures]

1. Pauli's exclusion principle, Electronic configuration, Symmetric and anti-symmetric wave function (Bosons and Fermions).
2. Spin-Orbit interaction, Selection rules, Spectra of alkaline atom, Fine structure of Sodium D line, Spectral terms of two electron atoms, L-S and j-j coupling, Multiplicity of energy levels, Spectra of Helium atom, Zeeman effect: Types and Experimental arrangement.
3. Various types of molecular spectra, Electronic, Rotational and vibrational spectra of diatomic molecule, Raman effect: Experimental setup and explanation by quantum principle, Production of X-rays, Continuous and characteristics X-ray spectrum, Moseley's law.

Keywords: Exclusion principle, Bosons and fermions, Spin-Orbit interaction, Molecular Spectra, X-rays.

Unit-IV

Solid State Physics [12 Lectures]

1. Crystalline and amorphous solids, Space lattice; Basis, Lattice translational vector, Primitive cell, Bravais lattice, seven crystal systems, Symmetry, Miller indices, Interplanar spacing.
2. Crystal Structures: Simple cubic, Face centered cubic (NaCl), Body centered cubic (CsCl), Hexagonal closed packed, Diamond structure, Coordination numbers and atomic packing fraction, Laue's and Bragg's equations, Reciprocal lattice.
3. Dulong and Petit's theory of Specific heat, Einstein's theory of specific heat, Debye's theory of specific heat, Lattice vibrations in crystal: Mono-atomic lattice vibration and dispersion relation, Brillouin Zones, Concept of phonons, Lorentz Drude theory, Ohm's law ($J = \sigma E$), Wiedemann Frenz Law, Hall effect.

Keywords: Exclusion Principle, Bosons and Fermions, Spin-Orbit interaction, Molecular spectra, X-rays.

Unit-V

Semiconductor and Devices

[12 Lectures]

1. Energy bands in solids, Intrinsic and extrinsic semiconductors; Fermi energy level, Mobility, Conductivity of semiconductors, Concentration of electrons and holes in Semiconductors.
2. P-N Junction, depletion layer, Potential barrier, Shockley diode equation (Without derivation), Zener diode and its application, Elementary knowledge of photodiode, Light Emitting diode and solar cell, Bipolar Junction Transistors and its characteristics curves, Current gains (α , β and β) Junction Field Effect Transistor.
3. Amplifiers and their classification, Single stage common emitter amplifier, Q-point, load line and frequency response curve, Feedback amplifiers, Barkhausen criterion, Phase shift and Wien bridge oscillator.

Keywords: Semiconductors, P-N Junction, Amplifiers, Oscillators.

Learning Resources Text :

1. Beiser A. "Concepts of Modern Physics" McGraw Hill.
2. Ghatak and Lokanathan, —Quantum Mechanics, McMillan India.
3. Mani H S, Mehra G K., —Introduction to Modern Physics, East West Press.
4. Schiff L, I., "Quantum Mechanics, McGraw Hill Education.
5. Rajam J. B., —Modern Physics, S. Chand.
6. White H. E., —Introduction to Atomic Spectra, McGraw Hill.
7. Griffiths D. J., —Introduction to Quantum Mechanics, Cambridge University Press.

8. Kittel Charles, —Introduction to Solid State Physics, Wiley India Pvt. Ltd.
9. Omar M Ali, —Elementary Solid State Physics, Peason Education, India.
10. Singhal R L, P.A. Alvi, et al., —Solid State Physics, Kedar Nath Ram Nath and Co.
11. Chattopadhyay D., Rakshit P.C.,| Electronic Fundamentals and Application, New Age International.
12. Srivastava J.P., —Elements of Solid State Physics, Prentice Hall of India.
13. Ashcroft Neil W., Mermin N. David,| Solid State Physics| Harcourt College Publishing, New York
14. Gupta S.L., Kumar. V., —A Hand Book of Electronics, Pragati Prakashan.
15. Malvino Albert Paul, Bates David, —Electronic Principles, Mc-Graw hill International.
16. Verma H.C., —Quantum Mechanics,
17. Zettili N., —Quantum Mechanics: Concepts and Applications, Wiley International.
18. Puri and Babbar, —Solid State Physics, S. Chand.
19. Mehta V. K., —Basic Electronics, S. Chand.

Web Links:

1. <https://www.eshiksha.mp.gov.in/mpdhe>
2. <https://youtu.be/KSgzRxzhzrQ?list=PLCvpYrhOPdiX6-GqRU3eVMKScNP4jedGi> Modern Physics by Prof. V. Ravishankar, IIT Delhi.
3. https://youtu.be/THZNfDdt_wo?list=PL8g67naApM8hmh2mw19NX4fP1663Hc9it Quantum Physics by Prof. H. C. Verma, IIT Kanpur.
4. <https://youtu.be/xlrvgLUkqU?list=RDCMUCL1511QwKqQn0Cf4nzdGKeQ> Quantum Mechanics by Prof. P. Ramadevi, IIT Mumbai.

Assessment & Evaluation:

Maximum Marks: 100 (End of the year Exam 70 + CCE 30)

Minimum Passing Marks : 35

Mode of Evaluation : Digital Assignments, Quiz, Quarterly Exam, Half Yearly Exam, Final examination

Note: Students will perform 5 experiments from Major Paper I and 5 experiments from Major Paper II

Second Year Vocational Course Module II

Electrical Technology

Session: 2023-24 Onwards

Part A Introduction

Program: Under Graduate Course

Course Code	V2-EEQM-ELECT
Course Title	Electrical Technology
Course Type	Vocational
Pre-requisite (if any)	To study this course, student must have knowledge of the Physics subject in class 12th
Course Learning outcomes (CLO)	After studying this Course the Student will be able to understand: <ol style="list-style-type: none">1. The relevant basic concepts and principles in basic science subjects.2. The manufacturing of different appliances.3. The concepts, principles of working, maintenance, constructional details and functions of electrical motors, electrical appliances, measuring and testing instruments and electrical circuits.4. Testing, installation, fault identification and repairing of electrical motors, appliances and instruments.5. The basic concepts in engineering drawing.6. Different types of electrical wiring.
Expected Job role /career opportunity	Electrician, Wireman In the market in Electrical Shops, In production unit of industries, In Scientific labs, In ITI, Self-employed etc.
Credit Value	2 (Theory) +2 (Practical) = 04

Part B- Content of the Course

Total No. of Lectures + Practical (in hours per week): L-1 Hr / P- 1Lab Hr(=2Hrs)

Total No. of Lectures /Practical: L-30/P-30 (60 Hrs.)

Mod ule	Topics	No.of lectures (Total 30)
I	<p>1. Electric Current</p> <p>1.1 Electron drift velocity</p> <p>1.2 The idea of electric potential</p> <p>1.2.1 Resistance - Laws of resistance, units of resistance and resistivity.</p> <p>1.2.2 Colour Code for carbon resistors</p> <p>1.3 Types of resistors</p> <p>1.3.1 Non Linear resistor</p> <p>1.3.2 Varistor- Short and open circuit</p> <p>1.3.3 short in a series and parallel circuits</p> <p>1.3.4 opens in a series and parallel circuits</p> <p>1.4 Division of current in parallel circuit- Equivalent resistance.</p> <p>1.5 Maintenance of steady current in a circuit.</p> <p>1.6 Ideal constant-Voltage source: constant current source.</p> <p>1.7 Relation between electric field and potential. 1.7.1 Measurement of internal resistance.</p> <p>2. Electrical Instruments general idea about construction, working principle and measurement of</p> <p>2.1 Potentiometer- Sensitiveness and applications.</p> <p>2.2 Moving coil galvanometer- Measurement of current and voltage.</p> <p>2.2.1 Sensitivity of a Galvanometer.</p> <p>2.3 Wheatstone bridge and meter bridge</p> <p>2.3.1 Principle and applications to measure potential difference and for comparing electromotive force of two cells.</p> <p>2.4 Moving iron and moving coil voltmeters and ammeters,</p> <p>2.5 Dynamometer types of wattmeter.</p> <p>2.6 Ohm meter, megger and induction type energy meter- their circuit connection and application for measurement of electrical quantities.</p> <p>2.7 Digital Multimeter</p> <p>2.8 Induction Motor- General Principle and construction</p>	I

	<p>2.9 Rotor</p> <p>2.9.1 Phase wound motor</p> <p>AC generator- Advantages and disadvantages of AC over DC</p>	
	<p>2.11 (i) Photovoltaic cell (ii) Fuel cell</p> <p>Principle of operation</p>	
II	<p>Domestic Appliances- General idea-</p> <p>1.1 Safety policy, purpose of scope, Do's and Don'ts, earthing, permit to work system, safety instructions, housekeeping, personal protective equipment and devices, constructions, transportation, safe guarding the public, fire, accident report, record and investigations, first aid, emergency preparedness and response, SI practice</p> <p>1.2 Testing equipment's and basic control equipment's- Electronic line tester, series and parallel test lamp for simple and three phase system, thermostat, bimetallic relay, thermocouple, overload switch, electromagnetic relay.</p> <p>1.3 Electric Iron - Types- ordinary, automatic, steam, spray and laundry.</p> <p>1.4 Electric induction cooker- Electric induction plate cooker, simple rise Maker.</p> <p>1.5 Water Purifier- UV/RO, UV light effect on bacteria, reverse osmosis membrane process.</p> <p>2 Electrical wiring and Electrical Engineering Drawing</p> <p>2.1 Wiring diagram for domestic simple wiring.</p> <p>2.2 Symbols used for different electrical devices and equipments.</p> <p>2.3 Types of wiring cleat wiring, casing and capping.</p> <p>2.4 C.T.S./T.R.S. wiring, metal sheath wiring.</p> <p>2.5 Factors of selection of a particular wiring system</p> <p>2.6 Importance of switch</p> <p>2.7 Fuse and earthing of wiring system, types of faults, their causes and remedies.</p>	

	<p>2.8 Types of earthing- Plate earthing and Pipe earthing, their procedure and application.</p> <p>2.9 Loop in system of wiring connections I E rules related to wiring.</p>	
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	Practical	No. of lectures
	<ol style="list-style-type: none"> 1. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source. 2. To assemble the component of a given electrical circuits 3. Multimeter- Testing, Checking of components and measurement of Resistance, Inductance, Capacitance, Diode, Transistor. Voltage (AC/DC) current and checking of continuity of a given circuit 4. Verification of Ohm's law 5. Study of resistances in series, parallel and series parallel. 6. Study of voltage sources in series, parallel and series parallel 7. To study the change in the current in an electric circuit by changing its resistance. 8. Determination of e.m.f. of a thermocouple. 9. Determination of efficiency of electrical kettle with variable voltages. 10. General idea about construction, working principle and measurement of <ol style="list-style-type: none"> a. Battery charger- circuit and different components. b. Filter circuit and voltage regulator- TL and 7 types filter circuits, IC voltage regulator. c. Emergency Torch- Miniature lamp type, Farmer Torch. d. Oven and Tandoor- Oven, Tandoor maker, microwave oven. e. Electric Toster- Ordinary, sandwich. Pop up and Automatic. f. Coffee Maker- Coffee percolator, electric coffee Mug/Stirrer 	30 (02 Hours each)

Project / Field trip :

Part C-Learning Resources
Text Books, Reference Books, Other resources Suggested

Readings:

1. Jagathesan K, Vionoth Kumar and Sarvan Kumar R, Basic Electrical
2. Theraja B.L., Basic Electronics, S. Chand & Company New Delhi 2000.
3. Theraja B.L., A textbook of Electrical Technology. Volume 1, S. Chand & Company New Delhi 2005
4. Khandpur P, Morden Electronic Equipment Troubleshooting Repair and Maintenance TMH 2006
5. Deo V. R., Electronics components and application.
6. Grob Bernard, Basic Electronics, McGraw Hill Book Co. 1985
7. Loveday G.C., Electronic Testing and Fault Diagnosis, A.H Wheeler Publishing.2002. 8. Chattopodhya D and Rakshit K K, Electronics fundamental Application, Age International.
9. Gupta S.L. and Kumar V., A hand book of Electronics, Pragti Prakashan.
10. Mithal K K Electronics Practical Computech Publication LTD.
11. Mehta V.K. and Rohit Mehta, Principles of Electronics, S. Chand & Company New Delhi 2005
12. Mithal G.K., Electronic devices and circuits, Khanna Publishers, 1990, 16th edn.
13. Sawhney AK, A course in electrical and electronic measurements and instrumentation, Dhanpat Rai and Co. (P) Ltd. 2003.
14. Talbar N Talbar and Upadhyay Akhilesh R, Electronic instrumentation (Analog and Digital) Dhanpat Rai and Co. (P) Ltd. 2001.

Suggested equivalent online courses:e – reading:

Youtube.com (passive component)

<http://fourier.eng.hmc.edu/e84/lectures/ch1/node3.html>

<https://www.electricaltechnology.org/2013/09/electrical-wiring.html>

<http://vlabs.iitkgp.ac.in/be/>)

<https://nptel.ac.in/courses/108/108/108108076/>

<https://peda.net/kenya/ass/subjects2/physics/form-32/heoacc>

<https://youtu.be/w5ginsN8UX4> <https://youtu.be/atXRn-cba88>

<https://youtu.be/ZGv9pblhg1g>



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS
UG
ECONOMICS

St. Aloysius College (Autonomous), Jabalpur

Reaccredited 'A+' by NAAC (CGPA – 3.68/4.00)

College with Potential for Excellence by UGC

DST FIST Supported



Department of Economics

Syllabus

B.A./B.Sc. I & II Semester

Session : 2022-23

B.A./B.Sc. – I Semester

(Paper - Major / Minor)

Course Title पाठ्यक्रम का शीर्षक	Micro Economics (व्यष्टि अर्थशास्त्र)
Course Type पाठ्यक्रम का प्रकार	Major / Minor
Credit Value क्रेडिट मान	06
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषय वस्तु)
Unit 1- Introduction of Economics (अर्थशास्त्र का परिचय)	<ol style="list-style-type: none">1. Definition, Scope and Nature of Economics.2. Relation of Economics with other Social Science Subjects.3. Positive and Normative Economics.4. Methods of Economic Analysis- Inductive and Deductive Methods.5. Basic Concepts- Commodity, Price and Value, Rational Behavior, Economic Laws, Wants and Choices.6. Central Problems of An Economy- Production Possibility curve. <ol style="list-style-type: none">1. अर्थशास्त्र की परिभाषा, क्षेत्र एवं प्रकृति2. अर्थशास्त्र का सामाजिक विज्ञान के अन्य विषयों से सम्बन्ध3. वास्तविक एवं आदर्शात्मक अर्थशास्त्र4. आर्थिक विश्लेषण की पद्धतियाँ - आगमन एवं निगमन विधियाँ5. मूल अवधारणाएँ - वस्तु, मूल्य एवं कीमत, विवेकशील व्यवहार, आर्थिक नियम, आवश्यकता एवं चयन6. अर्थव्यवस्था की केन्द्रीय समस्याएँ- उत्पादन संभवता वक्र
Unit -2 Consumer Behavior (उपभोक्ता का व्यवहार)	<ol style="list-style-type: none">1. Cardinal Approach- Utility, Marginal and Total Utility.2. Law of Diminishing Marginal Utility.3. Law of Equi-Marginal Utility.4. Consumer's Surplus.5. Ordinal Approach- Indifference Curves- Meaning Characteristics, Consumer's Equilibrium.6. Behavioral Approach- Revealed Preference Theory.7. Law of Demand and its Exception- Giffen Goods.8. Elasticity of Demand- Price, Income and Cross Elasticity. <ol style="list-style-type: none">1. गणनावाचक दृष्टिकोण - उपयोगिता, सीमांत व कुल उपयोगिता2. सीमांत उपयोगिता ह्रास नियम

	<ol style="list-style-type: none"> 3. समसीमांत उपयोगिता नियम 4. उपभोक्ता की बचत 5. क्रमवाचक दृष्टिकोण- तटस्थता वक्र विश्लेषण- अर्थ व विशेषताएँ, उपभोक्ता का सन्तुलन 6. व्यावहारिक दृष्टिकोण-प्रकट अधिमान सिद्धांत 7. मांग का नियम और इसके अपवाद- गिफित वस्तुएँ 8. मांग की लोच-कीमत, आय और आड़ी लोच.
<p>Unit -3 Production (उत्पादन)</p>	<ol style="list-style-type: none"> 1. Law of Supply and Elasticity of Supply. 2. Production Function. 3. Law of Variable Proportions. 4. Return to Scale. 5. Iso-Product Curve- Meaning, Characteristics. 6. Producer's Equilibrium. 7. Economies of Scale. 8. Concept of Revenue and Cost – Total, Average & Marginal <ol style="list-style-type: none"> 1. पूर्ति का नियम एवं पूर्ति की लोच 2. उत्पादन फलन 3. परिवर्तनशील अनुपातो का नियम 4. पैमाने के प्रतिफल नियम 5. समोत्पाद वक्र:- अर्थ व विशेषताएँ 6. उत्पादक का संतुलन 7. पैमाने की बचते 8. आगम एवं लागत की अवधारणा- कुल, सीमांत एवं औसत
<p>Unit -4 Market and Price Determination (बाजार और मूल्य निर्धारण)</p>	<ol style="list-style-type: none"> 1. Meaning and Classification of Markets. 2. Perfect Competition- Meaning and Characteristics. 3. Perfect Competition and Pure Competition. 4. Determination of Price and Output under Perfect Competition. 5. Determination of Price and Output under Monopoly. 6. Price Discrimination under Monopoly. 7. Monopolistic Competition. <ol style="list-style-type: none"> 1. बाजार का अर्थ एवं वर्गीकरण 2. पूर्ण प्रतियोगिता- अर्थ व विशेषताएँ 3. पूर्ण प्रतियोगिता एवं शुद्ध प्रतियोगिता 4. पूर्ण प्रतियोगिता में कीमत और उत्पादन का निर्धारण 5. एकाधिकार में कीमत व उत्पादन का निर्धारण 6. एकाधिकार में कीमत विभेद 7. एकाधिकृत प्रतियोगिता

<p>Unit -5 Theory of Factor Pricing (साधन कीमत निर्धारण के सिद्धांत)</p>	<ol style="list-style-type: none"> 1. Marginal Productivity Theory of Distribution. 2. Theory of Distribution- <ol style="list-style-type: none"> a) Rent b) Wages c) Interest d) Profit 3. Concept of Welfare Economics. <ol style="list-style-type: none"> 1. वितरण का सीमांत उत्पादकता सिद्धांत 2. वितरण के सिद्धांत – <ol style="list-style-type: none"> a) लगान b) मजदूरी c) व्याज d) लाभ 3. कल्याणकारी अर्थशास्त्रकी अवधारणा.
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(Paper - Elective)

Course Title पाठ्यक्रम का शीर्षक	Micro Economics (व्यष्टि अर्थशास्त्र)
Course Type पाठ्यक्रम का प्रकार	Elective
Credit Value क्रेडिट मान	04
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषय वस्तु)
Unit 1- Introduction of Economics (अर्थशास्त्र का परिचय)	<p>7. Definition, Scope and Nature of Economics.</p> <p>8. Relation of Economics with other Social Science Subjects.</p> <p>9. Positive and Normative Economics.</p> <p>10. Methods of Economic Analysis- Inductive and Deductive Methods.</p> <p>11. Basic Concepts- Commodity, Price and Value, Rational Behavior, Economic Laws, Wants and Choices.</p> <p>12. Central Problems of An Economy- Production Possibility curve.</p> <p>7. अर्थशास्त्र की परिभाषा, क्षेत्र एवं प्रकृति</p> <p>8. अर्थशास्त्र का सामाजिक विज्ञान के अन्य विषयों से सम्बन्ध</p> <p>9. वास्तविक एवं आदर्शात्मक अर्थशास्त्र</p> <p>10. आर्थिक विश्लेषण की पद्धतियाँ - आगमन एवं निगमन विधियाँ</p> <p>11. मूल अवधारणाएं - वस्तु, मूल्य एवं कीमत, विवेकशील व्यवहार, आर्थिक नियम, आवश्यकता एवं चयन</p> <p>12. अर्थव्यवस्था की केन्द्रीय समस्याएं- उत्पादन संभवता वक्र</p>
Unit -2 Consumer Behavior (उपभोक्ता का व्यवहार)	<p>9. Cardinal Approach- Utility, Marginal and Total Utility.</p> <p>10. Law of Diminishing Marginal Utility.</p> <p>11. Law of Equi-Marginal Utility.</p> <p>12. Consumer's Surplus.</p> <p>13. Ordinal Approach- Indifference Curves- Meaning Characteristics, Consumer's Equilibrium.</p> <p>14. Behavioral Approach- Revealed Preference Theory.</p> <p>15. Law of Demand and its Exception- Giffen Goods.</p> <p>16. Elasticity of Demand- Price, Income and Cross Elasticity.</p> <p>9. गणनावाचक दृष्टिकोण - उपयोगिता, सीमांत व कुल उपयोगिता</p> <p>10. सीमांत उपयोगिता ह्रास नियम</p> <p>11. समसीमांत उपयोगिता नियम</p>

	<p>12. उपभोक्ता की बचत 13. क्रमवाचक दृष्टिकोण- तटस्थता वक्र विश्लेषण- अर्थ व विशेषताएँ, उपभोक्ता का सन्तुलन 14. व्यावहारिक दृष्टिकोण-प्रकट अधिमान सिद्धांत 15. मांग का नियम और इसके अपवाद- गिफित वस्तुएँ 16. मांग की लोच-कीमत, आय और आड़ी लोच.</p>
<p>Unit -3 Production (उत्पादन)</p>	<p>9. Law of Supply and Elasticity of Supply. 10. Production Function. 11. Law of Variable Proportions. 12. Return to Scale. 13. Iso-Product Curve- Meaning, Characteristics. 14. Producer's Equilibrium. 15. Economies of Scale. 16. Concept of Revenue and Cost – Total, Average & Marginal</p> <p>9. पूर्ति का नियम एवं पूर्ति की लोच 10. उत्पादन फलन 11. परिवर्तनशील अनुपातो का नियम 12. पैमाने के प्रतिफल नियम 13. समोत्पाद वक्र:- अर्थ व विशेषताएँ 14. उत्पादक का संतुलन 15. पैमाने की बचते 16. आगम एवं लागत की अवधारणा- कुल, सीमांत एवं औसत</p>
<p>Unit -4 Market and Price Determination (बाजार और मूल्य निर्धारण)</p>	<p>8. Meaning and Classification of Markets. 9. Perfect Competition- Meaning and Characteristics. 10. Perfect Competition and Pure Competition. 11. Determination of Price and Output under Perfect Competition. 12. Determination of Price and Output under Monopoly. 13. Price Discrimination under Monopoly. 14. Monopolistic Competition.</p> <p>8. बाजार का अर्थ एवं वर्गीकरण 9. पूर्ण प्रतियोगिता- अर्थ व विशेषताएँ 10. पूर्ण प्रतियोगिता एवं शुद्ध प्रतियोगिता 11. पूर्ण प्रतियोगिता में कीमत और उत्पादन का निर्धारण 12. एकाधिकार में कीमत व उत्पादन का निर्धारण 13. एकाधिकार में कीमत विभेद 14. एकाधिकृत प्रतियोगिता</p>

B.A/B.Sc. – II Semester

(Paper - Major / Minor)

Course Title पाठ्यक्रम का शीर्षक	Indian Economy (भारतीय अर्थव्यवस्था)
Course Type पाठ्यक्रम का प्रकार	Major / Minor
Credit Value क्रेडिट मान	06
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषय वस्तु)
Unit -1 Introduction परिचय	<ol style="list-style-type: none">1. Characteristics of Indian Economy.2. Trends and Composition of National Income.3. Sectoral Distribution of Work force.4. Natural Resources Endowment- Land, Water, Livestock, Forest and Minerals.5. Demographic Features- Population Composition, Size and growth Rates .6. Problem and Causes of Over Population and Population Policy. <ol style="list-style-type: none">1. भारतीय अर्थव्यवस्था की विशेषताएँ2. राष्ट्रीय आय की क्षेत्रीय संरचना एवं प्रवृत्तिया3. श्रमशक्ति का क्षेत्रीय वितरण4. प्राकृतिक संसाधन सम्पदा- भूमि, जल, पशुधन, वन, खनिज5. जनांकिकीय विशेषताए - जनसंख्या की संरचना आकार एवं वृद्धि दर6. जनाधिक्य की समस्या एवं जनसंख्या नीति
Unit -2 Agriculture कृषि	<ol style="list-style-type: none">1. Nature, Importance and Characteristics of Indian Agriculture .2. Land Use Pattern and Land Reforms.3. Trends in Agricultural Production and Productivity .4. Green Revolution- Objective, Achievement and Failures.5. Agricultural Finance and Insurance .6. Agricultural Marketing .7. New Technology in Agriculture. <ol style="list-style-type: none">1. भारतीय कृषि की प्रकृति, महत्त्व और विशेषताएँ2. भू उपयोग पद्धति एवं भूमि सुधार3. कृषि उत्पादन और उत्पादकता की प्रवृत्तिया4. हरितक्रांति-उद्देश, सफलताए एवं विफलताए5. कृषि वित्त एवं बीमा6. कृषि विपणन

	7. कृषि में नवीन तकनीक
Unit -3 Industry and Infrastructure उद्योग एवं आधारभूत संरचना	<ol style="list-style-type: none"> 1. Industrial Development of India after Independence. 2. New Industrial Policy of 1991. 3. Role of Public Sector and Private Sector in Industrialization 4. MSME- Definition, Characteristics and its Role 5. Problems and Remedies of Small Scale and Cottage Industries 6. Start Up India, Make in India and Aatm Nirbhar Bharat 7. Infrastructure Composition- Power, Transport and Communication. <ol style="list-style-type: none"> 1. स्वतंत्रता प्राप्ति के पश्चात भारत का औद्योगिक विकास 2. नई औद्योगिक नीति 1991 3. औद्योगिकीकरण में सार्वजनिक एवं निजी क्षेत्र की भूमिका 4. सुक्ष्म, लघु और माध्यम उपक्रम (MSME) – परिभाषा, विशेषताएँ एवं इनकी भूमिका 5. लघु एवं कुटीर उद्योगों की समस्याएँ और समाधान 6. स्टार्टअप इंडिया, मेक इन इंडिया एवं आत्मनिर्भर भारत 7. आधारभूत संरचना – ऊर्जा, परिवहन एवं संचार
Unit -4 Foreign Trade and Development विदेशी व्यापार एवं विकास	<ol style="list-style-type: none"> 1. Indian's Foreign Trade- Importance, Composition and Direction. 2. Role of Foreign Direct Investment and Multinational Corporations. 3. Disinvestment in India. 4. Indian Planning - Objectives, Achievements and Failures. 5. NITI Aayog. 6. Indian Economic Problems- Poverty, Unemployment and Regional Inequality. <ol style="list-style-type: none"> 1. भारत का विदेशी व्यापार- महत्त्व, दशा एवं दिशा 2. प्रत्यक्ष विदेशी निवेश व बहुराष्ट्रीय निगमों की भूमिका 3. भारत में विनिवेश 4. भारतीय नियोजन - उद्देश्य, उपलब्धियाँ एवं विफलताएँ 5. नीति आयोग 6. भारतीय आर्थिक समस्याएँ- गरीबी, बेरोजगारी एवं क्षेत्रीय विषमताएँ
Unit -5 Economy of Madhya Pradesh मध्यप्रदेश की अर्थव्यवस्था	<ol style="list-style-type: none"> 1. Salient Features of Madhya Pradesh's Economy. 2. Natural Resources of Madhya Pradesh – Land, Forest, Water and Minerals. 3. Trends and Regional Disparities in Agricultural Sector of Madhya Pradesh. 4. Organic Farming and Polyhouse in Madhya Pradesh. 5. Industrial Development in Madhya Pradesh. 6. Infrastructure Development in Madhya Pradesh- Power, Transport and Communication. 7. Development of Tourism in Madhya Pradesh. 8. Employment Oriented Schemes in Madhya Pradesh.

	<ol style="list-style-type: none"> 1. मध्यप्रदेश की अर्थव्यवस्था की मुख्य विशेषताएँ 2. मध्यप्रदेश के प्राकृतिक संसाधन - भूमि, वन, जल एवं खनिज 3. मध्यप्रदेश में कृषि क्षेत्र की क्षेत्रीय विषमताएँ एवं प्रवृत्तियाँ 4. मध्यप्रदेश में जैविक खेती और पॉलिघर 5. मध्यप्रदेश में औद्योगिक विकास 6. मध्यप्रदेश में आधारभूत संरचना का विकास - ऊर्जा, परिवहन एवं संचार 7. मध्यप्रदेश में पर्यटन विकास 8. मध्यप्रदेश में रोजगार मूलक योजनाएँ
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(Paper - Elective)

Course Title पाठ्यक्रम का शीर्षक	Indian Economy: An Introduction (भारतीय अर्थव्यवस्था: एक परिचय)
Course Type	Elective

पाठ्यक्रम का प्रकार	
Credit Value क्रेडिट मान	04
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषय वस्तु)
Unit -1 Introduction परिचय	<p>7. Characteristics of Indian Economy. 8. Trends and Composition of National Income. 9. Sectoral Distribution of Work force. 10. Natural Resources Endowment- Land, Water, Livestock, Forest and Minerals. 11. Demographic Features- Population Composition, Size and growth Rates . 12. Problem and Causes of Over Population and Population Policy.</p> <p>7. भारतीय अर्थव्यवस्था की विशेषताएँ 8. राष्ट्रीय आय की क्षेत्रीय संरचना एवं प्रवृत्तियाँ 9. श्रमशक्ति का क्षेत्रीय वितरण 10. प्राकृतिक संसाधन सम्पदा- भूमि, जल, पशुधन, वन, खनिज 11. जनांकिकीय विशेषताएँ - जनसंख्या की संरचना आकार एवं वृद्धि दर 12. जनाधिक्य की समस्या एवं जनसंख्या नीति</p>
Unit -2 Agriculture कृषि	<p>8. Nature, Importance and Characteristics of Indian Agriculture . 9. Land Use Pattern and Land Reforms . 10. Trends in Agricultural Production and Productivity . 11. Green Revolution- Objective, Achievement and Failures . 12. Agricultural Finance and Insurance . 13. Agricultural Marketing . 14. New Technology in Agriculture.</p> <p>8. भारतीय कृषि की प्रकृति, महत्त्व और विशेषताएँ 9. भू उपयोग पद्धति एवं भूमि सुधार 10. कृषि उत्पादन और उत्पादकता की प्रवृत्तियाँ 11. हरितक्रांति-उद्देश, सफलताएँ एवं विफलताएँ 12. कृषि वित्त एवं बीमा 13. कृषि विपणन 14. कृषि में नवीन तकनीक</p>
Unit -3 Industry and Infrastructure उद्योग एवं आधारभूत संरचना	<p>8. Industrial Development of India after Independence. 9. New Industrial Policy of 1991. 10. Role of Public Sector and Private Sector in Industrialization 11. MSME- Definition, Characteristics and its Role 12. Problems and Remedies of Small Scale and Cottage Industries 13. Start Up India, Make in India and Aatm Nirbhar Bharat 14. Infrastructure Composition- Power, Transport and Communication.</p>

	<ol style="list-style-type: none"> 8. स्वतंत्रता प्राप्ति के पश्चात भारत का औद्योगिक विकास 9. नई औद्योगिक नीति 1991 10. औद्योगिकीकरण में सार्वजनिक एवं निजी क्षेत्र की भूमिका 11. सूक्ष्म, लघु और माध्यम उपक्रम (MSME) – परिभाषा, विशेषताएं एवं इनकी भूमिका 12. लघु एवं कुटीर उद्योगों की समस्याएं और समाधान 13. स्टार्टअप इंडिया, मेक इन इंडिया एवं आत्मनिर्भर भारत 14. आधारभूत संरचना – ऊर्जा, परिवहन एवं संचार
<p>Unit -4 Foreign Trade and Development विदेशी व्यापार एवं विकास</p>	<ol style="list-style-type: none"> 7. Indian's Foreign Trade- Importance, Composition and Direction. 8. Role of Foreign Direct Investment and Multinational Corporations. 9. Disinvestment in India. 10. Indian Planning - Objectives, Achievements and Failures. 11. NITI Aayog. 12. Indian Economic Problems- Poverty, Unemployment and Regional Inequality. <ol style="list-style-type: none"> 7. भारत का विदेशी व्यापार- महत्त्व, दशा एवं दिशा 8. प्रत्यक्ष विदेशी निवेश व बहुराष्ट्रीय निगमों की भूमिका 9. भारत में विनिवेश 10. भारतीय नियोजन - उद्देश, उपलब्धियां एवं विफलताएं 11. नीति आयोग 12. भारतीय आर्थिक समस्याएं- गरीबी, बेरोजगारी एवं क्षेत्रीय विषमताएँ

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Department of Economics

Syllabus

B.A./B.Sc. III Year

Session: 2023-24

B.A/B.Sc. – III Year
Group- A
(Paper – I Major)

Course Title	Economics of Growth and Development
Course Type	Group "A" (Paper-1)
Course Code	A3-ECON1D
Credit Value	06
Max. Marks	100

Unit	Topics
Unit 1- Introduction to Development Economics	<ol style="list-style-type: none"> 1. Concept of Economic Development and Economics Growth and its Determinants 2. Indicators and Obstacles of Economic Development 3. Concept of Sumangalam Development, its Characteristics and Relevance 4. The Vedic approach of Sustainable Development 5. Philosophy of Eightfold Path of Buddhism 6. Five Principle of Jainism 7. Concept of Gross Domestic Happiness, Its characteristics and Relevance 8. Review of Functions of Rajya- Ananadam Sansthan of Government of Madhya Pradesh
Unit -2 Different Measures and Indicators of Development	<ol style="list-style-type: none"> 1. Per capital Income(PCI) 2. Physical Quality of Life Index(PQLI) 3. Human Development Index(HDI) 4. Gender Related Development Index (GDI) 5. Gender Empower Measure(GEM) 6. Human Poverty Index(HPI) 7. Sen's Capability Approach 8. Inequality and Kuznet's Inverted 'U' Shape Curve 9. The Sustainable Development Goals(SDGs) 2030 Agenda
Unit -3 Theories of Growth	<ol style="list-style-type: none"> 1. Concept of Anekanta 2. Adam Smit's Theory 3. Marx's Theory of Economics Development 4. Schumpeter's Theory 5. Rostow's Stages of Growth 6. Critical Minimum Effort Thesis 7. Balanced and Unbalanced Growth 8. Big push Theory

Unit -4 Development models	<ol style="list-style-type: none"> 1. Charvaka Philosophy of Materialism 2. Jhon Robinson's Growth Model 3. Harrod- Domer Growth Model 4. Nelson Low Income Equilibrium Trap Model 5. Neo Classical Theory Of Growth by Solow 6. Kaldor's Growth Model 7. Mahalnobis Four Sector Growth Model 8. Interlinkages Between Environment and Development
Unit -5 Development Planning in Indian Perspective	<ol style="list-style-type: none"> 1. Contribution of Prof.Gadgil, Prof. Vakil and Prof. Brahmananda in Using Disguised Unemployment as Saving Potential 2. Pandit Deendayal Upadhyay's Economics Thoughts 3. Objectives of Economic Planning in India 4. Genesis and Functions of Planning Commission in India 5. Role Goals ,Achievement and Failures of Five Year Plans in India 6. Composition , Role and Function of NITI Aayog 7. Planning Commission vs NITI Aayog

B.A/B.Sc. – III Year

Group- A

(Paper – II Major)

Course Title	Statistics
Course Code	A3ECON2D
Course Type	Group “A” (Paper-2)
Credit Value	06
Max. Marks	100

Unit	Topics
Unit 1- Introduction	<ol style="list-style-type: none">1. Statistics- Meaning, definition, importance, scope and limitations2. Population and Sample, Sampling and Methods of Sampling.3. Data Collection- Primary and Secondary data.4. Classification and Tabulation of data.5. Presentation of Data - Diagrams and Graphs
Unit -2 Measures of Central Tendency :	<ol style="list-style-type: none">1. Central Tendency- Meaning, Importance and Characteristics.2. Arithmetic Mean, Geometric Mean, Harmonic Mean and Its application.3. Weighted Arithmetic Mean in Ancient India- An introduction.4. Median and Mode.5. Dispersion- Concept, Importance and Characteristics.6. Measures of Dispersion- Range, Quartile Deviation and Mean Deviation.7. Standard Deviation , Coefficient of Variation.8. Coefficient of Skewness
Unit -3 Correlation & Regression	<ol style="list-style-type: none">1. Correlation- Meaning, Types and Importance.2. Karl Pearson's Coefficient of Correlation3. Spearman's Rank Difference Coefficient of Correlation.4. Regression- Introduction5. Lines of Regression.6. Regression Coefficient7. Differences between Correlation and Regression and their uses.
Unit -4 Time Series & Index Number	<ol style="list-style-type: none">1. Time Series- Concepts, Components and Analysis.2. Measurements of Trend- Free-hand curve Method, Semi-moving Average Method , Moving Average Method , Methods of Least square .3. Index Number- Meaning, Characteristics, Importance, Uses, Limitations and Problems.4. Construction of Index Number- Fixed Base Method and Chain base Method5. Consumer Price Index Number.6. Laspeyre , Paasche and Fischer's Ideal Index Number.

	7. Test of Reversibility.
Unit-5 Probability and Sources of Data in India	<ol style="list-style-type: none">1. Probability- Definition and Concept.2. Calculation of Probability- Addition Theorem and Multiplication Theorem.3. Conditional Probability4. Sources of Data Collection in India5. Central Statistical Office6. Sources of Demographical, Agricultural and Industrial Data.

B.A/B.Sc. – III Year
(Paper – II Minor/ Elective)

Course Title	Gender Economics
Course Code	A3-ECON2T
Course Type	Minor/ Elective
Credit Value	06
Max. Marks	100

Unit	Topics
Unit-I Introduction	<ol style="list-style-type: none"> 1. Gender study- Concept, Objective, Nature and Scope 2. Importance of Gender study 3. Status of women in Indian society- From Early Vedic period to present 4. Role of Women Studies Centre- Recent trend in women's studies in India 5. Gender Equality- A Socio-economic need 6. Gender Inequality-Types, Causes and Effects 7. Vedic Teaching and women
Unit- II Women Demography and Health	<ol style="list-style-type: none"> 1.Characteristics of Women Demography 2. Population of Girl Child and Age structure 3.Sex Ratio and Fertility- Causes of declining sex ratio and fertility rate in India 4.Theories and measurement of fertility and its control 5. Health status of women- Social, economic and cultural factors influencing health 6.Gender bias and poor health-Health care system 7.Role of Education in the upliftment in the women's status in India 8.Brief life sketch and Economics of thought of dominant Indian women <ol style="list-style-type: none"> 8.1 Maitreyi 8.2 Gargi 8.3 Lopamudra 8.4 Rani Laxmibai 8.5 Kittur Chenamma 8.6 Rani Kamlapati

	<p>8.7 Rani Durgawati</p> <p>8.8 Joymoti Konwari</p> <p>8.9 Ahilayabai Holkar</p>
Unit-III Women and Development	<ol style="list-style-type: none"> 1. Participation of Women in Indian Society- Agriculture, Industries, services and others 2. Concept and evaluation of Home management 3. Female work participation in organized and unorganized sector 4. Women in labour market- discrepancy in work and wages 5. Impact of technological development and modernization on women's work participation in various sectors 6. Contribution of women in National Income 7. Concept of Gender Development Index (GDI) and Gender Gap Index (GGI) 8. Gender issues and Sustainable Development Goals
Unit-IV Women Empowerment	<ol style="list-style-type: none"> 1. Women Empowerment- Concept and Need and Challenges 2. National policies for the Empowerment of women 3. Women's activities and ecological and environmental concerns 4. Democratic Decentralization and Women's Empowerment in India 5. Role of Self Help Groups and voluntary organisations in Women Empowerment 6. Welfare schemes for Women Empowerment <ol style="list-style-type: none"> 6.1 Indira Awas Yojana 6.2 MNREGA 6.3 Mudra Yojana 6.4 Make in India 6.5 Startup India 6.6 Atmanirbhar Yojana 6.7 Beti Bachao Beti Padhao Scheme
Unit-V Women and Entrepreneurship	<ol style="list-style-type: none"> 1. Women Entrepreneurship- Concept, Need and Importance 2. Small Industries Development Bank of India (SIDBI) 3. Indian Institute of Entrepreneurship (IIE) 4. Role of women in economic decision making and control 5. Gender Budgeting 6. National Commission for Women

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Department of Economics

Syllabus

B.A./B.Sc. III & IV Semester

Session : 2023-24

B.A/B.Sc. – III Semester
(Paper – Major/Minor)

Course Title पाठ्यक्रम का शीर्षक	Macro Economics (समिष्टि अर्थशास्त्र)
Course Type पाठ्यक्रम का प्रकार	Major/Minor
Credit Value क्रेडिट मान	06
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषयवस्तु)
Unit 1- Concept of Macro Economics समिष्टि अर्थशास्त्र की अवधारणा	<ol style="list-style-type: none"> 1. Definition of Macro Economics, Subject Matter, Importance and Limitations 2. Interrelationship between Micro and Macro Economics. 3. Macro Economics Variables- Stock and Flow. 4. Circular Flow of Income 5. Definition and Different Concepts of National Income 6. Methods of Measuring National Income 7. Social Accounting of National Income 8. National Income and Economic Welfare 9. Ancient Indian Concept of Income, Debt and Charity. (Market Failure and Charity) - Rig Ved-117 Hymn, Bhsim Parv of Mahabharata (Book/Vol -VI) <ol style="list-style-type: none"> 1. समिष्टि अर्थशास्त्र की परिभाषा, विषयवस्तु महत्व एवं सीमाएँ 2. समिष्टि और व्यष्टि अर्थशास्त्र में अंतर्संबंध 3. समिष्टि आर्थिक चर –स्टॉक और प्रवाह 4 आय का चक्रीय प्रवाह 5. राष्ट्रीय आय की परिभाषा एवं विभिन्न अवधारणाएँ 6. राष्ट्रीय आय को मापने की विधियाँ 7.राष्ट्रीय आय का सामाजिक लेखांकन 8. राष्ट्रीय आय एवं आर्थिक कल्याण 9.आय, ऋण और दान की प्राचीन भारतीय अवधारणा (बाजार की विफलताएँ और दान) ऋग्वेद ऋचा-117,महाभारत का भीष्म पर्व (पुस्तक /खण्ड-VI)

<p>Unit -2 Determination of Employment रोजगार का निर्धारण:</p>	<ol style="list-style-type: none"> 1. Classical Theory of Employment- Say's Market Law, Wage Price Flexibility. 2. Keynes' Employment Theory- Aggregate Demand Function, Aggregate Supply Function and Effective Demand. 3. Applicability of Keynes' Employment Theory in Developing Countries. 4. Psychological Law of Consumption. 5. Consumption Function- Marginal Propensity to consume, Average Propensity to Consume, Marginal Propensity to Save and Average Propensity to Save. 6. Principle of Multiplier. 7. Accelerator Principle <ol style="list-style-type: none"> 1. रोजगार का प्रतिष्ठित सिद्धांत- 'से' का बाजार नियम, मजदूरी कीमत नम्यता 2. कीन्स का रोजगार सिद्धांत- समग्र मांग फलन, समग्र पूर्ति फलन, प्रभावपूर्ण मांग 3. विकासशील देशों में कीन्स के रोजगार सिद्धांत की व्यावहारिकता 4. उपभोग का मनोवैज्ञानिक नियम 5. उपभोग फलन – सीमांत उपभोग प्रवृत्ति, औसत उपभोग, सीमांत बचत प्रवृत्ति, औसत बचत प्रवृत्ति 6. गुणक सिद्धांत 7. त्वरक सिद्धांत
<p>Unit -3 Investment विनियोग:</p>	<ol style="list-style-type: none"> 1. Investment – Meaning, Types and Motivation. 2. Marginal Efficiency of Capital (MEC). 3. Marginal Efficiency of Investment (MEI). 4. Keynes's Liquidity Preference Theory 5. Determination of Equilibrium IS Curve in Real Sector and Equilibrium LM Curve in Monetary sector-IS-LM Model. 6. Monetary Policy- Meaning, Tools and Effectiveness. 7. Fiscal Policy- Meaning, Tools and Effectiveness. <ol style="list-style-type: none"> 1. विनियोग- अर्थ, प्रकार एवं प्रेरणा 2. पूंजी की सीमांत क्षमता (MEC) 3. विनियोग की सीमांत क्षमता (MEI) 4. कीन्स का तरलता पसंदगी सिद्धांत 5. वास्तविक क्षेत्र में साम्य आई एस वक्र (IS CURVE) एवं मौद्रिक क्षेत्र में साम्य एल एम (LM) वक्र का निर्धारण-आई एस - एल एम (ISLM) मॉडल 6. मौद्रिक नीति - अर्थ, उपकरण एवं प्रभावशीलता 7. राजकोषीय नीति - अर्थ, उपकरण एवं प्रभावशीलता

<p>Unit -4 Inflation and Deflation मुद्रास्फीति ,अवस्फीति</p>	<ol style="list-style-type: none"> 1. Meaning of Inflation, Deflation and Stagflation. 2. Types and Effects of Inflation. 3. Principles of Inflation- Demand pull Inflation and Cost Push Inflation. 4. Measures to control Inflation. 5. Effects of Deflation and Measure to control Deflation. 6. Philips Curve. 7. Measurements of Inflation in India-Wholesale Price Index (WPI), Consumer Price Index (CPI), GDP deflator <ol style="list-style-type: none"> 1.मुद्रास्फीति ,अवस्फीति ,स्फितिजनित मंदी (Stagflation) का अर्थ 2.मुद्रास्फीति के प्रकार एवं प्रभाव 3.मुद्रास्फीति के सिद्धांत- मांग प्रेरित स्फीति एवं लागत प्रेरित स्फीति 4.मुद्रास्फीति को नियंत्रण करने के उपाय 5.अवस्फीति के प्रभाव एवं नियंत्रण करने के उपाय 6.फिलिप्स वक्र 7.भारत में मुद्रास्फीति का मापन – थोक मूल्य सूचकांक (WPI), उपभोक्ता मूल्य सूचकांक (CPI) जी डी पी इफ्लेक्टर
<p>Unit -5 Trade Cycle व्यापार चक्र</p>	<ol style="list-style-type: none"> 1. Meaning and Phases of Trade cycle 2. Theories of Trade Cycle 3. Schumpeter's Innovation Theory 4. Keynesian Theory. 5. Kaldor's Theory 6. Samuelson's Theory 7. Hicksian Theory 8. Measures to control Trade Cycle <ol style="list-style-type: none"> 1. व्यापार चक्र का अर्थ और अवस्थाएँ 2. मौद्रिक सिद्धांत 3. शुम्पीटर का नवप्रवर्तन सिद्धांत 4. कीन्स का सिद्धांत 5. कॉल्डोर का सिद्धांत 6. सैमुल्सन का सिद्धांत 7. हिक्स का सिद्धांत 8. व्यापार चक्र को नियंत्रित करने के उपाय

B.A/B.Sc. – III Semester
(Paper – Elective)

Course Title पाठ्यक्रम का शीर्षक	Macro Economics (समिष्टि अर्थशास्त्र)
Course Type पाठ्यक्रम का प्रकार	Elective
Credit Value क्रेडिट मान	04
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषयवस्तु)
Unit 1- Concept of Macro Economics समिष्टि अर्थशास्त्र की अवधारणा	<ol style="list-style-type: none"> 1. Definition of Macro Economics, Subject Matter, Importance and Limitations 2. Interrelationship between Micro and Macro Economics. 3. Macro Economics Variables- Stock and Flow. 4. Circular Flow of Income 5. Definition and Different Concepts of National Income 6. Methods of Measuring National Income 7. Social Accounting of National Income 8. National Income and Economic Welfare 9. Ancient Indian Concept of Income, Debt and Charity. (Market Failure and Charity) - Rig Ved-117 Hymn, Bhsim Parv of Mahabharata (Book/Vol -VI) <ol style="list-style-type: none"> 1. समिष्टि अर्थशास्त्र की परिभाषा, विषयवस्तु महत्व एवं सीमाएँ 2. समिष्टि और व्यष्टि अर्थशास्त्र में अंतर्संबंध 3. समिष्टि आर्थिक चर –स्टॉक और प्रवाह 4. आय का चक्रीय प्रवाह 5. राष्ट्रीय आय की परिभाषा एवं विभिन्न अवधारणाएँ 6. राष्ट्रीय आय को मापने की विधियाँ 7.राष्ट्रीय आय का सामाजिक लेखांकन 8. राष्ट्रीय आय एवं आर्थिक कल्याण 9.आय, ऋण और दान की प्राचीन भारतीय अवधारणा (बाजार की विफलताएँ और दान) ऋग्वेद ऋचा-117,महाभारत का भीष्म पर्व (पुस्तक /खण्ड-VI)

<p>Unit -2 Determination of Employment रोजगार का निर्धारण:</p>	<ol style="list-style-type: none"> 1. Classical Theory of Employment- Say's Market Law, Wage Price Flexibility. 2. Keynes' Employment Theory- Aggregate Demand Function, Aggregate Supply Function and Effective Demand. 3. Applicability of Keynes' Employment Theory in Developing Countries. 4. Psychological Law of Consumption. 5. Consumption Function- Marginal Propensity to consume, Average Propensity to Consume, Marginal Propensity to Save and Average Propensity to Save. 6. Principle of Multiplier. 7. Accelerator Principle <ol style="list-style-type: none"> 1. रोजगार का प्रतिष्ठित सिद्धांत- 'से' का बाजार नियम, मजदूरी कीमत तन्म्यता 2. कीन्स का रोजगार सिद्धांत- समग्र मांग फलन, समग्र पूर्ति फलन, प्रभावपूर्ण मांग 3. विकासशील देशों में कीन्स के रोजगार सिद्धांत की व्यावहारिकता 4. उपभोग का मनोवैज्ञानिक नियम 5. उपभोग फलन – सीमांत उपभोग प्रवृत्ति, औसत उपभोग, सीमांत बचत प्रवृत्ति, औसत बचत प्रवृत्ति 6. गुणक सिद्धांत 7. त्वरक सिद्धांत
<p>Unit -3 Investment विनियोग:</p>	<ol style="list-style-type: none"> 1. Investment – Meaning, Types and Motivation. 2. Marginal Efficiency of Capital (MEC). 3. Marginal Efficiency of Investment (MEI). 4. Keynes' s Liquidity Preference Theory 5. Determination of Equilibrium IS Curve in Real Sector and Equilibrium LM Curve in Monetary sector-IS-LM Model. 6. Monetary Policy- Meaning, Tools and Effectiveness. 7. Fiscal Policy- Meaning, Tools and Effectiveness. <ol style="list-style-type: none"> 1. विनियोग- अर्थ, प्रकार एवं प्रेरणा 2. पूंजी की सीमांत क्षमता (MEC) 3. विनियोग की सीमांत क्षमता (MEI) 4. कीन्स का तरलता प्रसंगी सिद्धांत 5. वास्तविक क्षेत्र में साम्य आई एस वक्र (IS CURVE) एवं मौद्रिक क्षेत्र में साम्य एल एम (LM) वक्र का निर्धारण-आई एस - एल एम (ISLM) मॉडल 6. मौद्रिक नीति - अर्थ, उपकरण एवं प्रभावशीलता 7. राजकोषीय नीति - अर्थ, उपकरण एवं प्रभावशीलता
<p>Unit -4 Inflation and Deflation मुद्रास्फीति, अवस्फीति</p>	<ol style="list-style-type: none"> 1. Meaning of Inflation, Deflation and Stagflation. 2. Types and Effects of Inflation. 3. Principles of Inflation- Demand pull Inflation and Cost Push Inflation. 4. Measures to control Inflation. 5. Effects of Deflation and Measure to control Deflation. 6. Philips Curve.

	<p>7. Measurements of Inflation in India-Wholesale Price Index (WPI), Consumer Price Index (CPI), GDP deflator</p> <ol style="list-style-type: none">1.मुद्रास्फीति ,अवस्फीति ,स्फितिजनित मंदी (Stagflation) का अर्थ2.मुद्रास्फीति के प्रकार एवं प्रभाव3.मुद्रास्फीति के सिद्धांत- मांग प्रेरित स्फीति एवं लागत प्रेरित स्फीति4.मुद्रास्फीति को नियंत्रण करने के उपाय5.अवस्फीति के प्रभाव एवं नियंत्रण करने के उपाय6.फिलिप्स वक्र7.भारत में मुद्रास्फीति का मापन – थोक मूल्य सूचकांक (WPI), उपभोक्ता मूल्य सूचकांक (CPI) जी डी पी डफ्लेक्टर
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B.A/B.Sc. – IV Semester
(Paper – Major/Minor)

Course Title पाठ्यक्रम का शीर्षक	Money, Banking and Public Finance (मुद्रा, बैंकिंग तथा लोकवित्त)
Course Type पाठ्यक्रम का प्रकार	Major/ Minor
Credit Value क्रेडिट मान	06
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषयवस्तु)
Unit 1	<p>Money:</p> <ol style="list-style-type: none"> 1. Money- Definition, Functions and Classification 2. Importance of Money 3. Value of Money and Quantitative Theory of Money- Cash Transaction Approach, Cash Balance Approach and Keynesian Approach 4. Quantity Theory of Milton Friedman 5. Main Components of Money Supply, High Powered Money, Concept of Money Multiplier, Factors Affecting Money Supply, Plastic Money <ol style="list-style-type: none"> 1. मुद्रा ,परिभाषा -कार्य एवं वर्गीकरण 2. मुद्रा का महत्त्व 3. मुद्रा का मूल्य एवं मुद्रा का परिमाण सिद्धांत- तकद लेनदेन दृष्टिकोण ,तकद शेष दृष्टिकोण एवं कीन्स का दृष्टिकोण 4. मिल्टन फ्रीडमैन का परिमाण सिद्धांतस 5. मुद्रा पूर्ति के मुख्य घटक, उच्च शक्ति मुद्रा, मुद्रा गुणक की अवधारणा, मुद्रा पूर्ति को प्रभावित करने वाले तत्व, प्लास्टिक मुद्रा
Unit -2	<p>Banking:</p> <ol style="list-style-type: none"> 1. Bank – Definition and Types 2. Functions of Commercial Banks 3. Process of Credit Creation by Commercial Banks 4. Introduction of Internet Banking and Retail Banking 5. Meaning and Importance of Central Bank 6. Functions of Central Bank 7. Credit Control by Central Bank- Quantitative and Qualitative Methods <ol style="list-style-type: none"> 1. बैंक- परिभाषा एवं प्रकार

	<ol style="list-style-type: none"> 2. व्यापारिक बैंको के कार्य 3. व्यापारिक बैंको द्वारा साख निर्माण की प्रक्रिया 4. इन्टरनेट बैंकिंग एवं खुदरा बैंकिंग का परिचय 5. केन्द्रीय बैंक का अर्थ एवं महत्त्व 6. केन्द्रीय बैंक के कार्य 7. केन्द्रीय बैंक द्वारा साख नियन्त्रण- गुणात्मक एवं परिमाणात्मक विधियां
Unit -3	<p>Introduction of Public Finance:</p> <ol style="list-style-type: none"> 1. Public Finance- Meaning, Nature and Scope 2. Distinction between Private and Public Finance 3. Public Goods, Private Goods and Merit Goods 4. Market Failures and Role of State 5. Principle of Maximum Social Advantage 6. Public Expenditure- Meaning and Classification 7. Principle of Public Expenditure- Wagner's Hypothesis, Peacock and Wiseman Approach 8. Causes and Effects of Increasing Public Expenditure 9. Public Expenditure in India <p>लोक वित्त का परिचय :</p> <ol style="list-style-type: none"> 1. लोक वित्त – अर्थ, प्रकृति एवं क्षेत्र 2. लोक वित्त एवं निजी वित्त में अंतर 3. सार्वजनिक वस्तुएं, निजी वस्तुएं एवं उत्कृष्ट वस्तुएं 4. बाज़ार की असफलता एवं राज्य की भूमिका 5. अधिकतम सामाजिक लाभ का सिधांत 6. सार्वजनिक व्यय का अर्थ एवं वर्गीकरण 7. सार्वजनिक व्यय के सिधांत- वेगनर की परिकल्पना, पिकाक एवं वाइजमैन की अवधारणा 8. बढ़ते सार्वजनिक व्यय के कारण एवं प्रभाव 9. भारत में सार्वजनिक व्यय

<p>Unit -4</p>	<p>Public Revenue:</p> <ol style="list-style-type: none"> 1. Sources of Public Revenue 2. Taxation- Meaning, Classification and Canons of Taxation 3. Incidence and Shifting of Taxation 4. GST- An Introduction 5. Taxable Capacity in India 6. Effects of Taxation 7. Characteristics of India Tax Structure 8. Prices and Taxes, Shanti Parv of - Book XII of Mahabharat 9. Concept of Public Goods and Taxes as per Kautilya <p>सार्वजनिक आय :</p> <ol style="list-style-type: none"> 1. सार्वजनिक आय के स्रोत 2. कराधान –अर्थ , वर्गीकरण और करारोपण के सिद्धांत 3. करापात एवं कर विवर्तन 4. वस्तु एवं सेवा कर (GST) का सामान्य परिचय 5. भारत में करदान छमता 6. करारोपण के प्रभाव 7. भारतीय कर ढांचे की विशेषताएँ 8. मूल्य और कर- शांति पर्व -पुस्तक XII महाभारत 9. कौटिल्य के अनुसार सार्वजनिक वस्तुओं और करों की अवधारणा
<p>Unit -5</p>	<p>Public Debt and Financial Administration:</p> <ol style="list-style-type: none"> 1. Public Debt- Meaning Type and Sources 2. Effects of Public Debt 3. Methods of Public Debt Redemption 4. Public Debt in India 5. Deficit Financing 6. Federal Finance in India 7. Recommendation of Latest Finance Commission in India 8. Latest Budget of Centre and State 9. Grasp of Economics Policies of Statehood: Sabha Parv of Book II of Mahabharat <p>सार्वजनिक ऋण एवं वित्तीय प्रशासन</p> <ol style="list-style-type: none"> 1. सार्वजनिक ऋण – अर्थ , प्रकार एवं स्रोत 2. सार्वजनिक ऋण के प्रभाव 3. सार्वजनिक ऋण शोधन की विधियाँ

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| | <ol style="list-style-type: none">4. भारत में सार्वजनिक ऋण5. घाटे की वित्त व्यवस्था6. भारत में संघीय वित्त7. नवीनतम वित्त आयोग की अनुशंशाएं8. केंद्र एवं राज्य के नवीन बजट9. राज्य की आर्थिक नीतियों की समझ- महाभारत पुस्तक II का सभा पर्व। |
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B.A/B.Sc. – IV Semester
(Paper – Elective)

Course Title पाठ्यक्रम का शीर्षक	Money, Banking and Public Finance (मुद्रा, बैंकिंग तथा लोकवित्त)
Course Type पाठ्यक्रम का प्रकार	Major/Minor
Credit Value क्रेडिट मान	04
Max. Marks अधिकतम अंक	100

Unit (इकाई)	Topics (विषयवस्तु)
Unit 1	<p>Money:</p> <p>6. Money- Definition, Functions and Classification</p> <p>7. Importance of Money</p> <p>8. Value of Money and Quantitative Theory of Money- Cash Transaction Approach, Cash Balance Approach and Keynesian Approach</p> <p>9. Quantity Theory of Milton Friedman</p> <p>10. Main Components of Money Supply, High Powered Money, Concept of Money Multiplier, Factors Affecting Money Supply, Plastic Money</p> <p>6. मुद्रा ,परिभाषा -कार्य एवं वर्गीकरण</p> <p>7. मुद्रा का महत्त्व</p> <p>8. मुद्रा का मूल्य एवं मुद्रा का परिमाण सिद्धांत- नकद लेनदेन दृष्टिकोण ,नकद शेष दृष्टिकोण एवं कीन्स का दृष्टिकोण</p> <p>9. मिल्टन फ्रीडमैन का परिमाण सिद्धांतस</p> <p>10. मुद्रा पूर्ति के मुख्य घटक, उच्च शक्ति मुद्रा, मुद्रा गुणक की अवधारणा, मुद्रा पूर्ति को प्रभावित करने वाले तत्व, प्लास्टिक मुद्रा</p>
Unit -2	<p>Banking:</p> <p>8. Bank – Definition and Types</p> <p>9. Functions of Commercial Banks</p> <p>10. Process of Credit Creation by Commercial Banks</p> <p>11. Introduction of Internet Banking and Retail Banking</p> <p>12. Meaning and Importance of Central Bank</p> <p>13. Functions of Central Bank</p> <p>14. Credit Control by Central Bank- Quantitative and Qualitative Methods</p>

	<ol style="list-style-type: none"> 1. बैंक- परिभाषा एवं प्रकार 2. व्यापारिक बैंको के कार्य 3. व्यापारिक बैंको द्वारा साख निर्माण की प्रक्रिया 4. इन्टरनेट बैंकिंग एवं खुदरा बैंकिंग का परिचय 5. केन्द्रीय बैंक का अर्थ एवं महत्व 6. केन्द्रीय बैंक के कार्य 7. केन्द्रीय बैंक द्वारा साख नियन्त्रण- गुणात्मक एवं परिमाणात्मक विधियां
Unit -3	<p>Introduction of Public Finance:</p> <ol style="list-style-type: none"> 10. Public Finance- Meaning, Nature and Scope 11. Distinction between Private and Public Finance 12. Public Goods, Private Goods and Merit Goods 13. Market Failures and Role of State 14. Principle of Maximum Social Advantage 15. Public Expenditure- Meaning and Classification 16. Principle of Public Expenditure- Wagner's Hypothesis, Peacock and Wiseman Approach 17. Causes and Effects of Increasing Public Expenditure 18. Public Expenditure in India <p>लोक वित्त का परिचय :</p> <ol style="list-style-type: none"> 1. लोक वित्त - अर्थ, प्रकृति एवं क्षेत्र 2. लोक वित्त एवं निजी वित्त में अंतर 3. सार्वजनिक वस्तुएं, निजी वस्तुएं एवं उत्कृष्ट वस्तुएं 4. बाज़ार की असफलता एवं राज्य की भूमिका 5. अधिकतम सामाजिक लाभ का सिद्धांत 6. सार्वजनिक व्यय का अर्थ एवं वर्गीकरण 7. सार्वजनिक व्यय के सिद्धांत- वेगनर की परिकल्पना, पिकॉक एवं वाहजमैन की अवधारणा 8. बढ़ते सार्वजनिक व्यय के कारण एवं प्रभाव 9. भारत में सार्वजनिक व्यय

Unit -4

Public Revenue:

1. Sources of Public Revenue
2. Taxation- Meaning, Classification and Canons of Taxation
3. Incidence and Shifting of Taxation
4. GST- An Introduction
5. Taxable Capacity in India
6. Effects of Taxation
7. Characteristics of India Tax Structure
8. Prices and Taxes, Shanti Parv of - Book XII of Mahabharat
9. Concept of Public Goods and Taxes as per Kautilya

सार्वजनिक आय :

1. सार्वजनिक आय के स्रोत
2. कराधान -अर्थ , वर्गीकरण और करारोपण के सिद्धांत
3. करापात एवं कर विवर्तन
4. वस्तु एवं सेवा कर (GST) का सामान्य परिचय
5. भारत में करदान छमता
6. करारोपण के प्रभाव
7. भारतीय कर ढांचे की विशेषताएँ
8. मूल्य और कर- शांति पर्व -पुस्तक XII महाभारत
9. कौटिल्य के अनुसार सार्वजनिक वस्तुओं और करों की अवधारणा



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

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SYLLABUS

UG

HISTORY

HISTORY SYLLABUS

SESSION- 2023-24


B. A. Program


Class -BA First Semester
Course Title- Idea of Bharat


Course code - AI-HIST-1T
Credit -06

Unit 1	Concept of Bharatvarsha I. Understanding of Bharatvarsha II. Eternity of synonyms Bharat III. Indian concept of time and space The glory of Indian Literature: Ved, Vedanga, Upanishads, Epics, Jain and Buddhist Literature, Smriti, Puranas Etc.
Unit 2	Indian Knowledge Tradition, Art and Culture I. Evolution of language and Script: Brahmi, Kharoshiti, Pali, Prakrit, Sanskrit, etc. II. Salient features of Indian Art & Culture III. Indian educational system IV. The ethics of Indian valor
Unit 3	Dharma, Philosophy and VasudhaivaKutumbakam I. Indian perception of Dharma and Darshan II. The concept of VasudhaivaKutumbakam : Man, Family, Society and world III. Polity and governance IV. The concept of Janpada & Gram Swarajya
Unit 4	Science, Environment and Medical Science I. Science and Technology in Ancient India II. Environmental conservation: Indian View III. Health consciousness of (Science of Life): Ayurveda Yoga and Naturopathy IV. Indian Numeral system and Mathematics
Unit 5	Indian Economic Traditions I. Indian economic thoughts II. Concept of land, forest and agriculture III. Industry, inland trade commerce IV. Maritime Trade

B. A. Program

 - LRNG (Local, Regional, National, Global)

 - EES (Employability, Entrepreneurship, Skills)

 - CCI (Cross-Cutting issues)

CLASS : BA SECOND SEMESTER

SESSION- 2023-24

SUBJECT -HISTORY

CRIDET -06

PAPER - History of Ancient India (From Early to 1205 AD)

TOTAL MARKS- 60

Unit	Topics	No. of Lectures
I	<p>Prehistoric and Protohistoric period</p> <p>History- Meaning, Nature, Scope, and Significance. Sources of Ancient Indian History. Geographic Condition of Ancient India.</p> <p>Prehistoric India: Stone Age- Paleolithic, Mesolithic, Neolithic, and Chalcolithic Cultures.</p> <p>Prehistoric India- Indus/ Saraswati Civilization Origin Expansion and Decline.</p> <p>Economic, Social and Religious Life. Town Planning and Different Arts.</p>	18
II	<p>Mauryan And Post-Mauryan Period Mahajanapadas and Republics In 6th Century BC.</p> <p>Religion Revolution in North India- Jainism and Buddhism.</p> <p>Rise of Magadh, Alexander& Invasion and Its Impact.</p> <p>Establishment of Maurya, Dynasty- Chandragupta Maurya and His Administration.</p> <p>Ashoka and His Dhamma, Mauryan Culture and Architecture. Decline of Mauryan Empire.</p> <p>Shunga Dynasty- Pushyamitra Sunga and his Achievements.</p>	18

	<p>Satavahana Dynasty Gautamiputra Satakarni and His Achievements.</p> <p>Period of Shaka -Kshatrapas.</p> <p>Kushana Dynasty- Kanishka and His Achievements, Gandhara and Mathura Art.</p>	
III	<p>Gupta Period And Harshvardhan Establishment of Gupta Dynasty Chandragupta I, Samudragupta, Chandragupta II (Vikramaditya) , Kumargupta And Skandagupta And Their Achievements.</p> <p>Gupta Culture, Gupta Period: Golden Age Gupta-Vakataka Relations. Shakari Vikramaditya And His Cultural Achievements. Decline of Gupta Empire. Huna Invasion And its Impact. Pushyabhuti Dynasty. Harshvardhan - Military Campaigns Administration and Religious Achievements.</p>	18
IV	<p>Early mediaeval dynasty of Northern India, origin of the Rajput- Different Theories, Major Rajput Dynasty, Gurjar Pratihara Dynasty, Chandela Dynasty Paramara Dynasty and Kalchuri Dynasty- History, Culture and Architecture. Bhoj And His Cultural Achievement.</p>	18
V	<p>South Indian Dynasties and Foreign Invasions on India. Major Dynasties of South India -Pallava Dynasty, Chalukya Dynasty, Rashtrakutra Dynasty and Chola Dynasty- History, Culture and Architecture. Greater India: Expansion of Indian Culture in Southeast Asia. Arab Invasion on India and Its Impact. Muhammad Bin Qasim, Turk Invasions on India and their Impact. Mehmud Ghaznavi And Mohammad Ghori.</p>	18

CLASS: BA III SEMESTER
HISTORY- MAJOR/MINOR

SESSION- 2023-24

PAPER - HISTORY OF MEDIEVAL INDIA FROM 1206 TO 1739AD

CRIDET -06

TOTAL MARKS-60

Unit	Topics	No. of Lectures
I	<p>Sultanate Period- Sources and Administration</p> <p>Sources of Medieval Indian History.</p> <p>Establishment and Consolidation of The Delhi Sultanate: Slave Dynasty –Qutubuddin Aibak and Iltutmish, Razia and Balban.</p> <p>Khilji Dynasty: Jalaluddin and Allauddin Khilji, His Conquests, Administration and Reforms</p> <p>The Mongol Invasion and Its Impact.</p> <p>Tughlaq Dynasty: Mohammad Bin Tughlaq and Firoz Shah Tughlaq-Their Achievements</p>	18
II	<p>Rise of Regional Kingdoms And Mughal Invasion</p> <p>Vijaynagar And Bahmani Kingdoms: Harihar- Bukka and Raja Krishnadev Rai</p> <p>Gouri Dynasty of Malwa: Dilawar Khan and Hoshangshah- Their Achievements.</p> <p>The Roll of Rana Kumbha and Rana Sanga in Medieval Period</p> <p>Mughal Invasion: Babur and Humayun- Their Achievements. Sher Shah Suri- Achievements and Administration.</p>	18
III	<p>Consolidation of Mughal Empire and Regional Powers</p> <p>Akbar Administrative and Cultural Achievements. Jahangir And Shah Jahan: Their Achievements. Rise of Marathas: Shivaji's Conquests and Administration. Mughal- Rajput Relations with Special Reference to Rana Pratap.</p>	18

	<p>Mughal Sikh Relations. Mughal Bundela Relation With Special Reference to Chhatrasal Bundela.</p> <p>Mughal- Gond Relation with Special Reference to Rani Durgavati. Aurangzeb and The Decline of Mughal Empire.</p> <p>Aurangzeb Religious and Deccan Policy. Invasion of Nadir Shah and Its Impact.</p>	
IV	<p>Society And Economy Economic Conditions in Sultanate Period- Agriculture, Industry and Trade.</p> <p>Social Life of Sultanate Period and Status of Women.</p> <p>Mughal Administration, Land Revenue System, Mansabdari and Jagirdari System</p> <p>Social Life in The Mughal Period, Status of Women.</p> <p>Economic Condition and Mughal Period – Agriculture, Trade, Industry and Commerce. Development of Literature In Medieval Period</p>	18
V	<p>Religion And Culture</p> <p>Religious Life in Sultanate Period.</p> <p>Religious Life in Mughal Period. Bhakti Movement and Sufi Tradition.</p> <p>Saint Tradition in India. Guru Nanak, Kabir, Tulsi Das, Meera Bai.</p> <p>Architecture of Sultanate Period</p> <p>Architecture of Mughal Periods. Paintings Of Mughal Style and Rajput Style.</p> <p>Role of Noor Jahan, Chand Bibi and Jijabai in History.</p>	18

SESSION- 2023-24

CLASS: BA III SEMESTER

HISTORY- ELECTIVE

PAPER - HISTORY OF MEDIEVAL INDIA FROM 1206 TO 1739AD

CRIDET -04

TOTAL MARKS-60

Unit	Topics	No. of Lectures
I	<p>Sultanate Period- Sources and Administration</p> <p>Sources of Medieval Indian History.</p> <p>Establishment and Consolidation of The Delhi Sultanate: Slave Dynasty –Qutubuddin Aibak and Iltutmish, Razia and Balban.</p> <p>Khilji Dynasty: Jalaluddin and Allauddin Khilji, His Conquests, Administration and Reforms.</p> <p>The Mongol Invasion and Its Impact.</p> <p>Tughlaq Dynasty: Mohammad Bin Tughlaq and Firoz Shah Tughlaq-Their Achievements</p>	18
II	<p>Rise of Regional Kingdoms And Mughal Invasion</p> <p>Vijaynagar And Bahmani Kingdoms: Harihar- Bukka and Raja Krishnadev Rai.</p> <p>Gouri Dynasty of Malwa: Dilawar Khan and Hoshangshah-Their Achievements.</p> <p>The Roll of Rana Kumbha and Rana Sanga in Medieval Period.</p> <p>Mughal Invasion: Babur and Humayun- Their Achievements. Sher Shah Suri- Achievements and Administration.</p>	18

<p>III</p>	<p>Consolidation of Mughal Empire and Regional Powers</p> <p>Akbar: Administrative and Cultural Achievements. Jahangir And Shah Jahan: Their Achievements.</p> <p>Rise of Marathas: Shivaji's Conquests and Administration. Mughal- Rajput Relations with Special Reference to Rana Pratap.</p> <p>Mughal Sikh Relations. Mughal Bundela Relation With Special Reference to Chhatrasal Bundela.</p> <p>Mughal- Gond Relation with Special Reference To Rani Durgavati. Aurangazeb and The Decline of Mughal Empire.</p> <p>Aurangazeb Religious and Deccan Policy. Invasion of Nadir Shah and Its Impact.</p>	<p>18</p>
<p>IV</p>	<p>Society And Economy</p> <p>Economic Conditions in Sultanate Period- Agriculture, Industry and Trade.</p> <p>Social Life of Sultanate Period and Status of Women.</p> <p>Mughal Administration, Land Revenue System, Mansabdari and Jagirdari System.</p> <p>Social Life in The Mughal Period, Status of Women.</p> <p>Economic Condition and Mughal Period – Agriculture, Trade, Industry and Commerce. Development of Literature in Medieval Period.</p>	<p>18</p>

DEPARTMENT OF HISTORY

SESSION- 2023-24

Class	Old Scheme
Subject	: B.A. III Year
Paper	: History
Title of The paper	: First
	: History of India (1740 to 1857 A.D.)

(भारत का इतिहास ((1740 to 1857 ई. तक)

TOTAL MARKS-40

Unit	Topics	No. of Lectures
I	Political Trends in the Mid 18 th century, Anglo- French conflict in Karnataka, Third Battle of Panipat, Establishment of East India Company in India. Battle of Plassey and Buxar, Diwani of Bengal, Bihar and Orissa, Dual Government.	18
II	Growth of Colonial Administration – Warren Hastings and Lord Cornwallis, Regulating Act. Pitt’s India Act. Anglo- Maratha Relations, Anglo- Mysore Relation, Wellesley and the Subsidiary Alliances.	18
III	Maharaja Ranjit Singh and Anglo- Sikh Relations, Lord Hastings and British Paramountcy, Downfall of Marathas, Anglo- Burmese Relation, Anglo- Afghan Relations, Lord Dalhousie and the Doctrine of Lapse, his Administration and Reforms, First Freedom Movement of 1857- causes, Nature and results. Role of Women in freedom Struggle – Laxmi Bai, Awanti Bai, Jhalkari Bai.	18

IV	<p>Indian Renaissance, Socio- Religious Movements- Raja Ram Mohan Roy and Brahma Samaj, Lord William Bentinck, Status of Women, Growth of Western Education, Modernization of India, Conspiracy of Lord Macaulay, the theory of Filtration.</p>	18
V	<p>British land Revenue, Settlement- Permanent Settlement, Ryatwari and Mahalwari System, Condition of Peasants, Rural Indebtedness, commercialization of Agriculture, Drain of Wealth, Decline of Cottage Industries.</p>	

Class
Subject
Paper
Title of The paper

: B.A. III Year
: History
: Second
: History of India (1858 to 1950 A.D.)
(भारतकाइतिहास ((1858 to 1950ई. तक)

Max.Marks 40

Unit	Topics	No. of Lectures
1	Queen Victoria's Proclamation, Act of 1858, Indian Council Act 1861, Internal Administration of Lord Lytton and Ripon, Political Associations and the Indian National Congress, Indian Council Act of 1892	18
2	Lord Curzon and the partition of Bengal, Swadeshi Movement, Moderates, Extremists and Revolutionaries, Government Act of India-1909, Peasant and Tribal Movements, Home Rule Movement, Lucknow Pact, Rowlatt Act, Jallianwala Bagh Massacre, Government of India Act 1919 and Dyarchy.	
3	Gandhian Era, Khilafat and Non Cooperation Movement, Swarajists, Simon Commission, Lahore Congress, Civil Disobedience Movement, Round Table Conferences, Government of India Act 1935 and Provincial Autonomy, Quit India Movement.	
4	Cripps Mission, Simla Conference, Cabinet Mission, Subhash Chandra Bose and the INA, Communal Politics and the partition of India, Indian Independence Act 1947, Integration of Indian princely states. Main features of the Indian Constitution.	
5	Indian Agriculture, British Famine Policy, nature of Colonial Economy, British Fiscal Policy and India's Economic Exploitation, Rise of Modern Industry, Expansion of Trade and Commerce, Socio- Religious Movements- Satya Shodhak Samaj, Arya Samaj, Ramkrishna Mission, Theosophical Society, Muslim Reform Movements, Upliftment of Women, Development of Education, growth of Indian Press.	



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS

UG

COMPUTER SCIENCE

St. Aloysius College (Autonomous), Jabalpur, Madhya Pradesh

BCA I SEMESTER 2023-24

**COMPUTER FUNDAMENTAL ORGANIZATION AND ARCHITECTURE
MAJOR**

MARKS 60

Course Learning Outcomes(CO)

On completion of this course, learners will be able to:

CO1. Understand the basic structure, operation and characteristics of digital computer.

CO2. Be able to design simple combinational digital circuits based on given parameters.

CO3. Understand the working of arithmetic & logic unit CO4. Know about hierarchical memory system including cache memories and virtual memory.

CO5. Understand concept and advantages of parallelism, multi-processors and multi-core processors.

SYLLABUS

UNIT 1

Fundamentals of Computer – Definition, Characteristics, Block Diagram of a Computer, Input devices - Output Devices- Keyboard, Scanner, Mouse, light pen, Bar Code Reader, OMR, OCR, MICR, Printers- types of Printer, Monitors, Plotters-types of plotters, Computer Memory- Types of Memory.

UNIT 2

Fundamentals of Digital Electronics: Number System-Binary, Decimal, Octal, Hexa-Decimal, Conversions, Binary Arithmetic-Addition, Subtraction, Multiplication, Division, Underflow, Overflow, Sign Magnitude, Complements-1's and 2's, Fixed-Point Representation, Floating-Point Representation.

UNIT 3

Boolean Algebra, Reducing Boolean Expression, Logic Gates-AND, OR, NOT, Universal Gates-NAND, NOR, Analog and Digital Signals, Clock Waveform Timing, Map Simplification, K-Map- Two, Three and Four variables.

UNIT 4

Combinational Circuits- Adder, Subtractor, Multiplexer, De-multiplexer, Decoders, Encoders. Binary Codes – Gray Codes, ASCII code, BCD code, EBCDIC, Error Detection Code and Correction Code, Hamming Code.

UNIT 5

Sequential Circuits - Flp - Flops, SR, D, T, JK, Master-Slave, Registers, Shift Registers- SISO, SIPO, PISO, PIPO, Counters, Instruction, Instruction Format, Instruction Codes, Handshaking, DMA Data Transfer, Auxiliary Memory, Cache Memory, Associative Memory, Flynn's classification - Introduction to SISD, SIMD, MISD, MIMD, Parallelism, Multicore processors

UNIT 6

Indian contribution to the field - Contributions of reputed scientists of Indian origin like Dr. Vinod Dham Father of Intel Pentium Processor, Dr. Ajay Bhatt - Co-Inventor of USB Technology, Dr. Vinod Khosla- co-

founder of Sun Microsystems, Dr. Vijay P Bhatkar - architect of India's national initiative in supercomputing, and many others. Parallel Computing projects of India PARAM, ANUPAM, FLOSOLVER, CHIPPS etc. Other relevant contributors and contributions.

Suggested Reading

- "Computer system Architecture" by M.Morris Mano, Pearson
- "Computer system Architecture and Organization" by Patterson, McGraw Hill
- "computer system Architecture & Organization" Sps Saini, S.K.Katheria, Published by Katharia and Sons

St. Aloysius College (Autonomous), Jabalpur, Madhya Pradesh

BCA I SEMESTER 2023-24
PROGRAMMING AND PROBLEM SOLVING THROUGH C
MINOR

EXTERNAL MARKS 60

Course Learning Outcomes(CO)

After the completion of this course, a student shall be able to do the following:

CO1. Identify situations where computational methods and computers would be useful.

CO2. Given a computational problem, identify and abstract the programming task involved.

CO3. Approach the programming tasks using techniques learned and write pseudo code.

CO4. Choose the right data representation formats based on the requirements of the problem.

COS. Use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.

CO6. Write the program on a computer, edit, compile, debug, correct, recompile and run it.

CO7. Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task.

SYLLABUS

UNIT 1 : Classification of programming language: Structured programming concepts, modular programming, top-down programming approach. **Problem- Solving Techniques:** Steps for Problem solving- Problem definition and analysis, Program design (Algorithm, Flowchart), Coding, Compilation, Debugging and testing, Documentation, Implementation and Maintenance. **Basics of C:** History of C, salient Features of C, C language IDE'S: What is IDE's Types of IDE's, Structure of a C Program, a Simple C Program, Compiling a C Program, Link and Run the C Program.

UNIT 2 :Variables and Constants: Character Set, Identifiers and Keywords, Rules for Forming Identifiers, **Data Types**, Qualifiers, **Variables**, Declaring Variables, Initializing Variables, **Constants**, Types of Constants, **Operators**, expressions, operator precedence and associativity. **Managing input/output function:** formatted and unformatted. **Conditional Statements and Loops:** Decision Control Statements: if Statement, switch Statement, Loop Control Statements: while Loop, do-while Statement, for Loop, Nested Loop, goto Statement, Break Statement, Continue Statement.

UNIT 3 :Array: one dimensional array Declaration, Initialization, insertion, deletion of an element from an array, finding the largest/smallest element in an array, two dimensional arrays, addition / multiplication of matrices **String:** Declaration and Initialization of Strings, String formatted specifiers, Array of Strings, Use of <string.h>, String library function (strlen, strcpy, strcmp, strcat, strlen, strstr, strstr). **Storage Class:** Need & types of Storage class,

UNIT 4 :Functions: Definition of a Function, types of function, Declaration of a Function, Function Prototypes, passing arguments to a function, call by value, call by reference, command line argument, recursion. **Pointers:** pointers and their characteristics, address and indirection operators, pointer Type declaration and assignment, pointer arithmetic, passing pointers to functions, array of pointers, introduction to pointer to pointer.

UNIT 5: Structures: Declaration of Structures, Accessing the Members of a Structure, Initializing Structures, Structures as Function Arguments, Structures and Arrays, **Preprocessor** What is pre-processor, Type of Pre-processor, Macros, File Inclusion, Conditional Compilation, Other directives **Dynamic memory allocation**

Memory management, Types of memory allocation, Allocation (malloc, calloc, realloc), Deallocation (free)
Command Line Arguments, Enumeration, typedef

UNIT 6 : Indian Contribution to the field: Innovations in India, origin of Julia Programming Language, Indian Engineers who designed new programming languages, open source languages, Dr. Sartaj Sahni : computer scientist pioneer of data structures, Other relevant contributors and contributions.

Suggested Readings

- D. Ravichandran, programming New Age International, 1996.
- E. Balaguruswamy, Tata McGraw Hill Pub.

St. Aloysius College (Autonomous), Jabalpur, Madhya Pradesh

BCA I SEMESTER 2023-24

ELECTIVE

Paper: DATA ANALYSIS & VISUALIZATION THROUGH SPREADSHEET

MARKS 60

Course Learning Outcomes (CLO)

On completion of this course, learners will be able to:

1. Prepare a spreadsheet file and enter data into the sheet
2. Illustrate formatting and editing capabilities on the data
3. Demonstrate basic calculations and save data
4. Demonstrate basic visualizing, analyzing, organizing and sharing techniques

SYLLABUS

UNIT 1: Introduction to Spreadsheet: What is Spreadsheet, User interface, Basics of Spreadsheet: Overview of spreadsheet, opening new file and saving spreadsheet (through menu and keyboard shortcut), rows, columns, cells, workbooks and worksheets, merging cells; Selecting rows and columns. Non-contiguous cells: How to enter data (numeric, text, date). Working with multiple sheets, inserting and deleting sheets. Renaming sheets. Number formatting - Introduction. General and text. Number and fraction. Currency. Accounting. Percentage. Date. Time, Inserting and deleting rows, columns and cells, Formatting cells - Introduction. Bold, Italics and Underline. Border, Fill and Font. Alignment. Format painter and clear format. Editing the cell content. Entering multiple lines of text using ALT+Enter, auto fill, copy and paste, cut and paste, auto fill series, use of fill handle through mouse.

UNIT 2: Printing worksheet: Select print area, see print preview, adjusting margin During print preview. **Page Formatting:** Page layout, Margins; watermark, page color, page borders; inserting headers and footer, inserting page numbers, date, path and filename. **Viewing:** split windows, layout view **Protecting/Securing using file properties:** Protect Workbook, Protect Sheet, Lock Cells, Read-only Workbook. **Saving a File and use of Template.** **Calculations:** Entering formula, editing formula, copying formula. Cell references (absolute, relative and mixed), paste formula (using keyboard shortcut and fill handle). **Data Validation:** Reject Invalid Dates, Budget Limit; Prevent Duplicate Entries, Product Codes, Drop-down List, Dependent Drop-down Lists.

UNIT 3: Introduction to Functions: What is function, entering functions, types of Functions. **Count and Sum:** Countif, Count, Count Characters, Not Equal To, Sum, Total, Sumif, Sumproduct. **Date & Time:** DateDif, Today's Date, Date and Time Formats, Calculate Age, Time Difference, Weekdays, Days until Birthday, Last Day of the Month, Add or Subtract Time, Quarter, Day of the Year, **Text:** Separate Strings, Count Words, Text to Columns, Find, Search, Change Case, Remove Spaces, Compare Text, Substitute vs Replace, Text, Concatenate, Substring. **Statistical:** Average, Negative Numbers to Zero, Random Numbers, Rank, Percentiles and Quartiles, Box and Whisker Plot, Averagelf, Forecast, MaxIfs and MinIfs, Weighted Average, mode, Standard Deviation, Frequency.

UNIT 4: Data Visualization: Introduction to charts, various type of charts (Column, Bar, Pie, Area, XY Scatter, Bubble, Net, Stock, Column & Line); 3-D Shape (Bar, Cylinder, Cone, Pyramid), Chart elements (Title, Subtitle, X-axis, Y-axis, Z-axis, Display grids, Legends, Display data series), Creating a Chart: Selecting data series, select chart components – labels, background, axis, format and design. **Conditional Formatting:** Manage Rules, Formula based Data Bars, Colour Scales, Icon Sets, Find Duplicates, Shade Alternate Rows, Compare Two Lists, Conflicting Rules, Heat Map. **Data Analysis:** Sort

and Filter Pivot Tables; Creating pivot table. Group pivot table items. pivot table summarization. Multi-level pivot table. Frequency distribution. pivot chart. Slicers. update pivot table. calculated field/item. GetPivotData. If analysis.

Suggested Readings

- Jacek Artymiak, *Beginning OpenOffice Calc: From Setting Up Simple Spreadsheets to Business Forecasting*, 2011, Apress, ISBN: 9781430231592
- Jacek Artymiak, *OpenOffice.org Calc Functions and Formulas Tips. Essential OpenOffice.org Calc Skills*, 1st ed., 2011
- Michael Alexander, Richard Kusleika, John Walkenbach.; *Microsoft Excel 2019 Bible: The Comprehensive Tutorial Resource*; John Wiley & Sons Inc.

St. Aloysius College (Autonomous), Jabalpur, Madhya Pradesh
BCA II SEMESTER 2023-24
PAPER NAME: PROGRAMMING USING C++ AND DATA STRUCTURE
MAJOR
EXTERNAL MARKS 60

Course Learning Outcomes (CLO)

After the completion of this course, a successful student will be able to do the following:

1. Develop simple algorithms and flow charts to solve a problem with programming using top down design principles.
2. Writing efficient and well-structured computer algorithms/programs.
3. Learn to formulate iterative solutions and array processing algorithms for problems.
4. Use recursive techniques, pointers and searching methods in programming.
5. Will be familiar with fundamental data structures, their implementation; become accustomed to the description of algorithms in both functional and procedural styles.
6. Have knowledge of complexity of basic operations like insert, delete, search on these data structures.
7. Possess ability to choose a data structure to suitably model any data used in computer applications.
8. Design programs using various data structures including hash tables, Binary and general search trees, heaps, graphs etc.
9. Assess efficiency tradeoffs among different data structure implementations.
10. Implement and know the applications of algorithms for searching and sorting.

SYLLABUS

UNIT 1: Basics of OOPs: Features and Characteristics of OOPs, History of C++, Application of C++, Data Types, Operator in C++, C++ Stream Classes, Unformatted and Formatted I/O Operation, Managing Output with Manipulators, Scope Resolution Operator

UNIT 2: Functions In C++: The Main Function, Function Prototyping, Call by Reference Call by Address, Call by Value, Return by Reference, Inline Function, Default Arguments, Constant Arguments, Function Overloading.
Classes & Objects: A Sample C++ Program with class, Defining Member Functions (Private & Public), Static Data Members, Static Member, Functions, Array of Objects, Object as Function Arguments, Friend Functions.

UNIT 3: Arrays: Representation of single, two-dimensional arrays **Constructor & Destructor:** Constructor, Constructors with Default Arguments, Parameterized Constructor, Copy Constructor, Multiple Constructors in a Class, Destructor. **Searching** (linear & binary) and **sorting** (bubble sort, selection sort & insertion sorting)

UNIT 4: Inheritance: Defining Derived Classes, Single Inheritance, Making a Private Member Inheritable, Multilevel Inheritance, Hierarchical Inheritance, Multiple Inheritance, Hybrid Inheritance, Virtual Base Classes, Abstract Classes, Operator Overloading. **Polymorphism:** Virtual functions Pointers, Exception Handling

UNIT 5: Data Structure: Basic concepts, Linear and Non-Linear data structures **Stacks:** Operations, Array and Linked Implementations, Applications- Infix to Postfix Conversion, Infix to Prefix Conversion, Postfix Expression Evaluation

Queues: Definition, Operations, Array and Linked Implementations. Circular Queue-Insertion and Deletion Operations, Dequeue (Double Ended Queue), Priority Queue- Implementation.

Linked Lists: Singly Linked Lists, Operations, Circularly linked lists-Operations Doubly Linked Lists-Operations, Doubly Circular Linked List.

Suggested Readings

- J. R. Hanly and E. B. Koffman, "Problem Solving and Program Design in C", Pearson, 2015
- E. Balguruswamy, "C++ ", TMH Publication ISBN 0-07-462038-X
- Herbert Schildt, "C++ The Complete Reference "TMH Publication ISBN 0-07-463880-7

St. Aloysius College (Autonomous), Jabalpur, Madhya Pradesh
BCA II SEMESTER 2023-24
PAPER NAME: OPERATING SYSTEM
MINOR
EXTERNAL MARKS 60

Course Learning Outcomes (CLO)

After the completion of this course, a student shall be able to do the following:

1. Describe the importance of computer system resources and the role of operating system in their management policies and algorithms.
2. Specify objective of modern operating system and describe how operating systems and describe how operating systems have evolved over time.
3. Understand various process management concept and can compare various scheduling techniques, synchronization, and deadlocks.
4. Describe the concepts of multithreading and memory management techniques.
5. Identify the best suited memory management techniques for any process.
6. Describe various file operations, file allocation methods and disk space management.
7. To understand and identify potential threats to operating systems and the security features design to guard against them.
8. Learn to operate the Linux system.

SYLLABUS

UNIT 1: Introduction to Operating System: What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems- Multiprogramming Systems, Time Sharing system, Distributed Operating System, Real time system, Operating System for Personal Computers, Workstation and Hand-held Devices, Application of various Operating System in real life. Some prevalent operating system Windows, UNIX/Linux, Android, MacOS, Blackberry OS, Symbian, Bada etc.

UNIT 2: Process Management: Process Concepts, Process state & Process Control Block.

Process Scheduling: Scheduling Criteria, Scheduling Algorithms (Preemptive & Non- Preemptive) – FCFS, SJF, SRTN, RR, Priority, Multiple-Processor, Real –Time, Multilevel Queue and Multilevel Feedback Queue Scheduling.

Deadlock – Definition Characterization, Necessary and Sufficient Conditions for Deadlock

Deadlock Handling Approaches, Prevention, Avoidance, Detection and Recovery.

UNIT 3: Memory Management: Introduction, Address Binding, Logical versus Physical Address Space, Swapping, Contiguous & Non-Contiguous Allocation, Fragmentation (Internal & External), Compaction, **Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement Algorithms**
File Management: Concept of File System (File Attributes, Operations, Types), Functions of File System, Types of File System, Access Methods (Sequential, Direct & other methods), **Directory Structure (Single-Level, Two-Level, Tree-Structured, Acyclic-Graph, General Graph)** Allocation Methods (Contiguous, Linked, Indexed)

UNIT 4: Disk Management: Structure, Disk Scheduling Algorithms (FCFS, SSTF, SCAN, C-SCAN, LOOK), **Swap Space Management, Disk Reliability, Recovery.**

Security: Security Threats, Security policy mechanism, Protection, Trusted Systems, Authentication and Internal Access Authorization, Windows Security.

UNIT 5: LINUX: Introduction, History and features of Linux, advantages, hardware requirements for installation, Linux architecture, file system of Linux – boot block, super block, inode table, data blocks. Linux standard directories, Linux kernel, partitioning the hard drive for Linux, installing the Linux system, system – startup and shut-down process, init and run levels. Process, Swap, Partition, fdisk, checking disk free spaces. Difference between CLI OS & GUI OS, Window v/s Linux, Importance of Linux Kernel, Files and Directories, Concept of Open Source Software.

Suggested Reading

- A Silberschatz, P.B. Galvin, G. Gagne, Operating Systems Concepts, 8th Edition John Willey Publications.
- A.S. Tanenbaum, Modern Operating Systems, 3rd Edition, Pearson Education.
- Operating System by Peterson

St. Aloysius College (Autonomous), Jabalpur, Madhya Pradesh
BCA II SEMESTER 2023-24
PAPER NAME: MULTIMEDIA AND ANIMATION
ELECTIVE
EXTERNAL MARKS 60

Course Learning Outcomes (CLO)

On completion of this course, learners will be able to:

1. Describe the various elements and aspects of multimedia and animation.
2. Understand the role played by various multimedia platforms.
3. Learn to add pictures, graphics, sound and animation to prepare a project.
4. Learn the presentation skills and ideas with creativity by using multimedia tools.
5. Apply tools and techniques to create basic 2D and 3D animation.

UNIT 1: Introduction to Multimedia: What is multimedia, Multimedia and Hypermedia, Components of multimedia -textual, images, graphics, animation, audio and video, Linear and Non-Linear Multimedia, Application of Multimedia, Requirement of Multimedia System.

Multimedia Authoring Tools: Multimedia Authoring, Multimedia Production, Multimedia Presentation and tools, Editing and Authoring tools, Multimedia Hardware, Compression & Decompression

UNIT 2: Fonts and Hypertext: Usage of text in Multimedia, Families and faces of fonts, outline fonts, bitmap fonts, International character sets and hypertext, Digital font's techniques. **Image fundamentals:**

Image formats: Bitmap and Vector **Color Models:** Color palettes **2D Graphics:** Image Compression and File Formats: GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF **Basic Image Processing:** Use of image editing software, Photo Retouching, Image re-resolution, Colour, Raster and Vector Graphics

UNIT 3: Corel Draw- Drawing-lines, shapes, inserting pictures, objects, tables, templates, Use of various tools such as Pick tools, Zoom tools, Free hand tool, square tool, rectangle tool, Text tool, Fill tool etc. Working of Menu bar options, Design Principles & Color Harmony Introduction to colors -Primary and Secondary in both RGB & CMYK schemes/modes

UNIT 4: Photoshop- Introduction of Photoshop, Anatomy of Photoshop, Concept of White, Background and Layer, Basic operations on image-Altering Size, Working of tools, Changing of mode of an image, Save Selection, Effects on image by Adjustment, Flatten image, preparation of image, Effect of filter on image, Animation using Image Ready

Suggested Readings :

- Tay Vaughan, "Multimedia Making It Works", Tata McGraw-Hill.
- Ze-Nian Li and Mark S. Drew "Fundamentals of Multimedia" Pearson Education International.
- Rajneesh Aggarwal & B. B Tiwari, "Multimedia Systems", Excel Publication, New Delhi
- Li & Drew, "Fundamentals of Multimedia", Pearson Education.
- Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill.
- M.Mahalakshmi, "Multimedia", Margham Publications,
- Pakhira, Malay K, "Computer Graphics, Multimedia and Animation", Prentice Hall

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III SEM	SESSION: 2023-24
Subject: Computer Application (BCA)				
1. Course Code		S2-BCAA1T		
2. Course Title		Data Communication and Computer Networks		
3. Course Type		Major		
4. Pre-Requisite (if any)		To study this course, a student must have the basic knowledge of Computers.		
5. Course learning outcome(CLO)		<ul style="list-style-type: none"> • Demonstrate the Basic Concepts of Networking, Networking Principles, Routing Algorithms, IP Addressing and working of Networking Devices. • Demonstrate the significance, purpose and application of Networking protocols and Standards. • Describe, compare and contrast LAN, WAN, MAN, Intranet, Internet, AM, FM, PM and Various Switching Techniques. • Explain the working of Layers and apply the various protocols of OSI & TCP/IP model. • Analyze the Requirement for a given Organizational structure and select the most appropriate Networking Architecture and Technologies. • Design the Network Diagram and solve the Networking problems of the Organization with consideration of Human and Environment install and configure the networking device. 		
6. Credit Value		Theory—6 Credits		
7. Total Marks		Max. Marks: 40+60		Min. Passing Marks: 35

PART B: Content of the Course

Lectures (in hours per week): 3 Hrs. per week

Total No. of Lectures (in hours): 90 Hrs.

Unit	Topics	No. of Lectures
I	Network goals and application, Network structure, Network services, Example of network and Network Standardization, Networking models: centralized, distributed and collaborative. Network Topologies: Bus, Star, Ring, Tree, Hybrid. Selection and Evaluation factors.	15
II	Theoretical basis for Data communication, Transmission media, Twisted pair, Coaxial Cable, Fiber optics: Selection and Evaluation factors Line of Sight Transmission, Communication Satellites. Analog and Digital transmission. Transmission and switching, frequency division and time division multiplexing, Circuit switching, packet. Switching and message switching.	20
III	Brief overview of LAN (local area network) Classification, Brief overview of Wide Area Network (WAN), Salient features and difference of LAN with emphasis on Media, Speed of Transmission,	20

	Terminal Handling, Polling, Token passing, Contention IEEE Standards their need and developments.	
IV	Open System: What is an Open System? Network Architectures is OSI Reference Model, Layers: Application, Presentation, Session, Transport, Network, Data Link & Physical Layer - Transmission, Bandwidth, Signaling devices used, media type. Data Link Layer - Addressing, Media Access Methods, Logical link Control	20
V	Routing: Fewest-Hops routing, Type of Service routing, Bridges and Routers, Gateway protocols, routing daemons. OSI and TCP/IP model. TCP/IP and Ethernet. The Internet: The structure of the Internet, the internet layers, Internetwork problems. Internet Standards.	15

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

1. Tannanbaum, A.S.: Computer Networks, Prentice Hall, 1985.processing, Prentice Hall,1983.
2. Black : Computer Networks : Protocols, standards and Interfaces, Prentice Hall International I. Tannanbaum, A.S.: Computer Networks, Prentice Hall, 1985.processing, Prentice Hall, 1983.
3. Fourauzan B., "Data Communications and Networking", 3rd edition, TataMcGraw- Hill Publications,

Reference Books:

1. Comer: D., "Computer Networks and Internet", 2ND Edition, PearsonEducation
2. S.K.Basandra& S. Jaiswal, "Local Area Networks", Galgotia Publications
3. William Stallings, "Data and Computer Communication"
- 4: book published by M.P. Granth Academy, Bhopal

Suggested Web Links:

<https://www.nptel.ac.in/courses/106/105/106105082/>
<https://www.iitkg.ac>
<https://www.nptel.ac.in/course.html>
<https://www.harvard.edu/subject/computer-networking>
<http://www.m12hindigranthacademy.org/>
<http://www.mphindigranthacademy.org/>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE): 40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject	Computer Application
Programme	Diploma
Class	BCA III Semester
Course Code	S2-BCAA2T
Course Type	Minor
Course Title	Database Management Systems
Pre-requisite	To study this course, a student must have the basic knowledge of Computers.
Course Learning Outcome	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO1. Explain the features of database management systems and relational database.</p> <p>CO2. Design conceptual models of a database using ER modeling for real life applications and construct queries in relational algebra.</p> <p>CO3. Create and populate a RDBMS for a real-life application, with constraints and keys, using SQL.</p> <p>CO4. Retrieve any type of information from a database by formulating complex queries in SQL.</p> <p>CO5. Analyse the existing design of a database schema and apply concepts of normalization to design an optimal database.</p>
Credit Value	4 credits (4-TH)
Total Marks	Max. Marks: 40+60 Min. Passing Marks:35

Part B – Course Content

Total No. of Lectures-Tutorials-Practical (in hours per week): L-4

Unit I	<p>Introduction to DBMS: Why database? Characteristics of datain database, DBMS. What are advantages of DBMS?</p> <p>Database Architecture and Modeling: Conceptual, physical and logical database models, Role of DBA, Database design.</p> <p>Entity Relationship (ER) Model: Components of ER-model, ER modeling symbols, Relationships, Specialization, Generalization, Aggregation</p>
Unit II	<p>Relational database implementation</p> <p>Relational Implementation with SQL: Schema and Table Definition: Schema definition (CREATE), Data types & domains, Defining Tables, Column Definition. Data Manipulation: Simple Queries (SELECT, FROM, WHERE), Built-In Functions (SUM, AVG, COUNT, MAX, and MIN).GROUP BY, ORDER BY and HAVING clause. Database Change Operations: INSERT, UPDATE, DELETE.</p>

Unit III	<p>Relational database implementation: Multiple Table Queries-Subqueries, EXISTS and NOT EXISTS operators.</p> <p>Relational Algebra and Calculus</p> <p>Relational Algebra: Union, Intersection, Difference, Product, Select, Project, Join - Natural, Theta & Outer Join, Divide, Assignment</p> <p>Relational Algebra Operations with SQL: UNION, INTERSECT, EXCEPT</p>
Unit IV	<p>The Relational Data Model:</p> <p><i>Fundamental Concepts:</i> Relations, Null Values, Keys, Foreign Keys, Integrity Constraints - Entity Integrity & Relational Integrity.</p> <p><i>Normalization Process:</i> First Normal Form, Functional Dependencies, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form (BCNF), Fourth Normal Form, Other Normal Forms - Fifth Normal Form & Domain/Key Normal Form.</p>
Unit V	<p>Physical Database Systems</p> <p>Overview of Physical Storage Media: Magnetic Disk and Flash Storage, RAID, RAID Levels, Choice of RAID level</p> <p><i>Physical Storage Media:</i> Secondary Storage, Physical Storage Blocks</p> <p><i>Data Storage Formats on Disk:</i> Track Format, Record Format—Fixed-Length Records & Variable-Length Records, Input/output Management.</p> <p><i>File Organizing and Addressing Methods:</i> Sequential File Organization, Indexed- Sequential File Organization, Direct File Organization, Data Dictionary Storage.</p>

Part C – Suggested Readings

S. N.	Author	Name of the Book	Publication
1	Gary W. Hansen & James V. Hansen	Database Management and Design	Prentice Hall of India Pvt Ltd.
2	Ramez Elmasri, Shamkant Navathe	Fundamentals of Database Systems	Pearson
3	Raghu Ramakrishnan & Johannes Gehrke	Database Management Systems	McGraw Hill Education
4	C.J. Date	An Introduction to Database System	Pearson
5	Abraham Silberschatz, Henry F. Korth, S. Sudharshan	Database System Concepts	Tata McGraw Hill

Attainment Expressions	PO Mapping	PSO mapping	Cognitive level
Identifying basic problem of real world with abstract requirement (CO1, CO2)	PO2	PSO4	R, U
Applying advanced and basic queries on real databases (CO3, CO4, CO5)	PO2, PO3	PSO4, PSO7	AP

PART A: INTRODUCTION

Program: Diploma	Class: BCA	Year: III Semester	Session: 2023-24
Subject: Computer Applications			
1.	Course Code	S2-BCAA2P	
2.	Course Title	DBMS	
3.	Course Type	Minor	
4.	Pre-Requisite (if any)	To study this course, a student must have the basic knowledge of Computers.	
5.	Course Learning Outcomes (CLO)	<p>This lab is based on the theory course of DBMS. This lab course involves the development of the practical skills in DBMS using MS-Access/Visual-FoxPro/SQL-Server/etc. This course is an attempt to upgrade and enhance student's theoretical skills and provide the hands-on experience.</p> <p>After completing this lab course sessions, student will be able:</p> <ul style="list-style-type: none"> • to create Databases & Views, • execute simple advance SQL queries, • use DBMS tools in the areas of database applications. <p>Topics to be covered in the lab syllabus-</p> <ul style="list-style-type: none"> • Introduction to MS-Access/Visual-FoxPro/SQL-Server/etc • Hands on practice on the application package used in the lab(i.e. on MS-Access/Visual-FoxPro/SQL-Server/etc) • Database creation using MS-Access/Visual-FoxPro/SQL-Server/etc • Simple SQL queries (Single table) • Use of Advanced SQL queries 	
6.	Credit Value	2 credits (2-PR)	
7.	Total Marks	Max. Marks: 40 Int + 60 Ext	Min. Passing Marks: 35

PART B: CONTENT OF THE COURSE

Total No. of Lectures-Tutorials-Practical (in hours per week): P – 2

Total timber of Practical: **02 Hours per Week**

List of Practical's

1. To draw ER Model and Relational Model for a given database.
Show ER to Relational Model reduction.

2. Implementation of Database

- Creation of Database with proper constraints
- Insert into database using different types of insert statements
- Display

3. Data Definition (schema) Modification

4. Simple SQL queries (Single table retrieval)

- Make use of different operators (relational, logical etc.)
- Selection of rows and columns, renaming columns, use of distinct keyword
- String handling (% , etc.)
- Update statement
- Delete

5. Advanced SQL Queries-1

- Group by, having clause, aggregate functions
- Set operations like union, union all and use of order by clause
- Nested queries: in, not in, exists, not exists and any, all

6. Advanced SQL Queries -2

- Join (Inner & Outer)
- Exists & Union

PART C: LEARNING RESOURCES
Textbooks, Reference Books, Other Resources
Suggested Readings:
1. SQL, PL/SQL-The programming language of ORACLE, Ivan Bayross, BPB publication. 2. DrRajeev Chopra, —Database Management System (DBMS) A Practical Approach, 2010, S Chand 3. Jitendra Patel, —DBMS Lab Manual Kindle Edition, 2012.
<i>Suggestive digital platform web finds</i>
https://fec.kai.nic.in/i_aubag/FileHandler/270-101d616b-255a-4add-8d9bdd_e22fec7c1.pdf https://nesitsoiith.pes.edu/pdf/2019/3u1v/CS/LM DBMS%20LAB.ndf http://www.mphindigranthacademy.org/
<i>Suggested equivalent online courses</i>

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III Semester	SESSION: 2023-24
Subject: Computer Application (BCA)				
8. Course Code		S2-BCAC 1 G		
9. Course Title		Internet of Things (IOTs)		
10. Course Type		Elective		
11. Pre-Requisite (if any)		Students must have basic Computer Knowledge		
12. Course learning outcome	<ul style="list-style-type: none"> • CO1. To understand the basics of the Internet of Things • CO2. To get an idea of some of the application areas where the Internet of Things can be applied. • CO3. To understand the middleware for the Internet of Things and the concepts of the Web of Things. • CO4. To understand the concepts of the Cloud of Things with an emphasis on Mobile cloud computing. • CO5. To understand the IOT protocols. 			
13. Credit Value	Theory—3Credits	Practical— 1 Credits		
14. Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Introduction: Introduction: Definition, characteristics of IoT, IoT Conceptual framework, IoT Architectural view, Physical design of IoT, Logical design of IoT, Application of IoT, Arduino IDE, Setup(), loop(), delay, bound, serial monitor.	14
II	Machine-to-machine (M2M), SDN (software-defined networking) and NFV (network function virtualization) for IoT, data storage in IoT. IoT Cloud-Based Services.	14
III	Design Principles for Web Connectivity: Web Communication Protocols for connected devices, Message Communication Protocols for connected devices, SOAP, and REST. HTTP Restful Web Sockets. Internet. Connectivity Principles: Internet Connectivity, internet-based communication, IP addressing in IoT, and Media Access control	14
IV	Sensor Technology, Participatory Sensing, Industrial IOT and Automotive IOT, Actuator, Sensor data Communication Protocols, Radio Frequency Identification Technology, Wireless-Sensor Network Technology. IoT Design methodology: Specification Requirement, process, model, service, functional & operational view, IoT Privacy and security solutions, Raspberry Pi & Arduino devices. IoT Case studies: smart city streetlights control & monitoring, E-waste Management	14

Suggested Readings

Textbooks:

- Rajkamal, Internet of Things—, Tata McGraw Hill publication.
- Hakima Chaouchi —The Internet of Things: Connecting Objects, Wiley publication.
- Francis Dacosta -Rethinking the Internet of things: A scalable Approach to connecting everything, 1st edition, Apress publications2013.
- Donald Norris—The Internet of Things: Do-It-Yourself at Home Projects for Arduino, Raspberry Pi, and BeagleBone Black—, McGraw Hill publication.

Reference books:

- I. Philip Levis, -TinyOS Programming.
- D. Norris, —The Internet of Things: Do-it-Yourself Projects with Arduino, Raspberry Pi, and Beagle Bone Black, McGraw-Hill Education, New Delhi.
- Raj Karnal, —Internet of Things: Architecture and Desist, Tata McGraw Hill publication.
- Pajankarand A. Kakkar, —Raspberry Pi by Example J, Pack Publishing Ltd, Birmingham, UK.
- S. Dooks published by II.P. Hindi Granth Academy, Bhopal

- Suggestive digital platform web links.
- <https://www.iotforall.com/introduction-rot-applications-in-education>
- https://onlinecourses.swayam2.ac.in/arpl9_ap52/preview
- <http://www.mphindigranthacademy.org>.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

PART' A: Introduction			
Program: Diploma	Class: BCA	Year: III SEM	Session: 2023-24
Subject: Internet of Things(IOTs) Practical /Lab			
1.	Course Code	S2-BCAC 1 R	
2.	Course Title	Internet of Things (IOTs) lab	
3.	Course Type(Core Course/ Elective/ Generic Elective/ Vocational	Elective	
4.	Pre-Requisite (if any)	Open for all	
5.	Learning Outcomes(CLO)	After completing this lab course, students will be able to: 1. Arduino/Raspberry Concept. 2. Knowledge of Digital Sensor. 3. Uses of DHT11 Sensors. 4. Knowledge of Bluetooth interface.	
6.	Credit Value	Practical — 2 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

PART B: Content of the Course	
No. of Lab. Practical (in hours per week): 1 Hr. per week	
Total No. of Labs: 15 Hrs.	
Suggestive List of Practical	No. of Labs.
<ol style="list-style-type: none"> To interface LLD/Buzzer with Arduino /Raspberry Pi and write a program to turn on LED after every 2 seconds. To interface Push button/Digital sensor (IR/PDR) with Arduino/Raspberry Pi and write a program to turn on LED when push button is pressed or at sensor detection. To interface DHT 11 sensor with Arduino/Raspberry Pi and write a program to print temperature and humidity readings. To interface motor using relay with Arduino/Raspberry Pi and write a program to turn on motor when push button is pressed. To interface OLED with Arduino/Raspberry Pi and write a program to temperature and humidity reading on it. To interface blue tooth with Arduino/Raspberry Pi and write a program to send sensor data to smartphone using Bluetooth. To interface Bluetooth with Arduino/Raspberry Pi and write a program to turn LED 'OFF' when 1 "0" is received from smartphone using Bluetooth. Write a program Arduino/Raspberry Pi to upload temperature and humidity data to thing speak cloud. Write a program Arduino/Raspberry Pi to retrieve temperature and humidity data from thing speak cloud. To install MySQL database on Raspberry Pi and perform basic SQL queries. 	

Suggested Readings

Textbooks:

- Rajkamal, Internet of Things —, Tata McGraw Hill publication.
- Hakima Chaouchi —The Internet of Things: Connecting Objects, Wiley publication.
- Francis Dacosta -Rethinking the Internet of things: A scalable Approach toconnectingeveiythingi,1st edition, Apress publications2013.
- Donald Norris—The Internet of Things: Do-It-Yourself at Home Projects for Arduino, Raspberry Pi, and BeagleBone Black—, McGraw Hill publication.

Reference books:

- I. Philip Levis, -TinyOS Programming.
- D. Norris, —The Internet of Things: Do-it-Yourself Projects with Arduino, Raspberry Pi, and Beagle Bone Black, McGraw-Hill Education, New Delhi.
- Raj Karnal, —Internet of Things: Architecture and Desist, Tata McGraw Hill publication.
- Pajankarand A. Kakkar, —Raspberry PibyExampleJ, Packt Publishing Ltd, Birmingham, UK.
- S. Dooks published by II.P. Hindi Granth Academy, Bhopal

- Suggestive digital platform web links.
- <https://www.iotforall.com/introduction-rot-applications-in-education>
- https://onlinecourses.swayam2.ac.in/arpl9_ap52/preview
- <http://www.mphindigranthacademy.org>.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

PART A: Introduction			
PROGRAM: Degree		CLASS: BCA	SEMESTER: III
SESSION: 2023-24			
Subject: Computer Science			
1.	Course Code	S 2 – BCAA2G	
2.	Course Title	Artificial Intelligence	
3.	Course Type	Elective	
4.	Pre-Requisite (if any)	To study this course, a student must have basic knowledge of Artificial Intelligence.	
5.	Course Learning Outcomes(CO)	<p>On completion of this course, learners will be able to:</p> <p>CO1. Understand the basic structure, operation and characteristics of artificial Intelligence</p> <p>CO2. Be able to design simple algorithms.</p> <p>CO3. Understand the working on algorithms and games.</p> <p>CO4. Know about deep learning, neural networks and Natural Language Processing.</p> <p>CO5. Understand concept of supervised and unsupervised learning methods.</p>	
6.	Credit Value	Theory 4 Credits Practical 2 Credits	
7.	Total Marks	Max. Marks : 100	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lectures (in hours per week): 3 Hrs. per week			
Total No. of Lectures: 90 Hrs.			
Module	Topics		No. of Lectures
I	Introduction: Overview of AI, Definition of AI, Aim of AI, Components of AI, Applications of AI, Understanding artificial neural networks, Supervised and unsupervised learning methods, deep learning, Applications of deep learning in image recognition, NLP, etc		14
II	Knowledge & Reasoning: Knowledge representation issues, representation & mapping, approaches to knowledge representation, issues in knowledge representation.		14

III	Problem: problem characteristics, Types of Problem, Problem Solving Techniques: Special purpose methods and General Purpose methods, production system, Water-Jug Problem, Tic-Tac-Toe problem, Eight Puzzle Problem, Eight Queen problem	14
IV	Prolog: AI Programming Languages, Introduction, history, objects, atoms, constants, variables, a deductive database, Relations and facts, clauses and instances, substitution of variables, goals, sub-goals, and predicates, rules, head and body, queries, recursive rules, structures and functions, list, tuples, operators, Family relations	14
Suggested Reading:		
<ol style="list-style-type: none"> 1. Artificial Intelligence Basics – Tom Taulli 2. A first course in Artificial Intelligence – Deepak Khemani 		

ST. ALOYSIUS' COLLEGE (AUTONOMOUS),JABALPUR

PART A: Introduction

Program: Diploma	Class: BCA	Semester : IVSEM	Session: 2023-24
Subject: Computer Applications			
1.	Course Code	BCA4	
2.	Course Title	Programming using JAVA	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Major	
4.	Pre-Requisite (if any)	To study this course, a student must have basic knowledge of Object-Oriented Programming.	
5.	Course Learning Outcomes (CLO)	<p>After the completion of this course, a successful student will be able to do the following:</p> <ul style="list-style-type: none"> • Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs. • Read and make elementary modifications to Java programs that solve real-world problems. • Validate input in a Java program. • Design and use basic applet for web page 	
6.	Credit Value	Theory — 4 Credits Practical — 2 Credits	
7.	Total Marks	Max. Marks : 40+60	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lectures (in hours per week): 2 hrs. per week			
Total No. of Lectures: 60 Hrs.			
Module	Topics		No. of Lectures
I	The Java Environment: History and features of java, C++ VS java, JAVA Program Structure, Java Virtual Machine concepts, Primitive data types, variables and constants, operators, expression, statement-branching, looping and jumping, labeled statements.		10
II	Object Oriented Programming in Java: Classes, objects and methods: defining a class, adding variables and methods, creating objects, constructor, Instances, field and methods initialization by constructors, Copy constructor. Arrays, String classes, Wrapper classes.		14

III	Inheritance: Inheritance basics, Super class, Sub-class, Method overloading, abstract classes. Interfaces: defining an interface, implementing & applying interfaces, variables in interfaces, extending interfaces	12
IV	Multithreading and Exception Handling: Basic idea of multithreaded programming; The lifecycle of a thread, Creating thread with the thread class and runnable interface, Basic idea of exception handling. The try, catch and finally.	12
V	Applet programming: Local and Remote Applets, Applet Vs Application, creating and executing java applets, inserting applets in a web page, passing parameter to applets, Applet Tag, Getting Input from User.	12

PART C: Learning Resources

Textbooks, Reference
Books, Other Resources

Suggested Readings

- Java A Complete reference by Herbert Schildt, Mc Graw hill publication
- Thinking in Java (3rd edition) Bruce Eckel , Prentice Hall
- The Java Language Specification, Java SE 8 , Cay S. Horstmann, Gary Cornell, Prentice Hall
- Core Java an Integrated Approach (Black Book), Dr. R. Nageswara Rao, Prentice Hall

Suggested Websites

www.javatutorials.com
www.javatpoint.com
www.tutorialspoint.com

Part D-Assessment and Evaluation Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz		Viva Voce on Practical	
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial		Table work / Experiments	
TOTAL	40		60

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class:	Year: IV SEM	SESSION: 2023-24
Subject: B.C.A.				
Course Code				
Course Title		System Analysis and Engineering		
Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/)		Minor		
Pre-Requisite (if any)				
Course learning outcome	<ul style="list-style-type: none"> • CO1. Gain in depth knowledge of basic understanding of system characteristics, system design, and its development processes. • CO2. Student will learn how a system is designed in a systematic and phased manner, starting from requirement analysis to system implementation and maintenance. • CO3. To gain the knowledge of how Analysis, Design, Implementation, Testing and Maintenance processes are conducted in a software project. • CO4 Ability to apply software engineering principles and techniques. To produce efficient, reliable, robust and cost-effective software solutions. • CO5. Students will be able to choose appropriate process model depending on the user requirements. • CO6. Students will be able perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance. 			
Credit Value	Theory—6Credits			
Total Marks	Max. Marks:	Min. Passing Marks:		

PART B: Content of the Course

No. of Lectures (in hours per week): 3 Hrs. per week

Total No. of Lectures: 60 Hrs

Module	Topics	No. of Lectures
I	System Analysis and Design - Overview: Systems Analysis, Systems Design, What is a System? , Constraints of a System, Properties of a System, Elements of a System, Types of Systems, Systems Models.	14
II	System Development Life Cycle: Phases of SDLC, Life Cycle of System Analysis and Design, Role of System Analyst, Attributes of a Systems Analyst, System Planning, Requirements Determination, Information Gathering Techniques	10
III	Structured Analysis: Structured Analysis Tools, Data Flow Diagrams (DFD), Decision Trees, Decision Tables, Components of a Decision Table. System Design: Inputs and Outputs for System Design, Types of System Design.	12
IV	Software Characteristics, Components and Applications. Software Engineering - A Layered Technology. Software Process Models [Linear Sequential Model, Prototype and RAD Model]. Evolutionary Software Process Models [Waterfall Model, Incremental Model and Spiral Model].	12

V	S/W Quality Assurance: Quality Concepts, SQA activities, S/W Reviews, Formal Technical Reviews, S/W Testing Techniques: White and Black Box Testing, Basic Path Testing, Unit Testing, integration Testing, Validation Testing, System Testing	12
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Systems Analysis and Design by Elias M Awad
- Alan Dennis' 5th Edition of Systems Analysis and Design
- An Integrated Approach To Software Engineering By Pankaj Jalote
- Software Engineering By R. S. Pressman, Edition V-

Reference books:

- Software Engineering (7th Edition) Addison- Wesley 2004 ,Ian Sommerville
- Software Engineering Hand book Auerbach publication, Jessica Keyes
- Software Engineering Principles and Practice 2"d edition Wiley
- System Analysis and Design (9th Edition) Kenneth E. Kendall & Julie Kendall

Suggestive digital platform web links.

- https://www.tutorialspoint.com/system_analysis_and_design/index.htm
- <https://www.msuniv.ac.in/Download/Pdf/9cf334ee2d564a0>
- https://www.tutorialspoint.com/software_engineering/software_engineering_tutorial.pdf
- http://fmcet.in/CSE/CS6403_uw.pdf

Part E-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 70

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	IV Semester	SESSION: 2023-24
Subject: Computer Application (BCA)				
1. Course Code				
2. Course Title	BLOCK CHAIN TECHNOLOGY			
3. Course Type	Elective			
4. Pre-Requisite (if any)	Students must have basic Computer Knowledge			
5. Course learning outcome	<ul style="list-style-type: none"> • To understand the concepts of blockchain technology • To understand the consensus and hyper-ledger fabric in blockchain technology. State the basic concepts of blockchain • Paraphrase the list of consensus and Demonstrate and interpret the working of Hyper ledger Fabric • Implement SDK composer tool and explain the Digital identity for the government. 			
6. Credit Value	Theory—4 Credits			
7. Total Marks	Max. Marks: 40+60		Min. Passing Marks: 35	

PART B: Content of the Course

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	History: Digital Money to Distributed Ledgers -Design Primitives: Protocols, Security, Consensus, Permissions, Privacy- Blockchain Architecture and Design-Basic crypto primitives: Hash, SignatureHash chain to Blockchain-Basic consensus mechanisms.	14
II	Requirements for the consensus protocols-Proof of Work (PoW)- Scalability aspects of Blockchain consensus protocols: Permissioned Block chains-Design goals-Consensus protocols for Permissioned Blockchains.	14
III	Decomposing the consensus process-Hyper ledger fabric components-Chain code Design and Implementation: Hyper ledger Fabric II:- Beyond Chain code: fabric SDK and Front End-Hyper ledger composer tool	14
IV	Blockchain in Financial Software and Systems (FSS): -Settlements, KYC, -Capital markets-Insurance Blockchain in trade/supply chain Provenance of goods, visibility, trade/supply chain finance, invoice management/discounting Blockchain Cryptography: Privacy and Security on Blockchain	14

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

1. Mark Gates, —Block chain: Ultimate guide to understanding block chain, bit coin, crypto currencies, smart contracts and the future of money!, Wise Fox Publishing and Mark Gates 2017.
2. Salman Baset, Luc Desrosiers, Nitin Gaur, Petr Novotny, Anthony O'Dowd, Venkatraman Ramakrishna, —Hands-On Block chain with Hyper ledger: Building decentralized applications with Hyperledger Fabric and Composer!, 2018.
3. Bahga, Vijay Madiseti, -Block chain Applications: A Hands-On Approach!, Arshdeep Bahga, Vijay Madiseti publishers 2017.

Reference books:

1. Andreas Antonopoulos, -Mastering Bitcoin: Unlocking Digital Crypto currencies, O'Reilly Media, Inc. 2014.
2. Melanie Swa, -Block chain, O'Reilly Media 2014.

- NPTEL & MOOC courses titled blockchain technology
- blockgeeks.com/guide/what-is-block-chain-technology
- <https://nptel.ac.in/courses/106105184>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

ST. ALOYSIUS' COLLEGE (AUTONOMOUS) JABALPUR

Part-A :Introduction

Program: Diploma		Class: BCA	Semester : IV	session: 2023-2024
Subject : Computer Applications				
1.	Course Code	S2-BCADIG		
2.	Course Title	E-Commerce		
3.	Course Type(Core Course/Elective/Generic Elective/Vocational/...)	Generic Elective		
4.	Pre-requisite(If any)			
5.	Course Learning Outcomes (CLO)	On the completion of this course student will be able - <ul style="list-style-type: none">• To learn the fundamentals of E— Commerce and its process.• To understand the role of E- commerce in the present scenario along with the concepts of security and its applications.• To gain knowledge of e-commerce business needs and resources and match to technology considering human factors and budget constraints.• To apply knowledge of changing technology on traditional business models and strategy.• To have skills to communicate effectively and ethically using electronic communication.		
6.	Credit Value	Theory : 4 Credits		
7.	Total Marks	Max.Marks: 40 + 60	Min. Passing Marks:35	

Part-B :Contents

No. Of Lectures (in hours per week) :2 Lectures per week
Total No. of Lectures =60 Hrs.

Module	Topics	No. of Lectures
I	<u>Introduction</u> Brief history of e-commerce, Types, Advantages & Disadvantages of e-commerce, Elements of e-commerce, Principles of e-commerce, Messaging and Information distribution, Messaging and information distribution, Common service infrastructure, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.	10
II	<u>EDI to e-commerce:</u> EDI - Origin, System approach and Communication approach, Benefits of EDI, EDI technology, EDI standards, EDI communications, EDI Implementation, EDI Agreements, EDI Security, EDI Mechanics, E-com with WWW/Internet. E-Government- Concepts, Applications of G2C, G2B, G2G,	10
III	<u>WWW & Electronic Payment System:</u> Applications — what is web, Why is the Web such a hit, The Web and E-Com, Concepts & Technology —Key concepts, Web Software development Tools. <u>Electronic payment system — Overview, Electronic or digital cash, Electronic Checks, Online credit card based system, E-Retailing, Traditional retailing and e retailing, Benefits of e retailing, Models of e retailing, Features of e retailing.</u>	20
IV	<u>Security and Application</u> Need of computer security, Specific intruder approaches, Security strategies, Cryptography, Public key encryption, Private key encryption, Digital signatures <u>Advertising on the internet:</u> Marketing, Electronic publishing issues, EP architecture, EP tools, Web page EP-Baseline issues, Application tools and publishing on the internet, Legal protections Intellectual Property Rights: Types of Intellectual Property protection, Governance.	20

Part -C Learning Resources	
	<p>Suggested Digital Platforms, Web links</p> <ol style="list-style-type: none"> 1. https://onlinecourses.nptel.ac.in/noc19_inq54/preview 2. https://onlinecourses.swayam2.ac.in/cecl9_cm01/preview 3. https://www.couseia.org/lecture/innovative-entrepreneur/e-commerce-the-internet-as-a-selling-platform-DYSNa 4. https://www.mooc-list.co.in/tags/e-commerce-market 5. https://onlinecourses.swayam2.ac.in/nou21_cm14/preview 6. http://www.mphindigranthacademy.org/ <p>Suggested Readings:</p> <ol style="list-style-type: none"> 1. "Electronic Commerce" By Ravi Kalakota and Andrew B. Whinston. 2. "Web Commerce Technologies Handbok" By Daniel Minoli & Emma Minoli 3. "E-Commerce " By Dr. Varinder Bhatia 4. "Promise Of E-Governance" By M P Gupta 5. Book published by M.P. Granth Academy , Bhopal 6. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100	
Continuous Comprehensive Evaluation (CCE) : 40marks University Exam(UE)	60marks Internal Assessment : Class Test
Total 40	
Continuous	
Comprehensive	Assignment/Presentation Evaluation (CCE):40
External Assessment :	Section(A) :Objective Questions Total
University Exam Section: 60	60Section (B) : Short Questions
Time : 03.00 Hours	Section (C) : Long Questions

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	IV SEM	SESSION: 2023-24
Subject: Computer Application (BCA)				
Course Code				
Course Title		REACT JS		
Course Type		Elective		
Pre-Requisite (if any)		Students must have knowledge of HTML, CSS and Java Script		
Course learning outcome	<ul style="list-style-type: none"> • Create React Components. • Perform some simple tests. • Think in React. • Add state and props to an application. • Add inverse data flow to an application. • Use some common React Hooks. • Use external services to provide data. • Set up a single page application. 			
Credit Value	Theory—3 Credits			
Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Introduction to React: What is React, Why React, React version history, React 16 vs React 15, Just React – Hello World, Using create-react-app, Anatomy of react project, Running the app, Debugging first react app.	14
II	Templating using JSX: Working with React createElement, Expressions, Using logical operators, Specifying attributes, Specifying children, Fragments About Components: Significance of component architecture, Types of components, Functional, Class based, Pure, Component Composition	14
III	Working with state and props: What is state and its significance, Read state and set state, Passing data to component using props, Validating props using propTypes, Supplying default values to props using default Props. Rendering lists: Using react key prop, Using map function to iterate on arrays to generate elements.	14
IV	Event handling in React: Understanding React event system, Understanding Synthetic event, Passing arguments to event handlers, Understanding component lifecycle and handling errors. Working with forms: Controlled components, Uncontrolled components,	14

Understand the significance to default Value prop. Using react ref prop to get access to DOM element

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- ReactJS by Example - Building Modern Web Applications with React
- React Js for Beginners A Comprehensive Beginner's Guide to ReactJS By Emma William · 2021

Reference books:

- React and React Native A Complete Hands-on Guide to Modern Web and Mobile Development with React.js By Adam Boduch, Roy Derks · 2020
- Quickstart Step-By-Step Guide to Learning React Javascript Library (React. Js, Reactjs, Learning React JS, React Javascript, React Programming) By Lionel Lopez · 2017

- <https://www.w3schools.com/REACT/DEFAULT.ASP>
- <https://legacy.reactjs.org/docs/getting-started.html>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE): 40 Marks	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Marks	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	IV SEM	SESSION: 2023-24
Subject: Computer Application (BCA)				
Course Code				
Course Title		REACT JS		
Course Type		Generic Elective		
Pre-Requisite (if any)		Students must have basic Computer Knowledge		
Course learning outcome	<ul style="list-style-type: none"> • Able to work with react js • Able to design and develop high class websites 			
Credit Value	Practical— 1 Credits			
Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Labs.
	a) Build Search filter in React b) Creating a simple counter c) Display a list d) Build Accordion e) Image Slider f) Create a Checklist g) Simple Login form h) Multi-Page navigation using React Router	30

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- ReactJS by Example - Building Modern Web Applications with React
- React Js for Beginners A Comprehensive Beginner's Guide to ReactJS By Emma William • 2021

Reference books:

- https://contactmentor.com/react-js-practice-exercises-solution/?expand_article=1
- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40 Marks	<ul style="list-style-type: none"> • Hands-on Lab Practice: 10 Marks • Viva: 10 Marks • Lab Test from practical list: 10 Marks • Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training: 10 Marks 	Total 40
External	<ul style="list-style-type: none"> • Practical record file: 5 Marks 	Total 60

Assessment University Exam Section: 60 Marks	<ul style="list-style-type: none">• Viva voce practical: 5 Marks• Table works/ Exercise Assigned in practical exam: 40 Marks• Reports of excursions Lab visits/ Industrial training/ Survey/ Collection/ Models: 10 Marks	
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ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH

Part A Introduction		
Program: Degree	Class : UG	Year: III Session: 2023-24
Subject: BCA		
1	Course Code	3YBCADSEGA1
2	Course Title	Computer Graphics (Theory) (Group A)
3	Course Type (Core Course/ Discipline Specific/ Elective/ Generic Elective /Vocational/)	Discipline Specific Elective - I
4	Pre-requisite (if any)	None
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: <ol style="list-style-type: none"> 1. Understand the basics of computer graphics, different graphics Systems and applications of computer graphics. 2. Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. 3. Use of geometric transformations on graphics objects and their application in composite form. 4. Extract scene with different clipping methods and its transformation to graphics display device. 5. Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
6	Credit Value	4
7	Total Marks	Max Marks: 30+70 Min. Passing Marks: 35

Part B- Content of the Course

Lectures: 60 Hrs.

Module	Topics	No. of Lectures
Unit-I	Introduction to Computer Graphics: Application of Computer Graphics. Interactive and Passive Graphics. Graphic Systems: Display Processor, Cathode Ray Tube (CRT), Random Scan vs Raster Scan, Color CRT Monitors, Direct View Storage Tubes, Flat Panel Display. Input-Output Devices: Input Devices, Trackball, Light Pen, Image Scanner, Output Devices, Plotters.	12
Unit -II	Scan Conversion a line: Scan Conversion Definition, Scan Converting a Point. Scan Converting a Straight Line. DDA Algorithm. Scan Conversion Circle: Defining a Circle, Defining a Circle using Polynomial Method, Defining a Circle using Polar Coordinates Method, Bresenham's Circle Algorithm, Midpoint Circle Algorithm. Midpoint Ellipse Algorithm.	12
Unit-III	Filled Area Primitives: Boundary Fill Algorithm, Flood Fill Algorithm, Scan Line Polygon Fill Algorithm. 2D Transformations: Introduction of Transformation, Translation, Scaling. Rotation, Matrix Representation, Composite Transformation, Pivot Point Rotation. 2D-Viewing: Window, Window to Viewport Co-ordinate Transformation, Zooming, Panning.	12

Unit -IV	Clipping Techniques: Clipping, Point Clipping, Line Clipping, Text Clipping, Polygon Clipping, Sutherland-Hodgeman Polygon Clipping, Weiler-Atherton Polygon Clipping. Pointing & Positioning: Pointing & Positioning Techniques, Elastic Rubber Band Techniques, Dragging. Shading: Introduction of Shading, Constant Intensity Shading, Gouraud shading, Phong Shading.	12
Unit -V	Animation: Animation, Application Areas of Animation, Functions. 3D Computer Graphics. Three Dimensional Graphics, Three Dimensional Transformations, Scaling, Rotation, Reflection, Shearing. Hidden Surfaces: Hidden Surface Removal, Back Face Removal Algorithm, Z-Buffer Algorithm, Painter's Algorithm, Scan Line Algorithm, Sub-division Algorithm.	12

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

1. Donald Hearn, M. Pauline Baker: Computer Graphics C Version, Pearson Education India; 2nd edition, 2002.
2. John Hughes, Andries van Darn, Morgan McGuire, David Sklar, James Foley: Computer Graphics: Principles and Practice, Addison-Wesley Professional, 3rd edition, 2013.
3. Zhigang Xiang, Roy Plastock: Computer Graphics, McGraw Hill Education, 2nd edition,

Reference Book:

1. James D. Foley, Andries van Darn, Steven K. Feiner, John F. Hughes: Introduction to Computer Graphics, Addison Wesley, 1993.
2. Chopra Dr. Rajiv: Computer Graphics, S Chand & Co Ltd.
3. Desai: Computer Graphics, PHI, 2008.
4. Asthana, R.G.S.: Computer Graphics for Scientists and Engineers, New Age International Pvt Ltd.

Suggested Digital Platforms Web links:

- <https://www.eshiksha.mp.gov.in/mpdhttps://epgp.inflibnet.ac.in>
- Suggested equivalent online courses:
- <https://nptel.ac.in/courses/106103224>
- <https://nptel.ac.in/courses/106106090>

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE); 30 Marks External exam: 70 Marks

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH

Program: Degree Class :UG Year: III Year Session: 2023-24

Subject: BCA

	Course Code	3YBCADSEGAL1
2	Course Title	Computer Graphics (Practical) (Group A - Paper-I)
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/)	Discipline Specific Elective (DSE)- I
4	Pre-requisite (if any)	None
	Course Learning outcomes(CLO)	<p>On successful completion of this course, the students will be able to:</p> <ul style="list-style-type: none"> • Understand the basics of computer graphics, different graphics systems and applications of computer graphics. • Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. • Use of geometric transformations on graphics objects and their application in composite form. • Extract scene with different clipping methods and its transformation to graphics display device. • Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
6	Credit Value	2
7	Total Marks	Max. Marks: 100 Min. Passing Marks:35

Assessment and Evaluation

Suggested Continuous Evaluation Methods:

internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-1

Unit	Topics	No. of Lectures (2 Hours Each)
	<ol style="list-style-type: none">1. Write a Program to draw basic graphics constructs like line, circle, arc, ellipse and rectangle.2. Write a program to draw line using DDA algorithm.3. Write a program to draw line using Bresenham's line drawing algorithm.4. Write a program to draw a Circle using midpoint implementation Method.5. Write a program to Translate a line.6. Write a program to Scale a line.7. Write a program to Rotate a line.8. Program to Translate a Triangle.9. Program to Scale a Rectangle.10. Program to Rotate a rectangle about its midpoint.11. Program to implement Line clipping.12. Write a Program to draw animation using increasing circles filled with different colors and patterns.13. Write a Program control a ball using arrow keys.14. Write a Program to implement Bouncing Ball in vertical direction.	

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III Year	SESSION 2023-24
Subject: Computer Application (BCA)				
1. Course Code	3YBCADSEGA2			
2. Course Title	PHP WITH MYSQL			
3. Course Type	Discipline Specific Elective			
4. Pre-Requisite (if any)				
5. Course learning outcome	<ul style="list-style-type: none"> • CO1: To implement PHP script using Decisions and Loops • CO2: To develop PHP applications using Strings, Arrays and Functions. • CO3: To design object-oriented programming (OOP) principles for PHP and useHTML form elements that work with any server-side language. • CO4: To display and insert data using PHP and MySQL. 			
6. Credit Value	Theory—4 Credits			
7. Total Marks	Max. Marks: 30+70		Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Overview of HTML, Working with Text, Link, Table, image, Forms, Input, Introduction of cascading style sheet, selector, inline, internal, external CSS, CSS in text, image. Overview of JavaScript, Variables, Operators, Control flow statements, Popup Boxes, Functions, Events, Windows and Document Objects, Array.	12
II	A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages. Strings: String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.	12
III	Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting. Functions: Calling a Function, defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions. Object Oriented Programming Concepts: Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism	12

IV	Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps. File Handling: Working with files and directories, File Open and Read, File Create and Write, Reading and writing Character In file, reading entire file, Rename and Delete File, getting information of files, ownership and permissions.	12
V	Database Access: Using PHP to access a database. Introduction to MySQL, Connect and create database, create tables, insert, update, delete, select	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
- Beginning PHP5 by Wrox Publication
- HTML 5, Black Book by DreamTech Press

Reference books:

- Mastering PHP: BPB Publication
- PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
- PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008..

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):30 Marks	Class Test Assignment/Presentation	
External Assessment University Exam Section: 70 Marks	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III Year	SESSION 2023-24
Subject: Computer Application (BCA)				
8. Course Code		3YBCADSEGA2		
9. Course Title		PHP WITH MYSQL PRACTICAL		
10. Course Type		Discipline Specific Elective (DSE)- I		
11. Pre-Requisite (if any)		Students must have basic Computer Knowledge		
12. Course learning outcome	<ul style="list-style-type: none"> • CLO1: To implement PHP script using Decisions and Loops • CLO2: To develop PHP applications using Strings, Arrays and Functions. • CLO3: To design object-oriented programming (OOP) principles for PHP and use HTML form elements that work with any server-side language. • CLO4: To display and insert data using PHP and MySQL. 			
13. Credit Value		Practical— 2 Credits		
14. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 30 Hrs.

Module	Topics	No. of Labs.
	<ul style="list-style-type: none"> • Write HTML codes for displaying image and demonstrate hyperlinking. • Create a Feedback Form Using Form handling. • Write a code for design menu system using list tag. • Apply CSS formatting to create page. • Write a PHP script to display Welcome message. • Write a PHP script to demonstrate use of arithmetic operators, comparison operators, and logical operators. • Write a PHP script to set type of variable using type casting. • Write PHP Script to print Fibonacci series. • Write PHP Script to generate result and display grade. • Write PHP Script to find maximum number out of three given numbers. • Write PHP Script using two dimensional arrays such as addition of two 2x2 matrices. • Write PHP Script for FOREACH loop execution. • Write PHP script Using user defined function. • Write PHP script to demonstrate use of string function. • Write PHP script to demonstrate use of date/time function and Math functions. • Write a program to read input data, from table and display all this information in tabular form on output screen. • Write a program to manipulate data and display all this information using table format. • Create form to search data. • Develop small PHP application(s) using forms and database with update and delete option. 	30

	<ul style="list-style-type: none">• Open and Read a file• A module of website on “ khelo India Khelo”.• A module of website on “MP tourism”.• Create a Website for smart city project.	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
- Beginning PHP5 by Wrox Publication
- HTML 5, Black Book by DreamTech Press

Reference books:

- Mastering PHP: BPB Publication
- PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
- PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008..

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment
Continuous Comprehensive Evaluation (CCE):30 Marks

- Hands-on Lab Practice: 5 Marks
- Viva: 5 Marks
- Lab Test from practical list: 10 Marks
- Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training: 10 Marks

External Assessment
University Exam Section: 70 Marks

- Practical record file: 10 Marks
- Viva voce practical: 10 Marks
- Table works/ Exercise Assigned in practical exam: 40 Marks
- Reports of excursions Lab visits/ Industrial training/ Survey/ Collection/ Models: 10 Marks

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III Year	SESSION 2023-24
Subject: Computer Application (BCA)				
1. Course Code		3YBCADSEG81		
2. Course Title		Data Warehousing and Mining		
3. Course Type		Discipline Specific Elective		
4. Pre-Requisite (if any)				
5. Course learning outcome	<ul style="list-style-type: none"> • CLO1: Understand the basics of data warehouse, its storage fundamentals and knowledge discovery in databases • CLO2: Apply data mining techniques over different datasets. • CLO3: Implement clustering algorithms and build classification models • CLO4: Select appropriate DM tools and apply the concepts of Data Warehouse and DM techniques for clustering, association, and classification • CLO5: Explore recent trends in data mining such as web mining, spatial-temporal mining. 			
6. Credit Value	Theory—4 Credits			
7. Total Marks	Max. Marks: 30+70		Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Data Warehouse Basic: Data ware housing Definition, usage and trends, DBMS vs. data warehouse, statistical databases vs. data warehouses. Data marts, Metadata, Multidimensional data model, Data cubes, Schemas for Multidimensional Database: stars, snowflakes and fact constellations.	12
II	Storage and Architecture of Data Warehouse: Data warehouse process & architecture, OLTP vs. OLAP ROLAP vs. MOLAP types of OLAP. servers, 3-Tier data warehouse architecture, distributed and virtual data warehouses, data warehouse manager, data consolidation, ware house internals, storage and indexing. Operations, materialized, online analytical processing (OLAP) system.	12
III	Data Mining Basic: Data mining definition & task. KDD versus data mining. tools and applications. Data Preprocessing Cleaning, Integration, Reduction: Dimensionality Reduction, overview of Principle Component Analysis, Normalization, Transformation, Pattern Mining. Association Rules: Frequent Itemset generation, Apriori Algorithm. Rule generation, Compact representation of frequent Itemset FP-growth algorithm.	12

IV	<p>Data mining techniques: Statistical perspective and Hypothetical testing. Classification and Clustering: Issues in classification, Statistical -Based Algorithms: Regression, Bayes Theorem, Distance-Based Algorithms: KNN, Decision Tree-Based Algorithms, ID3 C4.5, Evaluating the performance.</p>	12
V	<p>Clustering: Basic concepts, Partition algorithms, Agglomerative Hierarchical algorithms, DBSCAN, BIRCH, CURE algorithm. Clustering with categorical attributes, Comparison, Outlier Detection, Spatial mining Web mining Temporal mining.</p>	12
Textbooks	<ol style="list-style-type: none"> 1. Data Mining: Concepts and Techniques, Han and Kamber, Morgan Kaufmann Publications. 2. Data Mining Techniques, A. K. Pujari, Universities Press Pvt. Ltd 3. Data Warehousing" by Amitesh Sinha 4. Data Warehousing in the real world" by Sam Anahory & Dennis Murray 5. Jiawei Han & Micheline Kambe :Data Mining - Concepts & Techniques; 6. Margaret H. Dunham, S. Sridhar:Data Mining Introductory and Advanced Topics 	
References	<ol style="list-style-type: none"> 1. Pang-Ning Tan, Michael Steinbach, Vipin Kumar: Introduction to Data Mining 2. Kimball R. Reeves L. Ross M etc -Data Warehouse life cycle tool kit, John Wiley. 3. Anahory: Data Warehousing in Real World, Addison Wesley 4. Adriaans: Data Mining, Addison Wesley. 5. Jayee Bischoff & Ted Alexander: Data Warehouse: Practical advice from the Expert, Prentice Hall, New jersey. 6. Suggested online links https://nptel.ac.in/courses/106105174 https://onlinecourses.swayam2.ac.in/cec20_cs12/preview_3 https://www.tutorialspoint.com/data_mining/index.htm https://www.javatpoint.com/data-warehouse 	

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks		
Internal Assessment Continuous Comprehensive Evaluation (CCE):30 Marks	<ul style="list-style-type: none"> Class Test Assignment / Presentation 	30
External Assessment University Exam Section: 70 Marks Time : 03:00 Hours	Section (A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions	

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR				
PART A: Introduction				
Program: Diploma	Session: 2023-24	Class: BCA	Year: III Year	SESSION 2023-24
Subject: Computer Application (BCA)				
8. Course Code		S3-BCAA3Q		
9. Course Title		Data Warehousing & Mining (Practical) (Group B-Paper-1)		
10. Course Type		Discipline Specific Elective (DSE)- I		
11. Pre-Requisite (if any)		Students must have basic Computer Knowledge		
12. Course learning outcome	<ul style="list-style-type: none"> On successful completion of this course, the students will be able to: Understand the basics of data warehouse, it's storage fundamentals and knowledge discovery in databases Apply data mining techniques over different datasets. Implement clustering algorithms and build classification models Select appropriate DM tools and apply the 			
13. Credit Value	Practical— 2 Credits			
14. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35		
PART B: Content of the Course				
Lectures (in hours per week): 1 Hrs. per week				
Total No. of Lectures (in hours): 30 Hrs.				
Module	Topics			No. of Labs.
	<ul style="list-style-type: none"> Installing Weka and understanding Weka environment using inbuilt functions. Loading and importing different types of datasets in Weka. Implement attribute selection and visualization in Weka Perform ETL operation over data set. Apply various data pre-processing techniques over the data sets. Create a data mart from a data warehouse and apply data cleaning operations. Build a classification model to classify data using Naive Bayes algorithm 			

	<ul style="list-style-type: none">• Build a classification Model using different decision tree algorithm.• Apply regression to make marketing forecasts over sales data• Implement clustering algorithm over different data sets.• Apply Apriori algorithm to find out association rules in data set.• Evaluate the performance of different classifier.• Analyse the performance of various clustering algorithms.• Build a classifier to identify diabetic and non diabetic patients• 15. Analyze the IRIS dataset in Weka and apply suitable data mining technique.	30
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ST. ALOYSIUS COLLEGE (AUTONOMOUS),JABALPUR

Part A Introduction		
Program: Degree	Class : UG	Year: III Session:2023-24
Subject: BCA		
1	Course Code	3YBCADSEGB2
2	Course Title	Web Technologies
3	Course Type (Core Course/Discipline Specific Elective/ Elective/ Generic Elective Vocational)	Discipline Specific Elective
4	Pre-requisite (if any)	
5	Course Learning outcomes(CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand basics of Internet, World Wide Web(WWW), Client server Computing. 2. Have Knowledge of various web browsers, familiarize with Java scripting, Client side scripting language, Web server Architecture, Database connectivity(DBC) 3. Have knowledge of HTML, it's essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page. 4. Develop skills to generate HTML and have knowledge of Java Script and style sheets 5. Have knowledge of Objects, Methods, Events and Functions and various types of text, styles
6	Credit Value	4
7	Total Marks	Max. Marks: 30 + 70 Min. Passing Marks: 35
Part B- Content of the Course		
Total No. of Lectures =60 (3 hours/ lecture per week)		
Unit	Topics	No. of Lectures(1 Hour Each)
Unit-1	<p>Topics Basics of Internet and Web:</p> <p>The basics of Internet, World Wide Web, Web page, Home Page, Web site, Static, Dynamic and Active web page, Client server computing concepts, Web Browser, Client-Side Scripting, Server-Side Scripting, Introduction to HTML, Tags and Attributes, Text, Effects.</p>	10

Unit -II	Exposure to Various Tags, Colour and Background of Web Pages, Lists and their Types, Image Tag, Hyperlink and URLs, Links to External Documents, Table, Frame, Form. Introduction to Style Sheet- Types, Selector, properties.	14
Unit -III	Introduction to JavaScript- variable, operators, function, events, Array, Strings, Dialog Boxes Introduction to .NET- NET Framework, NET Architecture, CLR, the Just-in-Time Compiler, Garbage collection. NET Framework class library.	12
Unit -IV	Introduction to ASP.NET- ASP.NET Page Life Cycle, Coding Model, Web forms, Web form controls, server controls, client controls, web forms, coding Models, Controls: TextBox, Label, Hyperlink, Button, DropDownList, ListBox, CheckBox, RadioButton, FileUpload, Validators, Masterpage	12
Unit -V	ASP.NET Navigation Controls: SiteMapPath, Menu Control, TreeView. Working With Database- Architecture of ADO.NET, Connected and Disconnected Database. Connection Class, Command Class, Data Adapter Class, and Dataset Class. Insert, Update, Delete commands and Accessing the data from database. Data Controls: FromView, GridView etc.	12

Textbooks:

1. Web Technologies — Black Book — DreamTech Press
2. Beginning HTML, XHTML, CSS and Javascript by John Duckett

Reference Book:

1. HTML, XHTML and CSS Bible, 5th edition, Wiley India-Steven M. Schafer
2. Java EE and HTML-5 Enterprise Application Development (Oracle Press) by John Brock, Arun Gupta, Geertjan Wielenga.

Suggested equivalent online courses:

- Internet technology course by NPTEL< nptel.ac.in>courses,
- www.udemy.com,

Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks External Exam (UE): 70 Marks

Section (A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions

Part A Introduction			
Program: Degree		Class :UG	Year: III
Session: 2023-24			
Subject: BCA			
1	Course Code	3YBCADSEGBL2	
2	Course Title	Web Technologies (Practical)	
3	Course Type (Core Course Specific Elective /Vocational/)	Discipline Specific Elective - II	
4	Pre-requisite (if any)		
5	Course Learning outcomes(CLO)	On successful completion of this course, the students will be able to: 1 Perform HTML programming with use of elements and tags... 2 Perform basic and advanced text formatting and scripting 3 Able to use server-side scripting	
6	Credit Value	2	
7	Total Marks	Max. Marks: 100	Min. Passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures = 30 (2 hours/ lecture per week)			
Topics		No. of Lectures (2 Hour Each)	
1. Create a web form for addition of two numbers. 2. Create a web form for Simple Interest. 3. Create a web form for Factorial. 4. Create a web form for Prime number. 5. Create a web form for matching the value of two textboxes. 6. Create a web form for Calculator. 7. Create a web form for to demonstrate the session. 8. Create a web form with one list box and three check boxes named php, java, c respectively. On check and uncheck name of the check box should be added and removed to and from the list box. 9. Create a web form with one DropDown List and demonstrate addition of items at first and last position. Show deletion also. 10. Demonstrate File Upload control. 11. Demonstrate Validation Controls. 12. Insert user data to Database through web form. 13. Create a sample college website and use Masterpage and Menu control. 14. Create Student Registration Form and corresponding database. Fetch the data into GridViewControl. 15. A small website on "khelo India Khelo" 16. Create a website on MP Tourism. 17. Develop a webpage for St. Aloysius' College Jabalpur Admission form.			

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

1. Web Technologies — Black Book — DreamTech Press
2. Beginning PHP 5.3 (Wrox-Wiley Publishing) by Matt Doyle
3. Beginning HTML, XHTML, CSS and Javascript by John Duckett

Reference Book:

1. HTML, XHTML and CSS Bible, 5th edition, Wiley India—Steven M. Schafer
2. Struts: The Complete Reference, 2nd Edition by James Holmes
3. J2EE: The Complete Reference by James Keogh
4. Java EE and HTML-5 Enterprise Application Development (Oracle Press) by John Brock, Arun Gunta, Geertjan Wielenga

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Discussion of Project of E-Service)		Table work / Experiments	
Total Marks :		100	

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH

Part A Introduction			
Program: Degree	Class :UG	Year: III	Session: 2023-24
Subject: BCA			
1	Course Code	3YBCAM	
2	Course Title	Python Programming (Theory)	
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/Generic Elective /Vocational)	Minor	
4	Pre-requisite (if any)		
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: 1. Develop and execute simple Python programs. 2. Structure a Python program into functions. 3. Using Python lists, tuples to represent compound data 4. Develop Python Programs for file processing	
6	Credit Value	4	
7	Total Marks	Max. Marks: 30 + 70	Min. Passing Marks: 35
Part B- Content of the Course			
No. of Lectures (in hours per week): 3 Hrs. per week Total No. of Lectures: 60 Hrs.			
Module	Topics	No. of Lectures(1 Hour Each)	
Unit - I	What is Python? WHY PYTHON? History, Features - Dynamic, Interpreted, Object oriented, Embeddable, Extensible, Large standard libraries, Free and Open source. Download & Python Installation Process in Windows, Unix, Linux and Mac, Online Python IDLE, Python Realtime IDEs like Spyder, Jupyter Note Book, PyCharm, Rodeo, Visual Studio Code, ATOM, PyDev etc. Variables and Expressions Values and Types, Variables, Variable Names and Keywords, Type conversion, Operators and Operands, Expressions, Input output operation in Python. Comments in Python. Strings: A String Is a Sequence, Traversal with a for Loop, String Slices, Strings Are Immutable, Searching, Looping and Counting, String Methods, The in Operator, String Comparison, String Operations. capitalize(), casefold(),center(),count(), startswith(), islower(), isupper(), replace(),find().	14	

Unit - II	Control Statements: Conditional control statements - if, if- else, if-elseif-else, Loop control statements- for, while, Data Structure & Collection: -String, List, Tuple, Set, Dictionary, Comparison of List, Tuple, and Set, Function in Python, types of function in Python, map, reduce, filter function. Lambda Function	10
Unit - III	Importance of modular programming. What is module? Types of Modules - Pre defined, User defined. User defines module creation, OS, Date-time, math modules, organizing python project into packages, Types of packages – pre-defined, user-defined. Package v/s Folder, File and Directory handling in Python.	12
Unit - IV	Procedural v/s Object-oriented programming, Principles of OOP - Encapsulation, Abstraction (Data Hiding), Polymorphism, Inheritance. Inner Classes. Exception handling and types of errors, try, except, finally, raise, and Need to Custom exceptions, Case studies, regular expression.	12
Unit - V	Multi-threading and multiprocessing in Python, the Life cycle of a thread. Need to start() method , Sleep() & Join(), Synchronization -Lock class - acquire(), release() functions, Python Data Base Communications (PDBC), Introduction of Numpy, Numpy Array, Pandas data frame & Matplotlib, Drawing plots.	12

Part C-Learning Resources

Text Books, Reference Books, and Other resources

Suggested Readings:

1. Mark Lutz, Learning Python
2. Tony Gaddis, Starting Out With Python
3. Kenneth A. Lambert, Fundamentals of Python
4. James Payne, Beginning Python using Python 2.6 and Python 3.2

Reference Books:

1. Python Crash Course: A Hands-On, Project-Based Introduction to Programming Edition Eric Matthes.
2. The Python Language Reference Manual (version 3.2), Guido van Rossum, Drake, Jr. (Editor), ISBN: 1906966141, Network Theory Ltd, 120 pages

Suggestive digital platforms/ web links:

1. www.javatpoint.com
2. www.w3school.com
3. www.python.org
4. <https://www.tutorialspoint.com/Python/index.htm>

Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks External Exam (UE): 70 Marks

Section(A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA
PRADESH

Part A Introduction			
Program: Degree		Class : UG	Year: HI
Session: 2023-24			
Subject: Computer Application			
1	Course Code	S3- BCAA2Q	
2	Course Title	Python Programming (Practical)	
3	Course Type (Core Course/ Specific Elective/ Elective /Vocational/)	Minor	
4	Pre-requisite (if any)	To study this course, a student must have basic Logical, and analytical skills.	
5	Course Learning outcomes(CLO)	On successful completion of this course,the students will be able to: <ol style="list-style-type: none"> 1. Develop Simple programs in Python 2. Knowledge of conditional and loop statements. 3. Learning of Tuple, List, Directory in Python 4. Knowledge of Files and Oops Concepts in Python. 5. Introductory Knowledge of Pandas, PDBC and Numpy. 	
6	Credit Value	2	
7	Total Marks	Max. Marks: 100	Min. Passing Marks:35
Part B- Content of the Course			
Number of Lab Practical's (in hours per week): 2 Hours Per Week			
Total No. of Lab : 30 (Each Lab of 2 Hours)			

	<ol style="list-style-type: none"> 1. Write a program to demonstrate different number data types in Python. 2. Write a program to perform different Arithmetic Operations on numbers in Python. 3. Write a program to create, concatenate and print a string and accessing sub-string from a given string. 4. Write a python script to print the current date in the following format a. "Fri Oct 11" 5. Write a program to create, append, and remove lists in python. 6. Write a program to demonstrate working with tuples in python. 7. Write a program to demonstrate working with dictionaries in python. 8. Write a python program to find largest of three numbers. 9. Write a Python program to construct the following pattern, using a nested for loop <ul style="list-style-type: none"> <li style="margin-left: 40px;">* <li style="margin-left: 40px;">* <li style="margin-left: 40px;">* * <li style="margin-left: 40px;">* * * <li style="margin-left: 40px;">** <li style="margin-left: 40px;">* <li style="margin-left: 40px;">* 10. Write a Python script that prints prime numbers less than 20. 11. Write a python program to define a module to find Fibonacci Numbers and import the module to another program. 12. Write a python program to define a module and import a specific function in that module to another program. 13. Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order. 14. Write a Python program to convert an integer to Roman numeral. 15. Write a Python program to reverse a string word by word. 	
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Part C-Learning Resources
Text Books, Reference Books, Other resources
Suggested Readings:
1. Mark Lutz, Learning Python
2. Tony Gaddis, Starting Out With Python
Suggestive digital platforms/ web links: 1.
www.w3school.com
www.python.org
https://www.tutorialspoint.com/python/index.htm

Suggested equivalent online courses:				
S.No.	Online Course	Duration	Plate-form	
01	Joy of Computing using Python https://nptel.ac	12 Weeks	NPTEL	
02	Complete Python course https://www.udemy.com/topic	12 Weeks	Udemy	
Part D-Assessment and Evaluation				
Suggested Continuous Evaluation Methods:				
Internal Assessment		Marks	External Assessment	Marks
Class Interaction /Quiz		30	Viva Voce on Practical	70
Attendance			Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology			Table work / Experiments	
		Total Marks : 100		

St. Aloysius' College (Autonomous), Jabalpur			
PART A: Introduction			
Program: Degree	Class: BCA	Year 3	Session: 2023-24
Subject: Computer Application			
1	Course Code		
2	Course Title	Data Science & Machine Learning	
3	Course Type (Core/ Elective/Generic Elective / Vocational)	Elective- 1	
4	Pre-Requisite (if any)	To study this course, a student must basic knowledge of Computers	
5	Course Learning Outcomes(CLO)	<p>After the completion of the course, a successful student will be able to do the following:</p> <p>CO1. Understanding of the need for data science, its benefits and uses, the facets of data, and the data science</p> <p>CO2. Apply statistical concepts and techniques to analyze and interpret data.</p> <p>CO3. Execute a variety of data analysis tasks using Python, specifically utilizing libraries like Pandas and Numpy.</p> <p>CO4. Apply and analyze various machine learning algorithms.</p>	
6	Credit values	Theory - 3 credits	
7	Total Marks	Maximum Marks-External: 70 Internal: 30	Min. Marks: 35
Part B: Content of the course			
No. of Lectures (in hrs / week): 3 hrs. / week			
Unit	Topics	No. of Lectures	
1	INTRODUCTION TO DATA SCIENCE Need for data science – benefits and uses – facets of data – data science process – setting the research goal – retrieving data – cleansing, integrating, and transforming data – exploratory data analysis – build the models – presenting and building applications.	10	
2	Introduction to Statistics- variables (discrete random variable, continuous random variable, numerical variable, categorical variable); descriptive statistics (mean, mode, median standard deviation, variance, covariance, correlation); Regression and its types, relationship between variables (dependent and independent)	10	
3	Data analysis using Python- pandas, importing and reading a CSV sheet, basic exploration of data, converting a python data structure to data frame, numerical description of a data frame, understanding iloc() and loc(), tackling Null values, data frames(concatenating, merging, join), Introduction to Seaborn	10	
4	Introduction to Machine Learning, ML types (Supervised Learning, Unsupervised Learning, Reinforcement Learning), Algorithms- Supervised learning (K-nearest neighbor, Naive Bayes), Unsupervised (K-means Clustering); Basics of Decision trees, Support Vector Machines, Principal Component Analysis, and Cost Function in Machine learning	12	
5	Scikit learn : modeling process, Data Representation, Estimator API, Conventions, Linear Modeling, Decision Tree Classifier module, K-Means	13	

	Clustering module, SVM algorithm.	
	Role of Loss Functions and Optimization, Concept of CNNs, Popular CNN Architectures, GAN, Introduction to Natural Language Processing.	

PART C: Learning References

Textbooks, Reference Books, other resources

Suggested Readings

Text Books:

- David Cielen, Arno D. B. Meysman, and Mohamed Ali, "Introducing Data Science: Big Data, Machine Learning, and More, Using Python Tools", Dreamtech Press, 2016. (Unit I).
- Machine Learning, Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, Pearson publication (Unit 2)
- Himanshu Singh, Statistics for Machine Learning, BPB Publication, 1 edition, 2021 (Unit 3,4,5)

Reference Books:

- Roger Peng, "The Art of Data Science", lulu.com 2016.
- MurtazaHaider, "Getting Started with Data Science – Making Sense of Data with Analytics", IBM press, E-book.
- Annalyn Ng, Kenneth Soo, "Numsense! Data Science for the Layman: No Math Added", 2017,1st Edition.
- Cathy O'Neil, Rachel Schutt, "Doing Data Science Straight Talk from the Frontline", O'Reilly Media 2013.
- Lillian Pierson, "Data Science for Dummies", 2017, 2nd Edition.

Suggested digital platform web links:

Suggested equivalent online courses

S.No	Online courses	Duration	Platform
1	Machine Learning & Data Science	43 hrs	Udemy
2	Data Science	218 Hrs Self-paced Videos	Intellipaate

PART D: Assessment and Evaluation

Internal Assessment: Continuous Comprehensive Evaluation (CCE): 30 Marks

Shall be based on allotted assignments and Class Tests based on the Course outcomes.

Attainment Expressions	PO Mapping	PSO Mapping	Cognitive level
Discuss the benefits and uses of data science and describe the different facets of data (CO1)	PO1	PSO1	R,U
Given a dataset containing information about students' exam scores and study hours, apply the concepts of variables and descriptive statistics to analyze the data (CO2)	PO4	PSO1	AP
Generate descriptive statistics, such as mean, median, and standard deviation, for a specific numerical variable in the dataset (CO3)	PO2, PO4	PSO6	AN
Provide a detailed analysis of each algorithm's performance, interpret the results, and discuss the potential insights gained from the analysis (CO4).	PO9	PSO5, PSO7	AN, E

External Assessment: 60 Marks

Time: 3 hours

Section	Mark x No. of Questions
A: Very Short Questions	1 x 4
B: Short Questions	4 x 4
C: Long Questions	7 x 4

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR

PART A:			
Program: Degree	Class: BCA	III yr	Session: 2023-24
Subject: Computer			
1.	Course Code		
2.	Course Title	Basic Machine learning Lab	
3.	Course Type (Core)	Lab	
4.	Pre-Requisite (if any)	To study this course, a student must basic knowledge of Computers	
5.	Course Learning Outcomes (CLO)	After the completion of this course, a student shall be able to: CO1. Calculate and interpret statistical measures CO2. Conduct regression analysis to identify and understand relationships between numerical variables. CO3. Apply data analysis techniques using Python libraries such as pandas and numpy	
	Credit Value	1 Credits	
	Total Marks	Max. Marks : Int: 30 Ext:70	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab. Practicals (in hours per week): 1 Lab. per week			
Total No. of Lab.: 15 Hrs.			
SNo	Suggestive List of Practical		No. of
1	Create a list of random numbers and classify them as discrete or continuous variables.		15
2	Convert a numerical variable into a categorical variable based on specific criteria.		
3	Calculate the mean, mode, median, standard deviation, variance, covariance, and correlation of a given dataset.		
4	Perform a regression analysis to determine the relationship between two numerical variables.		
5	Use the pandas library to read a CSV file using the read_csv() function.		
6	Use functions like head(), tail(), info(), and describe() to get an overview of the data.		
7	Convert a Python list, dictionary, or NumPy array to a DataFrame using the pandas library.		
8	Calculate statistical measures like mean, median, standard deviation on DataFrame columns.		
9	Use iloc() for integer-based indexing and loc() for label-based indexing to access specific rows or columns in a DataFrame.		
10	Identify and handle missing or Null values using functions like isnull(), fillna(), or dropna().		
11	Perform DataFrame operations like concatenating, merging, and joining multiple DataFrames using concat(), merge(), and join() functions.		
12	Use NumPy functions for indexing, reshaping arrays, generating random values, and performing mathematical operations on arrays.		

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

Eric Matthes, Python Crash Course: A Hands-On, Project-Based Introduction to Programming (2nd Edition)

Zed A. Shaw Learn Python the Hard Way: 3rd Edition

PART D: Assessment and Evaluation

Internal Assessment : Continuous

External Assessment: 70 Marks

Comprehensive Evaluation (CCE) : 30 Marks

Time : 02.00 Hours

Internal Assessment	Marks	External Assessment	Marks
Hands-on Lab Practice	10 Marks	Practical record file	20 Marks
Viva	10 Marks	Viva voce practical	10 Marks
Lab Test from practical list	10 Marks	Table works/ Exercise Assigned /Execution	40 Marks
Total	30 Marks	Total	70 Marks

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III	SESSION: 2023-24
Subject: Computer Application (BCA)				
Course Code		S3-BCAC2G		
Course Title		Cyber Security		
Course Type		Elective - 2		
Pre-Requisite (if any)		Students must have basic Computer Knowledge		
Course learning outcome	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Identify the key components of cyber security network architecture. 2. Employ, design and implement appropriate security technologies and policies to protect computers and digital information 3. Analyze threats and risks within context of the cyber security architecture. 4. Apply cyber security architecture principles. 5. Gain familiarity with prevalent network and distributed system attacks 			
Credit Value	4			
Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Cyber Security: introduction, Need for security. Basics of Cryptography: Plain text and Cipher Text, Substitution techniques, Caesar Cipher, Mono-alphabetic Cipher, Polygram, Polyalphabetic Substitution, Play fair, Hill Cipher, Transposition Cipher.	18
II	Encryption and Decryption, Symmetric Key Algorithms and AES: Brief history of Asymmetric Key Cryptography, Overview of Asymmetric Key Cryptography, RSA algorithm. Overview of Symmetric key Cryptography, Data Encryption Standard (DES)	18
III	Network Security, Types of Attacks, Firewalls and Virtual Private Networks: Brief Introduction to TCP/IP, Firewalls, Virtual Private Networks (VPN), Secure Socket Layer (SSL), Transport Layer Security (TLS), Secure Hyper Text Transfer Protocol (SHTTP), Time Stamping Protocol (TSP), Secure Electronic Transaction (SET), Secure Sockets Layer (SSL), E-mail Security	18
IV	Introduction to information systems, Types of information Systems, Development of Information Systems, Need for Information security, Threats to Information Systems, information Assurance, Cyber Security and Security Risk Analysis	18

V	Security Policies, Why Policies should be developed, WWW policies, Email Security policies, Policy Review Process-Corporate policies-Sample Security Policies, Publishing and Notification Requirement of the Policies. Information Security Standards-ISO, IT Act, Copyright Act, Patent Law, IPR	18
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

1. Bernard Menezes, "Network Security and Cryptography", CEGAGE Learning, ISBN-10: 81-315-1349-1, ISBN-13: 978-81-315-1349-1, 2014.
2. Charles Pfleeger, "Security in Computing", Prentice Hall, 4th Edition, ISBN-10: 0132390779, ISBN-13: 978-0132390774, 2006.
3. Ulysess Black, "Internet Security Protocols: Protecting IP Traffic", Prentice Hall PTR; 1st edition, ISBN-10: 0130142492, ISBN-13: 978-0130142498, 2000.
4. William Stallings, "Cryptography and Network Security", Pearson Education, 6th Edition, ISBN-10: 0133354695, 2013.
5. Jonathan Rosenoer, "Cyber Law: The law of the Internet", Springer-Verlag, 1997.
6. Mark F Grady, Francesco Parisi, "The Law and Economics of Cyber Security", Cambridge

University Press, 2006.

Suggestive digital platforms/ web links

1. <https://onlinccourses.swayam2.ac.in/nou19cs08/Qreview>
2. <https://onlinecourses.swayam2.ac.in/cec20cs15/12review>
3. <https://nptel.ac.in/courses/106106129>
4. <https://nptel.ac.in/courses/106105031>
5. <https://nptel.ac.in/courses/106106199>

Suggested equivalent online courses:

1. <https://www.simplilcarn.com/cyber-security/certification>
2. <https://study.torontosom.ca/cybersecurity/diploma>
3. <https://aws.amazon.com/securitycourses/byaws-experts>
4. <https://www.udemy.com/topic/cyber-security/>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation	Class Test Assignment/Presentation	
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(CCE):30		
External Assessment University Exam Section: 70 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III SEM	SESSION: 2023-24
Subject: Computer Application (BCA)				
1. Course Code		S2-BCAA1T		
2. Course Title		Data Communication and Computer Networks		
3. Course Type		Major		
4. Pre-Requisite (if any)		To study this course, a student must have the basic knowledge of Computers.		
5. Course learning outcome(CLO)	<ul style="list-style-type: none"> • Demonstrate the Basic Concepts of Networking, Networking Principles, Routing Algorithms, IP Addressing and working of Networking Devices. • Demonstrate the significance, purpose and application of Networking protocols and Standards. • Describe, compare and contrast LAN, WAN, MAN, Intranet, Internet, AM, FM, PM and Various Switching Techniques. • Explain the working of Layers and apply the various protocols of OSI & TCP/IP model. • Analyze the Requirement for a given Organizational structure and select the most appropriate Networking Architecture and Technologies. • Design the Network Diagram and solve the Networking problems of the Organization with consideration of Human and Environment install and configure the networking device. 			
6. Credit Value	Theory—6 Credits			
7. Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 3 Hrs. per week

Total No. of Lectures (in hours): 90 Hrs.

Unit	Topics	No. of Lectures
I	Network goals and application, Network structure, Network services, Example of network and Network Standardization, Networking models: centralized, distributed and collaborative. Network Topologies: Bus, Star, Ring, Tree, Hybrid: Selection and Evaluation factors.	15
II	Theoretical basis for Data communication, Transmission media, Twisted pair, Coaxial Cable, Fiber optics: Selection and Evaluation factors Line of Sight Transmission, Communication Satellites. Analog and Digital transmission. Transmission and switching, frequency division and time division multiplexing, Circuit switching, packet. Switching and message switching.	20
III	Brief overview of LAN (local area network) Classification, Brief overview of Wide Area Network (WAN). Salient features and difference of LAN with emphasis on Media, Speed of Transmission,	20

	Terminal Handling, Polling, Token passing, Contention IEEE Standards their need and developments.	
IV	Open System: What is an Open System? Network Architectures is OSI Reference Model. Layers: Application, Presentation, Session, Transport, Network, Data Link & Physical Layer - Transmission, Bandwidth, Signaling devices used, media type. Data Link Layer - : Addressing, Media Access Methods, Logical link Control.	20
V	Routing: Fewest-Hops routing, Type of Service routing, Bridges and Routers, Gateway protocols, routing daemons. OSI and TCP/IP model. TCP/IP and Ethernet. The Internet: The structure of the Internet, the internet layers, Internetwork problems. Internet Standards.	15

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

1. Tannanbaum, A. S.: Computer Networks, Prentice Hall, 1985.processing, Prentice Hall,1983.
- 2 Black : Computer Networks : Protocols, standards and Interfaces, Prentice Hall International I. Tannanbaum, A.S.: Computer Networks, Prentice Hall, 1985.processing, Prentice Hall, 1983.
3. Fourauzan B., "Data Communications and Networking", 3rd edition, TataMcGraw- Hill Publications,

Reference Books:

- 1.Comer· D., "Computer Networks and Internet", 2ND Edition, PearsonEducation
2. S.K.Basandra& S. Jaiswal, "Local Area Networks", Galgotia Publications
3. William Stallings, "Data and Computer Communication"
- 4: Book published by M.P. Granth Academy, Bhopal

Suggested Web Links:

<https://www.nptel.ac.in/courses/106/105/106105082/>
<https://www.iitkg.ac>
<https://www.nptel.ac.in/course.html>
<https://www.harvard.edu/subject/computer-networking>
<http://www.m12hindigranthacademy.org/>
<http://www.mphindigranthacademy.org/>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE): 40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

St. Aloysius' College (Autonomous), Jabalpur

Part A – Introduction

Session:	2023-24
Subject	Computer Application
Programme	Diploma
Class	BCA III Semester
Course Code	S2-BCAA2T
Course Type	Minor
Course Title	Database Management Systems
Pre-requisite	To study this course, a student must have the basic knowledge of Computers.
Course Learning Outcome	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO1. Explain the features of database management systems and relational database.</p> <p>CO2. Design conceptual models of a database using ER modeling for real life applications and construct queries in relational algebra.</p> <p>CO3. Create and populate a RDBMS for a real-life application, with constraints and keys, using SQL.</p> <p>CO4. Retrieve any type of information from a database by formulating complex queries in SQL.</p> <p>CO5. Analyse the existing design of a database schema and apply concepts of normalization to design an optimal database.</p>
Credit Value	4 credits (4-TH)
Total Marks	Max. Marks: 40+60 Min. Passing Marks:35

Part B – Course Content

Total No. of Lectures-Tutorials-Practical (in hours per week): L-4

Unit I	<p>Introduction to DBMS: Why database? Characteristics of datain database, DBMS. What are advantages of DBMS?</p> <p>Database Architecture and Modeling: Conceptual, physical and logical database models, Role of DBA, Database design.</p> <p>Entity Relationship (ER) Model: Components of ER-model, ER modeling symbols, Relationships, Specialization, Generalization, Aggregation.</p>
Unit II	<p>Relational database implementation</p> <p>Relational Implementation with SQL: Schema and Table Definition: Schema definition (CREATE), Data types & domains, Defining Tables, Column Definition.</p> <p>Data Manipulation: Simple Queries (SELECT, FROM, WHERE), Built-In Functions (SUM, AVG, COUNT, MAX, and MIN).GROUP BY, ORDER BY and HAVING clause. Database Change Operations: INSERT, UPDATE, DELETE.</p>

Unit III	<p>Relational database implementation: Multiple Table Queries-Subqueries, EXISTS and NOT EXISTS operators,</p> <p>Relational Algebra and Calculus</p> <p>Relational Algebra: Union, Intersection, Difference, Product, Select, Project, Join - Natural, Theta & Outer Join, Divide, Assignment.</p> <p>Relational Algebra Operations with SQL: UNION, INTERSECT, EXCEPT.</p>
Unit IV	<p>The Relational Data Model:</p> <p>Fundamental Concepts: Relations, Null Values, Keys, Foreign Keys, Integrity Constraints - Entity Integrity & Relational Integrity.</p> <p>Normalization Process: First Normal Form, Functional Dependencies, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form (BCNF), Fourth Normal Form; Other Normal Forms - Fifth Normal Form & Domain/Key Normal Form.</p>
Unit V	<p>Physical Database Systems</p> <p>Overview of Physical Storage Media, Magnetic Disk and Flash Storage, RAID, RAID Levels, Choice of RAID level.</p> <p><i>Physical Storage Media.</i> Secondary Storage, Physical Storage Blocks.</p> <p><i>Data Storage Formats on Disk:</i> Track Format, Record Format—Fixed-Length Records & Variable-Length Records, Input/output Management.</p> <p><i>File Organizing and Addressing Methods:</i> Sequential File Organization, Indexed- Sequential File Organization, Direct File Organization, Data Dictionary Storage.</p>

Part C – Suggested Readings

S. N.	Author	Name of the Book	Publication
1	Gary W. Hansen & James V. Hansen	Database Management and Design	Prentice Hall of India Pvt Ltd.
2	Ramez Elmasri, Shamkant Navathe	Fundamentals of Database Systems	Pearson
3	Raghu Ramakrishnan & Johannes Gehrke	Database Management Systems	McGraw Hill Education
4	C.J. Date	An Introduction to Database System	Pearson
5	Abraham Silberschatz, Henry F. Korth, S. Sudharshan	Database System Concepts	Tata McGraw Hill

Attainment Expressions	PO Mapping	PSO mapping	Cognitive level
Identifying basic problem of real world with abstract requirement (CO1, CO2)	PO2	PSO4	R, U
Applying advanced and basic queries on real databases (CO3, CO4, CO5)	PO2, PO3	PSO4, PSO7	AP

PART A: INTRODUCTION

Program: Diploma	Class: BCA	Year: III Semester	Session: 2023-24
Subject: Computer Applications			
1.	Course Code	S2-BCAA2P	
2.	Course Title	DBMS	
3.	Course Type	Minor	
4.	Pre-Requisite (if any)	To study this course, a student must have the basic knowledge of Computers.	
5.	Course Learning Outcomes (CLO)	<p>This lab is based on the theory course of DBMS. This lab course Involves the development of the practical skills in DBMS using MS-Access/Visual-FoxPro/SQL-Server/etc. This course is an attempt to upgrade and enhance student's theoretical skills and provide the hands-on experience.</p> <p>After completing this lab course sessions, student will be able:</p> <ul style="list-style-type: none"> • to create Databases & Views, • execute simple advance SQL queries, • use DBMS tools in the areas of database applications. <p>Topics to be covered in the lab syllabus-</p> <ul style="list-style-type: none"> • Introduction to MS-Access/Visual-FoxPro/SQL-Server/etc • Hands on practice on the application package used in the lab(i.e. on MS-Access/Visual-FoxPro/SQL-Server/etc) • Database creation using MS-Access/Visual-FoxPro/SQL-Server/etc • Simple SQL queries (Single table) • Use of Advanced SQL queries 	
6.	Credit Value	2 credits (2-PR)	
7.	Total Marks	Max. Marks: 40 Int + 60 Ext	Min. Passing Marks: 35

PART B: CONTENT OF THE COURSE

Total No. of Lectures-Tutorials-Practical (in hours per week): P – 2

Total timber of Practical: **02 Hours per Week**

List of Practical's

1. To draw ER Model and Relational Model for a given database. Show ER to Relational Model reduction.

2. Implementation of Database

- Creation of Database with proper constraints
- Insert into database using different types of insert statements
- Display

3. Data Definition (schema) Modification

4. Simple SQL queries (Single table retrieval)

- Make use of different operators (relational, logical etc.)
- Selection of rows and columns, renaming columns, use of distinct keyword
- String handling (% , etc.)
- Update statement
- Delete

5. Advanced SQL Queries-1

- Group by, having clause, aggregate functions
- Set operations like union, union all and use of order by clause
- Nested queries: in, not in, exists, not exists and any, all

6. Advanced SQL Queries -2

- Join (Inner & Outer)
- Exists & Union

PART C: LEARNING RESOURCES

Textbooks, Reference Books, Other Resources

Suggested Readings:

1. SQL, PL/SQL-The programming language of ORACLE, Ivan Bayross, BPB publication.
2. Dr Rajeew Chopra, —Database Management System (DBMS) A Practical Approach, 2010, S Chand
3. Jitendra Patel, —DBMS Lab Manual| Kindle Edition, 2012.

Suggestive digital platform web finds

https://fec.kai.nic.in/i%20aibag/FileHandler/270-101d616b-255a-4add-8d9bdd_e22fec7c1.pdf

<https://nesitsoiith.pes.edu/pdf/2019/3u1v/CS/LM%20DBMS%20LAB.ndf>

<http://www.mphindigranthacademy.org/>

Suggested equivalent online courses

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III Semester	SESSION: 2023-24
Subject: Computer Application (BCA)				
8. Course Code		S2-BCAC 1 G		
9. Course Title		Internet of Things (IOTs)		
10. Course Type		Elective		
11. Pre-Requisite (if any)		Students must have basic Computer Knowledge		
12. Course learning outcome	<ul style="list-style-type: none"> • CO1. To understand the basics of the Internet of Things • CO2. To get an idea of some of the application areas where the Internet of Things can be applied. • CO3. To understand the middleware for the Internet of Things and the concepts of the Web of Things. • CO4. To understand the concepts of the Cloud of Things with an emphasis on Mobile cloud computing. • CO5. To understand the IOT protocols. 			
13. Credit Value	Theory—3Credits	Practical— 1 Credits		
14. Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Introduction: Introduction: Definition, characteristics of IoT, IoT Conceptual framework, IoT Architectural view, Physical design of IoT, Logical design of IoT, Application of IoT, Arduino IDE, Setup(), loop(), delay, bound, serial monitor.	14
II	Machine-to-machine (M2M), SDN (software-defined networking) and NFV (network function virtualization) for IoT, data storage in IoT, IoT Cloud-Based Services.	14
III	Design Principles for Web Connectivity: Web Communication Protocols for connected devices, Message Communication Protocols for connected devices, SOAP, and REST, HTTP Restful Web Sockets, Internet Connectivity Principles: Internet Connectivity, Internet-based communication, IP addressing in IoT, and Media Access control.	14
IV	Sensor Technology, Participatory Sensing, Industrial IOT and Automotive IOT, Actuator, Sensor data Communication Protocols, Radio Frequency Identification Technology, Wireless-Sensor Network Technology, IoT Design methodology: Specification Requirement, process, model, service, functional & operational view, IoT Privacy and security solutions, Raspberry Pi & Arduino devices, IoT Case studies: smart city streetlights control & monitoring, E-waste Management.	14

Suggested Readings

Textbooks:

- Rajkamal, Internet of Things—, Tata McGraw Hill publication.
- Hakima Chaouchi —The Internet of Things: Connecting Objects, Wiley publication.
- Francis Dacosta -Rethinking the Internet of things: A scalable Approach to connecting everything, 1st edition, Apress publications2013.
- Donald Norris—The Internet of Things: Do-It-Yourself at Home Projects for Arduino, Raspberry Pi, and BeagleBone Black—, McGraw Hill publication.

Reference books:

- I. Philip Levis, -TinyOS Programming.
- D. Norris, —The Internet of Things: Do-it-Yourself Projects with Arduino, Raspberry Pi, and Beagle Bone Black, McGraw-Hill Education, New Delhi.
- Raj Karnal, —Internet of Things: Architecture and Desist, Tata McGraw Hill publication.
- Pajankarand A. Kakkar, —Raspberry Piby Example J, Pack Publishing Ltd, Birmingham, UK.
- S. Dooks published by II.P. Hindi Granth Academy, Bhopal

- Suggestive digital platform web links.
- <https://www.iotforall.com/introduction-rot-applications-in-education>
- https://onlinecourses.swayam2.ac.in/arpl9_ap52/preview
- <http://www.mphindigranthacademy.org>.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

PART' A: Introduction			
Program: Diploma	Class: BCA	Year: III SEM	Session: 2023-24
Subject: Internet of Things(IOTs) Practical /Lab			
1.	Course Code	S2-BCAC 1 R	
2.	Course Title	Internet of Things (IOTs) lab	
3.	Course Type(Core Course/ Elective/ Generic Elective/ Vocational	Elective	
4.	Pre-Requisite (if any)	Open for all	
5.	Learning Outcomes(CLO)	After completing this lab course, students will be able to: 1. Arduino/Raspberry Concept. 2. Knowledge of Digital Sensor. 3. Uses of DHT11 Sensors. 4. Knowledge of Bluetooth interface.	
6.	Credit Value	Practical — 2 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

PART B: Content of the Course	
No. of Lab. Practical (in hours per week): 1 Hr. per week	
Total No. of Labs: 15 Hrs.	
Suggestive List of Practical	No. of Labs.
<ol style="list-style-type: none"> To interface LLD/Buzzer with Arduino /Raspberry Pi and write a program to turn on LED after every 2 seconds. To interface Push button/Digital sensor (IR/PDR) with Arduino/Raspberry Pi and write a program to turn on LED when push button is pressed or at sensor detection. To interface DHT 11 sensor with Arduino/Raspberry Pi and write a program to print temperature and humidity readings. To interface motor using relay with Arduino/Raspberry Pi and write a program to turn on motor when push button is pressed. To interface OLED with Arduino/Raspberry Pi and write a program to temperature and humidity reading on it. To interface blue tooth with Arduino/Raspberry Pi and write a program to send sensor data to smartphone using Bluetooth. To interface Bluetooth with Arduino/Raspberry Pi and write a program to turn LED 'OFF' when 1 "0" is received from smartphone using Bluetooth. Write a program Arduino/Raspberry Pi to upload temperature and humidity data to thing speak cloud. Write a program Arduino/Raspberry Pi to retrieve temperature and humidity data from thing speak cloud. To install MySQL database on Raspberry Pi and perform basic SQL queries. 	

Suggested Readings

Textbooks:

- Rajkamal, Internet of Things—, Tata McGraw Hill publication.
- Hakima Chaouchi —The Internet of Things: Connecting Objects, Wiley publication.
- Francis Dacosta -Rethinking the Internet of things: A scalable Approach toconnectingeveiythingi, 1st edition, Apress publications2013.
- Donald Norris—The Internet of Things: Do-It-Yourself at Home Projects for Arduino, Raspberry Pi, and BeagleBone Black—, McGraw Hill publication.

Reference books:

- I. Philip Levis, -TinyOS Programming.
- D. Norris, —The Internet of Things: Do-it-Yourself Projects with Arduino, Raspberry Pi, and Beagle Bone Black, McGraw-Hill Education, New Delhi.
- Raj Karnal, —Internet of Things: Architecture and Desist, Tata McGraw Hill publication.
- Pajankarand A. Kakkar, —RaspberrypiExampleJ, Packt Publishing Ltd, Birmingham, UK.
- S. Dooks published by I.I.P. Hindi Granth Academy, Bhopal

- Suggestive digital platform web links.
- <https://www.iotforall.com/introduction-rot-applications-in-education>
- https://onlinecourses.swayam2.ac.in/arpl9_ap52/preview
- <http://www.mphindigranthacademy.org>.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	IV Semester	SESSION: 2023-24
Subject: Computer Application (BCA)				
1. Course Code				
2. Course Title	BLOCK CHAIN TECHNOLOGY			
3. Course Type	Elective			
4. Pre-Requisite (if any)	Students must have basic Computer Knowledge			
5. Course learning outcome	<ul style="list-style-type: none"> • To understand the concepts of blockchain technology • To understand the consensus and hyper-ledger fabric in blockchain technology. State the basic concepts of blockchain • Paraphrase the list of consensus and Demonstrate and interpret the working of Hyper ledger Fabric • Implement SDK composer tool and explain the Digital identity for the government. 			
6. Credit Value	Theory—4 Credits			
7. Total Marks	Max. Marks: 40+60		Min. Passing Marks: 35	

PART B: Content of the Course

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	History: Digital Money to Distributed Ledgers -Design Primitives: Protocols, Security, Consensus, Permissions, Privacy-: Blockchain Architecture and Design-Basic crypto primitives: Hash, SignatureHash chain to Blockchain-Basic consensus mechanisms.	14
II	Requirements for the consensus protocols-Proof of Work (PoW)- Scalability aspects of Blockchain consensus protocols: Permissioned Block chains-Design goals-Consensus protocols for Permissioned Blockchains.	14
III	Decomposing the consensus process-Hyper ledger fabric components-Chain code Design and Implementation: Hyper ledger Fabric II:- Beyond Chain code: fabric SDK and Front End-Hyper ledger composer tool.	14
IV	Blockchain in Financial Software and Systems (FSS): -Settlements, - KYC, -Capital markets-Insurance Blockchain in trade/supply chain: Provenance of goods, visibility, trade/supply chain finance, invoice management/discounting. Blockchain Cryptography: Privacy and Security on Blockchain.	14

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

1. Mark Gates, —Block chain: Ultimate guide to understanding block chain, bit coin, crypto currencies, smart contracts and the future of money|, Wise Fox Publishing and Mark Gates 2017.
2. Salman Baset, Luc Desrosiers, Nitin Gaur, Petr Novotny, Anthony O'Dowd, Venkatraman Ramakrishna, —Hands-On Block chain with Hyper ledger: Building decentralized applications with Hyperledger Fabric and Composer|, 2018.
3. Bahga, Vijay Madiseti, -Block chain Applications: A Hands-On Approach|, Arshdeep Bahga, Vijay Madiseti publishers 2017.

Reference books:

1. Andreas Antonopoulos, -Mastering Bitcoin: Unlocking Digital Crypto currencies, O'Reilly Media, Inc. 2014.
2. Melanie Swa, -Block chain ,O'Reilly Media 2014.

- NPTEL & MOOC courses titled blockchain technology
- blockgeeks.com/guide/what-is-block-chain-technology
- <https://nptel.ac.in/courses/106105184>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

ST. ALOYSIUS' COLLEGE (AUTONOMOUS) JABALPUR**Part-A :Introduction**

Program: Diploma		Class: BCA	Semester : IV	session: 2023-2024
Subject : Computer Applications				
1.	Course Code	S2-BCADIG		
2.	Course Title	E-Commerce		
3.	Course Type(Core Course/Elective/Generic Elective/Vocational/...)	Generic Elective		
4.	Pre-requisite(If any)			
5.	Course Learning Outcomes (CLO)	On the completion of this course student will be able - <ul style="list-style-type: none">• To learn the fundamentals of E — Commerce and its process.• To understand the role of E- commerce in the present scenario along with the concepts of security and its applications.• To gain knowledge of e-commerce business needs and resources and match to technology considering human factors and budget constraints.• To apply knowledge of changing technology on traditional business models and strategy.• To have skills to communicate effectively and ethically using electronic communication.		
6.	Credit Value	Theory : 4 Credits		
7.	Total Marks	Max.Marks: 40 + 60	Min. Passing Marks:35	

Part-B :Contents

No. Of Lectures (in hours per week) :**2 Lectures per week**
Total No. of Lectures =**60 Hrs.**

Module	Topics	No. of Lectures
I	<u>Introduction</u> Brief history of e-commerce ,Types , Advantages & Disadvantages of e-commerce, Elements of e-commerce, Principles of e-commerce, Messaging and Information distribution, Messaging and information distribution, Common service infrastructure, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.	10
II	<u>EDI to e-commerce:</u> EDI - Origin , System approach and Communication approach, Benefits of EDI, EDI technology, EDI standards, EDI communications, EDI Implementation, EDI Agreements, EDI Security, EDI Mechanics, E-com with WWW/Internet. E-Government- Concepts, Applications of G2C, G2B, G2G,	10
III	<u>WWW & Electronic Payment System:</u> Applications — what is web , Why is the Web such a hit, The Web and E-Com, Concepts & Technology —Key concepts, Web Software development Tools: Electronic payment system — Overview , Electronic or digital cash , Electronic Checks , Online credit card based system, E-Retailing: Traditional retailing and e retailing, Benefits of e retailing, Models of e retailing, Features of e retailing.	20
IV	<u>Security and Application</u> Need of computer security, Specific intruder approaches, Security strategies, Cryptography, Public key encryption, Private key encryption, Digital signatures <u>Advertising on the internet:</u> Marketing. Electronic publishing issues, EP architecture, EP tools, Web page EP-Baseline issues, Application tools and publishing on the internet, Legal protections Intellectual Property Rights: Types of Intellectual Property protection, Governance.	20

Part -C Learning Resources	
	<p>Suggested Digital Platforms, Web links</p> <ol style="list-style-type: none"> 1. https://onlinecourses.nptel.ac.in/noc19_inq54/preview 2. https://onlinecourses.swayam2.ac.in/cec19_cm01/preview 3. https://www.couseia.org/lecture/innovative-entrepreneur/e-commerce-the-internet-as-a-selling-platform-DYSNa 4. https://www.mooc-list.com/tags/e-commerce-market 5. https://onlinecourses.swayam2.ac.in/nou21_cm14/preview 6. http://www.mphindigranthacademy.org/ <p>Suggested Readings:</p> <ol style="list-style-type: none"> 1. "Electronic Commerce" By Ravi Kalakota and Andrew B. Winston. 2. "Web Commerce Technologies Handbok" By Daniel Minoli & Emma Minoli 3. "E-Commerce " By Dr. Varinder Bhatia 4. "Promise Of E-Governance " By M P Gupta 5. Book published by M.P. Granth Academy , Bhopal 6. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks : 100.		
Continuous Comprehensive Evaluation (CCE) : 40marks University Exam(UE) 60marks Internal		
Assessment :	Class Test	Total 40 Continuous
Comprehensive Evaluation (CCE):40	Assignment/Presentation	
External Assessment : University Exam Section: 60 Time : 03.00 Hours	Section(A) : Objective Questions	Total 60
	Section (B) : Short Questions	
	Section (C) : Long Questions	

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	IV SEM	SESSION: 2023-24
Subject: Computer Application (BCA)				
Course Code				
Course Title		REACT JS		
Course Type		Elective		
Pre-Requisite (if any)		Students must have knowledge of HTML, CSS and Java Script		
Course learning outcome	<ul style="list-style-type: none"> • Create React Components. • Perform some simple tests. • Think in React. • Add state and props to an application. • Add inverse data flow to an application. • Use some common React Hooks. • Use external services to provide data. • Set up a single page application. 			
Credit Value	Theory—3 Credits			
Total Marks	Max. Marks: 40+60		Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Introduction to React: What is React, Why React, React version history, React 16 vs React 15, Just React – Hello World ,Using create-react-app, Anatomy of react project, Running the app, Debugging first react app.	14
II	Templating using JSX: Working with React. createElement, Expressions, Using logical operators, Specifying attributes, Specifying children, Fragments. About Components: Significance of component architecture, Types of components, Functional, Class based, Pure, Component Composition	14
III	Working with state and props: What is state and its significance, Read state and set state, Passing data to component using props, Validating props using propTypes, Supplying default values to props using default Props. Rendering lists: Using react key prop, Using map function to iterate on arrays to generate elements.	14
IV	Event handling in React: Understanding React event system, Understanding Synthetic event, Passing arguments to event handlers, Understanding component lifecycle and handling errors. Working with forms: Controlled components, Uncontrolled components,	14

	Understand the significance to default Value prop, Using react ref prop to get access to DOM element.	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- ReactJS by Example - Building Modern Web Applications with React
- React Js for Beginners A Comprehensive Beginner's Guide to ReactJS By Emma William · 2021

Reference books:

- React and React Native A Complete Hands-on Guide to Modern Web and Mobile Development with React.js By Adam Boduch, Roy Derks · 2020
- Quickstart Step-By-Step Guide to Learning React Javascript Library (React. Js, Reactjs, Learning React JS, React Javascript, React Programming) By Lionel Lopez · 2017

- <https://www.w3schools.com/REACT/DEFAULT.ASP>
- <https://legacy.reactjs.org/docs/getting-started.html>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40 Marks	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Marks	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	IV SEM	SESSION: 2023-24
Subject: Computer Application (BCA)				
Course Code				
Course Title		REACT JS		
Course Type		Generic Elective		
Pre-Requisite (if any)		Students must have basic Computer Knowledge		
Course learning outcome	<ul style="list-style-type: none"> • Able to work with react js • Able to design and develop high class websites 			
Credit Value	Practical— 1 Credits			
Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Labs.
	a) Build Search filter in React b) Creating a simple counter c) Display a list d) Build Accordion e) Image Slider f) Create a Checklist g) Simple Login form h) Multi-Page navigation using React Router	30

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- ReactJS by Example - Building Modern Web Applications with React
- React Js for Beginners A Comprehensive Beginner's Guide to ReactJS By Emma William • 2021

Reference books:

- https://contactmentor.com/react-js-practice-exercises-solution/?expand_article=1
- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40 Marks	<ul style="list-style-type: none"> • Hands-on Lab Practice: 10 Marks • Viva: 10 Marks • Lab Test from practical list: 10 Marks • Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training: 10 Marks 	Total 40
External	<ul style="list-style-type: none"> • Practical record file: 5 Marks 	Total 60

Assessment University Exam Section: 60 Marks	<ul style="list-style-type: none">• Viva voce practical: 5 Marks• Table works/ Exercise Assigned in practical exam: 40 Marks• Reports of excursions Lab visits/ Industrial training/ Survey/ Collection/ Models: 10 Marks	
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ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class:	Year: IV SEM	SESSION: 2023-24
Subject: B.C.A.				
Course Code				
Course Title		System Analysis and Engineering		
Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/)		Minor		
Pre-Requisite (if any)				
Course learning outcome	<ul style="list-style-type: none"> • CO1. Gain in depth knowledge of basic understanding of system characteristics, system design, and its development processes. • CO2. Student will learn how a system is designed in a systematic and phased manner, starting from requirement analysis to system implementation and maintenance. • CO3. To gain the knowledge of how Analysis, Design, Implementation, Testing and Maintenance processes are conducted in a software project. • CO4 Ability to apply software engineering principles and techniques. To produce efficient, reliable, robust and cost-effective software solutions. • CO5. Students will be able to choose appropriate process model depending on the user requirements. • CO6. Students will be able perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance. 			
Credit Value	Theory—6Credits			
Total Marks	Max. Marks:	Min. Passing Marks:		

PART B: Content of the Course

No. of Lectures (in hours per week): 3 Hrs. per week

Total No. of Lectures: 60 Hrs

Module	Topics	No. of Lectures
I	System Analysis and Design - Overview: Systems Analysis, Systems Design, What is a System? , Constraints of a System, Properties of a System, Elements of a System, Types of Systems, Systems Models.	14
II	System Development Life Cycle: Phases of SDLC, Life Cycle of System Analysis and Design, Role of System Analyst, Attributes of a Systems Analyst. System Planning: Requirements Determination, Information Gathering Techniques.	10
III	Structured Analysis: Structured Analysis Tools, Data Flow Diagrams (DFD), Decision Trees, Decision Tables, Components of a Decision Table. System Design: Inputs and Outputs for System Design, Types of System Design.	12
IV	Software Characteristics, Components and Applications. Software Engineering - A Layered Technology. Software Process Models [Linear Sequential Model, Prototype and RAD Model]. Evolutionary Software Process Models [Waterfall Model, Incremental Model and Spiral Model].	12

V	S/W Quality Assurance: Quality Concepts, SQA activities, S/W Reviews, Formal Technical Reviews. S/W Testing Techniques: White and Black Box Testing, Basic Path Testing, Unit Testing, integration Testing, Validation Testing, System Testing.	12
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Systems Analysis and Design by Elias M Awad
- Alan Dennis' 5th Edition of Systems Analysis and Design
- An Integrated Approach To Software Engineering By Pankaj Jalote
- Software Engineering By R.S.Pressman, Edition V-

Reference books:

- Software Engineering (7th Edition) Addison- Wesley 2004 ,Ian Sommerville
- Software Engineering Hand book Auerbach publication, Jessica Keyes
- Software Engineering Principles and Practice 2"d edition Wiley
- System Analysis and Design (9th Edition) Kenneth E. Kendall & Julie Kendall

Suggestive digital platform web links.

- https://www.tutorialspoint.com/system_analysis_and_design/index.htm
- <https://www.msuniv.ac.in/Download/Pdf/9cf334ee2d564a0>
- https://www.tutorialspoint.com/software_engineering/software_engineering_tutorial.pdf
- http://fincet.in/CSE/CS6403_uw.pdf

Part E-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation	Total 40
External Assessment University Exam Section: 60 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 70

ST. ALOYSIUS'
COLLEGE
(AUTONOMOUS)
JABALPUR

PART A: Introduction

Program: Diploma	Class: BCA	Semester : IV SEM	Session: 2023-24
Subject: Computer Applications			
1.	Course Code	BCA4	
2.	Course Title	Programming using JAVA	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Major	
4.	Pre-Requisite (if any)	To study this course, a student must have basic knowledge of Object-Oriented Programming.	
5.	Course Learning Outcomes (CLO)	<p>After the completion of this course, a successful student will be able to do the following:</p> <ul style="list-style-type: none"> • Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs. • Read and make elementary modifications to Java programs that solve real-world problems. • Validate input in a Java program. • Design and use basic applet for web page 	
6.	Credit Value	Theory — 4 Credits Practical — 2 Credits	
7.	Total Marks	Max. Marks : 40+60	Min. Passing Marks: 35

PART B: Content of the Course

No. of Lectures (in hours per week): 2 hrs. per week

Total No. of Lectures: 60 Hrs.

Module	Topics	No. of Lectures
I	The Java Environment: History and features of java, C++ VS java, JAVA Program Structure, Java Virtual Machine concepts, Primitive data types, variables and constants, operators, expression, statement-branching, looping and jumping, labeled statements.	10
II	Object Oriented Programming in Java: Classes, objects and methods: defining a class, adding variables and methods, creating objects, constructor, Instances, field and methods initialization by constructors, Copy constructor. Arrays, String classes, Wrapper classes.	14

III	Inheritance: Inheritance basics, Super class, Sub-class, Method overloading, abstract classes. Interfaces: defining an interface, implementing & applying interfaces, variables in interfaces, extending interfaces.	12
IV	Multithreading and Exception Handling: Basic idea of multithreaded programming; The lifecycle of a thread, Creating thread with the thread class and runnable interface, Basic idea of exception handling: The try, catch and finally.	12
V	Applet programming-Local and Remote Applets, Applet Vs Application, creating and executing java applets, inserting applets in a web page, passing parameter to applets, Applet Tag, Getting Input from User.	12
PART C: Learning Resources		
Textbooks, Reference Books, Other Resources		
<p>Suggested Readings</p> <ul style="list-style-type: none"> • Java A Complete reference by Herbert Schildt, Mc Graw hill publication • Thinking in Java (3rd edition) Bruce Eckel , Prentice Hall • The Java Language Specification, Java SE 8 , Cay S. Horstmann, Gary Cornell, Prentice Hall • Core Java an Integrated Approach (Black Book), Dr. R. Nageswara Rao, Prentice Hall <p>Suggested Websites</p> <p>www.javatutorials.com</p> <p>www.javatpoint.com</p> <p>www.tutorialspoint.com</p>		

Part D-Assessment and Evaluation
Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz		Viva Voce on Practical	
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial		Table work / Experiments	
TOTAL	40		60

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH

Part A Introduction		
Program: Degree	Class : UG	Year: III Session: 2023-24
Subject: BCA		
1	Course Code	3YBCADSEGA1
2	Course Title	Computer Graphics (Theory) (Group A)
3	Course Type (Core Course/ Discipline Specific Elective/ Generic Elective /Vocational/)	Discipline Specific Elective - I
4	Pre-requisite (if any)	None
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: 1. Understand the basics of computer graphics, different graphics Systems and applications of computer graphics. 2. Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. 3. Use of geometric transformations on graphics objects and their application in composite form. 4. Extract scene with different clipping methods and its transformation to graphics display device. 5. Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
6	Credit Value	4
7	Total Marks	Max. Marks: 30 + 70 Min. Passing Marks: 35

Part B- Content of the Course

Lectures: 60 Hrs.

Module	Topics	No. of Lectures
Unit-I	Introduction to Computer Graphics: Application of Computer Graphics. Interactive and Passive Graphics. Graphic Systems: Display Processor, Cathode Ray Tube (CRT), Random Scan vs Raster Scan, Color CRT Monitors, Direct View Storage Tubes, Flat Panel Display. Input-Output Devices: Input Devices, Trackball, Light Pen, Image Scanner, Output Devices, Plotters.	12
Unit -II	Scan Conversion a line: Scan Conversion Definition, Scan Converting aPoint. Scan Converting a Straight Line. DDA Algorithm. Scan Conversion Circle: Defining a Circle, Defining a Circle using Polynomial Method, Defining a Circle using Polar Coordinates Method, Bresenham's Circle Algorithm, Midpoint Circle Algorithm. Midpoint Ellipse Algorithm.	12
Unit-III	Filled Area Primitives: Boundary Fill Algorithm, Flood Fill Algorithm, Scan Line Polygon Fill Algorithm. 2D Transformations: Introduction of Transformation, Translation, Scaling. Rotation, Matrix Representation, Composite Transformation, Pivot Point Rotation. 2D-Viewing: Window, Window to Viewport Co-ordinate Transformation, Zooming, Panning.	12

Unit -IV	Clipping Techniques: Clipping, Point Clipping, Line Clipping, Text Clipping, Polygon Clipping, Sutherland-Hodgeman Polygon Clipping, Weiler-Atherton Polygon Clipping. Pointing & Positioning: Pointing & Positioning Techniques, Elastic Rubber Band Techniques, Dragging. Shading: Introduction of Shading, Constant Intensity Shading, Gouraud shading, Phong Shading.	12
Unit -V	Animation: Animation, Application Areas of Animation, Functions. 3D Computer Graphics: Three Dimensional Graphics, Three Dimensional Transformations, Scaling, Rotation, Reflection, Shearing. Hidden Surfaces: Hidden Surface Removal, Back Face Removal Algorithm, Z-Buffer Algorithm, Painter's Algorithm, Scan Line Algorithm, Sub-division Algorithm.	12

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

1. Donald Hearn, M. Pauline Baker: Computer Graphics C Version, Pearson Education India; 2nd edition, 2002.
2. John Hughes, Andries van Dam, Morgan McGuire, David Sklar, James Foley: Computer Graphics: Principles and Practice, Addison-Wesley Professional, 3rd edition, 2013.
3. Zhigang Xiang, Roy Plastock: Computer Graphics, McGraw Hill Education, 2nd edition,

Reference Book:

1. James D. Foley, Andries van Dam, Steven K. Feiner, John F. Hughes: Introduction to Computer Graphics, Addison Wesley, 1993.
2. Chopra Dr. Rajiv: Computer Graphics, S Chand & Co Ltd.
3. Desai: Computer Graphics, PHI, 2008.
4. Asthana, R.G.S.: Computer Graphics for Scientists and Engineers, New Age International Pvt Ltd.

Suggested Digital Platforms Web links:

- <https://www.eshiksha.mp.gov.in/mpd>
- <https://epgp.inflibnet.ac.in>
- Suggested equivalent online courses:
- <https://nptel.ac.in/courses/106103224>
- <https://nptel.ac.in/courses/106106090>

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks External exam: 70 Marks

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH		
Program: Degree Class :UG Year: III Year Session: 2023-24		
Subject: BCA		
	Course Code	3YBCADSEGAL1
2	Course Title	Computer Graphics (Practical) (Group A - Paper-I)
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/)	Discipline Specific Elective (DSE)- I
4	Pre-requisite (if any)	None
	Course Learning outcomes(CLO)	<p>On successful completion of this course, the students will be able to:</p> <ul style="list-style-type: none"> • Understand the basics of computer graphics, different graphics systems and applications of computer graphics. • Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. • Use of geometric transformations on graphics objects and their application in composite form. • Extract scene with different clipping methods and its transformation to graphics display device. • Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
6	Credit Value	2
7	Total Marks	Max. Marks: 100 Min. Passing Marks:35

Assessment and Evaluation

Suggested Continuous Evaluation Methods:

internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-1

Unit	Topics	No. of Lectures (2 Hours Each)
	<ol style="list-style-type: none">1. Write a Program to draw basic graphics constructs like line, circle, arc, ellipse and rectangle.2. Write a program to draw line using DDA algorithm.3. Write a program to draw line using Bresenham's line drawing algorithm.4. Write a program to draw a Circle using midpoint implementation Method.5. Write a program to Translate a line.6. Write a program to Scale a line.7. Write a program to Rotate a line.8. Program to Translate a Triangle.9. Program to Scale a Rectangle.10. Program to Rotate a rectangle about its midpoint.11. Program to implement Line clipping.12. Write a Program to draw animation using increasing circles filled with different colors and patterns.13. Write a Program control a ball using arrow keys.14. Write a Program to implement Bouncing Ball in vertical direction.	

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III Year	SESSION 2023-24
Subject: Computer Application (BCA)				
1. Course Code	3YBCADSEGA2			
2. Course Title	PHP WITH MYSQL			
3. Course Type	Discipline Specific Elective			
4. Pre-Requisite (if any)				
5. Course learning outcome	<ul style="list-style-type: none"> • CO1: To implement PHP script using Decisions and Loops • CO2: To develop PHP applications using Strings, Arrays and Functions. • CO3: To design object-oriented programming (OOP) principles for PHP and useHTML form elements that work with any server-side language. • CO4: To display and insert data using PHP and MySQL. 			
6. Credit Value	Theory—4 Credits			
7. Total Marks	Max. Marks: 30+70		Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Overview of HTML, Working with Text, Link, Table, Image, Forms, Input. Introduction of cascading style sheet, selector, inline, internal, external CSS, CSS in text, image. Overview of JavaScript, Variables, Operators, Control flow statements, Popup Boxes, Functions, Events, Windows and Document Objects, Array.	12
II	A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages. Strings: String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.	12
III	Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting. Functions: Calling a Function, defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions. Object Oriented Programming Concepts: Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism	12

IV	Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps. File Handling: Working with files and directories, File Open and Read, File Create and Write, Reading and writing Character in file, reading entire file, Rename and Delete File, getting Information of files, ownership and permissions.	12
V	Database Access: Using PHP to access a database. Introduction to MySQL, Connect and create database, create tables, insert, update, delete, select.	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
- Beginning PHP5 by Wrox Publication
- HTML 5, Black Book by DreamTech Press

Reference books:

- Mastering PHP: BPB Publication
- PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
- PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008..

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):30 Marks	Class Test Assignment/Presentation	Total 30
External Assessment University Exam Section: 70 Marks	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 70

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III Year	SESSION 2023-24
Subject: Computer Application (BCA)				
8. Course Code		3YBCADSEGAL2		
9. Course Title		PHP WITH MYSQL PRACTICAL		
10. Course Type		Discipline Specific Elective (DSE)- I		
11. Pre-Requisite (if any)		Students must have basic Computer Knowledge		
12. Course learning outcome	<ul style="list-style-type: none"> • CLO1: To implement PHP script using Decisions and Loops • CLO2: To develop PHP applications using Strings, Arrays and Functions. • CLO3: To design object-oriented programming (OOP) principles for PHP and use HTML form elements that work with any server-side language. • CLO4: To display and insert data using PHP and MySQL. 			
13. Credit Value		Practical— 2 Credits		
14. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 30 Hrs.

Module	Topics	No. of Labs.
	<ul style="list-style-type: none"> • Write HTML codes for displaying image and demonstrate hyperlinking. • Create a Feedback Form Using Form handling. • Write a code for design menu system using list tag. • Apply CSS formatting to create page. • Write a PHP script to display Welcome message. • Write a PHP script to demonstrate use of arithmetic operators, comparison operators, and logical operators. • Write a PHP script to set type of variable using type casting. • Write PHP Script to print Fibonacci series. • Write PHP Script to generate result and display grade. • Write PHP Script to find maximum number out of three given numbers. • Write PHP Script using two dimensional arrays such as addition of two 2×2 matrices. • Write PHP Script for FOREACH loop execution. • Write PHP script Using user defined function. • Write PHP script to demonstrate use of string function. • Write PHP script to demonstrate use of date/time function and Math functions. • Write a program to read input data, from table and display all this information in tabular form on output screen. • Write a program to manipulate data and display all this information using table format. • Create form to search data. • Develop small PHP application(s) using forms and database with update and delete option. 	30

	<ul style="list-style-type: none">• Open and Read a file• A module of website on “ khelo India Khelo”.• A module of website on “MP tourism”.• Create a Website for smart city project.	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
- Beginning PHP5 by Wrox Publication
- HTML 5, Black Book by DreamTech Press

Reference books:

- Mastering PHP: BPB Publication
- PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
- PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008..

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):30 Marks	<ul style="list-style-type: none">• Hands-on Lab Practice: 5 Marks• Viva: 5 Marks• Lab Test from practical list: 10 Marks• Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training: 10 Marks	Total 30
External Assessment University Exam Section: 70 Marks	<ul style="list-style-type: none">• Practical record file: 10 Marks• Viva voce practical: 10 Marks• Table works/ Exercise Assigned in practical exam: 40 Marks• Reports of excursions Lab visits/ Industrial training/ Survey/ Collection/ Models: 10 Marks	Total 70

St. Aloysius' College (Autonomous) Jabalpur

Part A Introduction			
Program: Degree	Class : UG	Year: III	Session: 2023-24
Subject: BCA			
1	Course Code	3YBCADSEGB1	
2	Course Title	Data Warehousing & Mining (Theory) (Group B - Paper-I)	
3	Course Type (Core Course/ Discipline Specific Elective/Elective/Generic Elective/Vocational/.....)	Discipline Specific Elective (DSE)	
4	Pre-requisite (if any)		
5	Course Learning outcomes (CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the basics of data warehouse, it's storage fundamentals and knowledge discovery in databases 2. Apply data mining techniques over different datasets. 3. Implement clustering algorithms and build classification models 4. Select appropriate DM tools and apply the concepts of Data Warehouse and DM techniques for clustering, association, and classification 5. Explore recent trends in data mining such as web mining, spatial-temporal mining. 	
6	Credit Value	Theory 4	
7	Total Marks	Max. Marks: 30 + 70	Min. Passing Marks:35
Part B- Content of the Course			
Total No. of Lectures =60 (3 hours/ lecture per week)			
Unit	Topics	No. of Lectures (1 Hour Each)	
I	Data Warehouse Basic: Data ware housing Definition, usage and trends, DBMS vs. data warehouse, statistical databases vs. data warehouses. Data marts, Metadata, Multidimensional data model, Data cubes, Schemas for Multidimensional Database: stars, snowflakes and fact constellations	12	
II	Storage and Architecture of Data Warehouse: Data warehouse process & architecture. OLTP vs. OLAP, ROLAP vs. MOLAP types of OLAP, servers, 3-Tier data warehouse architecture, distributed and virtual data warehouses, data warehouse manager, data consolidation, ware house internals, storage and indexing, Operations, materialized , online analytical	12	

	<i>processing(OLAP) system.</i>	
III	<i>Data Mining Basic: Data mining definition & task, KDD versus data mining, tools and applications, Data mining query languages, Preprocessing, pattern presentation & visualization specification, data mining techniques, tools and applications. Data mining techniques: Statistical perspective, Regression, Bayes Theorem, Hypothetical testing.</i>	12
IV	<i>Classification and Clustering: Issues in classification, Statistical –Based Algorithms, Distance–Based Algorithms, Decision Tree–Based Algorithms, ID3,C4.5, Evaluating the performance. Clustering: Basic concepts, Partition algorithms, Agglomerative Hierarchical algorithms, DBSCAN, BIRCH, CURE algorithm, Clustering with categorical attributes, Comparison</i>	12
V	<i>Association Rules: Frequent Itemset generation, Apriori Algorithm, Rule generation, Compact representation of frequent Itemset. Advanced Topics: Dimensionality Reduction, overview of principle Component Analysis and SVD, Spatial mining, Web mining, Temporal mining.</i>	12

Keywords/Tags:

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. *Data Mining: Concepts and Techniques*, Han and Kamber, Morgan Kaufmann Publications.
2. *Data Mining Techniques*, A. K. Pujari, Universities Press Pvt. Ltd
3. *Data Warehousing* by Amitesh Sinha
4. *Data Warehousing in the real world* by Sam Anahory & Dennis Murray
5. Jiawei Han & Micheline Kambe :*Data Mining – Concepts & Techniques*;
6. Margaret H. Dunham, S. Sridhar:*Data Mining Introductory and Advanced Topics*
7. Pang-Ning Tan, Michael Steinbach, Vipin Kumar: *Introduction to Data Mining*
8. Kimball R, Reeves L , Ross M etc – *Data Warehouse life cycle tool kit*, John Wiley.
9. Anahory: *Data Warehousing in Real World*, Addison Wesley
10. Adriaans: *Data Mining*, Addison Wesley.
11. Jayee Bischoff & Ted Alexander : *Data Warehouse: Practical advice from the Expert*, Prentice Hall, New jersey.
12. मध्य प्रदेश हिन्दी ग्रंथ अकादमी की पुस्तकें।

Suggestive digital platforms/ web links

1. <https://nptel.ac.in/courses/106105174>
2. https://onlinecourses.swayam2.ac.in/cec20_cs12/preview

3. https://www.tutorialspoint.com/data_mining/index.htm

4. <https://www.javatpoint.com/data-warehouse>

Suggested equivalent online courses:

1. <https://www.udemy.com/>
2. <https://www.coursera.org/specializations/data-mining>
3. <https://www.edx.org/learn/data-mining>
4. <https://www.classcentral.com/subject/data-mining>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks University Exam (UE):70 Marks

Internal Assessment : Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30
External Assessment : University Exam Section Time : 03.00 Hours	Section(A) : Very Short Questions Section (B) : Short Questions Section (C) :Long Questions	70

Any remarks/ suggestions:

Part A Introduction

Program: Degree		Class :UG	Year: III	Session: 2023-24
Subject: BCA				
1	Course Code	3YBCADSEGBL1		
2	Course Title	Data Warehousing & Mining (Practical) (Group B - Paper-I)		
3	Course Type (Core Course/ Discipline Specific Elective/Elective/Generic Elective/Vocational/.....)	Discipline Specific Elective (DSE)		
4	Pre-requisite (if any)			
5	Course Learning outcomes (CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the basics of data warehouse, it's storage fundamentals and knowledge discovery in databases 2. Apply data mining techniques over different datasets. 3. Implement clustering algorithms and build classification models 4. Select appropriate DM tools and apply the 		

techniques for clustering, association, and classification

5. Explore recent trends in data mining such as web mining, spatial-temporal mining.

6 **Credit Value**

2

7 **Total Marks**

Max. Marks: 100

Min. Passing Marks:35

Part B- Content of the Course

Total No. of Lectures =30 (2 hours/ lecture per week)

	<i>Topics</i>	<i>No. of Lectures (2 Hour Each)</i>
1.	Installing Weka and understanding Weka environment using inbuilt functions.	
2.	Loading and importing different types of datasets in Weka.	
3.	Implement attribute selection and visualization in Weka	
4.	Perform ETL operation over data set.	
5.	Apply various data pre-processing techniques over the data sets.	
6.	Create a data mart from a data warehouse and apply data cleaning operations.	
7.	Build a classification model to classify data using Naive Bayes algorithm	
8.	Build a classification Model using different decision tree algorithm.	
9.	Apply regression to make marketing forecasts over sales data	
10.	Implement clustering algorithm over different data sets.	
11.	Apply Apriori algorithm to find out association rules in data set.	
12.	Evaluate the performance of different classifier .	
13.	Analyse the performance of various clustering algorithms.	
14.	Build a classifier to identify diabetic and non diabetic patients	
15.	Analyze the IRIS dataset in Weka and apply suitable data mining technique .	

1. <https://www.udemy.com/>
2. <https://www.coursera.org/specializations/data-mining>
3. <https://www.edx.org/learn/data-mining>
4. <https://www.classcentral.com/subject/data-mining>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR

Part A Introduction		
Program:	Class :	Year: III
Degree	UG	Session:2023-24
Subject: BCA		
1	Course Code	3YBCADSEGB2
2	Course Title	Web Technologies
3	Course Type (Core Course/Discipline Specific Elective/ Elective/ Generic Elective Vocational)	Discipline Specific Elective
4	Pre-requisite (if any)	
5	Course Learning outcomes(CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand basics of Internet, World Wide Web(WWW), Client server Computing. 2. Have Knowledge of various web browsers, familiarize with Java scripting, Client side scripting language, Web server Architecture, Database connectivity(DBC) 3. Have knowledge of HTML, it's essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page. 4. Develop skills to generate HTML and have knowledge of Java Script and style sheets 5. Have knowledge of Objects, Methods, Events and Functions and various types of text, styles
6	Credit Value	4
7	Total Marks	Max. Marks: 30 + 70 Min. Passing Marks: 35
Part B- Content of the Course		
Total No. of Lectures =60 (3 hours/ lecture per week)		
Unit	Topics	No. of Lectures(1 Hour Each)
Unit-1	<p>Topics Basics of Internet and Web:</p> <p>The basics of Internet, World Wide Web, Web page, Home Page, Web site, Static, Dynamic and Active web page, Client server computing concepts, Web Browser, Client-Side Scripting, Server-Side Scripting, Introduction to HTML, Tags and Attributes, Text, Effects.</p>	10

Unit -II	Exposure to Various Tags, Colour and Background of Web Pages, Lists and their Types, Image Tag, Hyperlink and URLs, Links to External Documents, Table, Frame, Form. Introduction to Style Sheet- Types, Selector, properties.	14
Unit -III	Introduction to JavaScript- variable, operators, function, events, Array, Strings, Dialog Boxes. Introduction to .NET- .NET Framework, .NET Architecture, CLR, the Just-in-Time Compiler, Garbage collection. .NET Framework class library.	12
Unit -IV	Introduction to ASP.NET- ASP.NET Page Life Cycle, Coding Model, Web forms, Web form controls, server controls, client controls, web forms, coding Models, Controls: TextBox, Label, Hyperlink, Button, DropDownList, ListBox, CheckBox, RadioButton, FileUpload, Validators, Masterpage.	12
Unit -V	ASP.NET Navigation Controls: SiteMapPath, Menu Control, TreeView. Working With Database- Architecture of ADO.NET, Connected and Disconnected Database. Connection Class, Command Class, Data Adapter Class, and Dataset Class. Insert, Update, Delete commands and Accessing the data from database. Data Controls: FromView, GridView etc.	12

Textbooks:

1. Web Technologies — Black Book — DreamTech Press
2. Beginning HTML, XHTML, CSS and Javascript by John Duckett

Reference Book:

1. HTML, XHTML and CSS Bible, 5th edition, Willey India-Sтивен M. Schafer
2. Java EE and HTML-5 Enterprise Application Development (Oracle Press) by John Brock, Arun Gupta, Geertjan Wielenga.

Suggested equivalent online courses:

- Internet technology course by NPTEL < nptel.ac.in > courses,
- www.udemy.com,

Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks External Exam (UE): 70 Marks

Section (A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions

Part A Introduction			
Program: Degree		Class :UG	Year: III Session: 2023-24
Subject: BCA			
1	Course Code	3YBCADSEGBL2	
2	Course Title	Web Technologies (Practical)	
3	Course Type (Core Course Specific Elective /Vocational/)	Discipline Specific Elective - II	
4	Pre-requisite (if any)		
5	Course Learning outcomes(CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1 Perform HTML programming with use of elements and tags... 2 Perform basic and advanced text formatting and scripting 3 Able to use server-side scripting 	
6	Credit Value	2	
7	Total Marks	Max. Marks: 100	Min. Passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures =30 (2 hours/ lecture per week)			
Topics		No. of Lectures (2 Hour Each)	
<ol style="list-style-type: none"> 1. Create a web form for addition of two numbers. 2. Create a web form for Simple Interest. 3. Create a web form for Factorial. 4. Create a web form for Prime number. 5. Create a web form for matching the value of two textboxes. 6. Create a web form for Calculator. 7. Create a web form for to demonstrate the session. 8. Create a web form with one list box and three check boxes named php, java, c respectively. On check and uncheck name of the check box should be added and removed to and from the list box. 9. Create a web form with one DropDown List and demonstrate addition of items at first and last position. Show deletion also. 10. Demonstrate File Upload control. 11. Demonstrate Validation Controls. 12. Insert user data to Database through web form. 13. Create a sample college website and use Masterpage and Menu control. 14. Create Student Registration Form and corresponding database. Fetch the data into GridViewControl. 15. A small website on " khelo India Khelo" 			

16. Create a website on MP Tourism.
17. Develop a webpage for St. Aloysius' College Jabalpur Admission form.

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

1. Web Technologies — Black Book — DreamTech Press
2. Beginning PHP 5.3 (Wrox-Wiley Publishing) by Matt Doyle
3. Beginning HTML, XHTML, CSS and Javascript by John Duckett

Reference Book:

1. HTML, XHTML and CSS Bible, 5th edition, Wiley India-Steven M. Schafer
2. Struts: The Complete Reference, 2nd Edition by James Holmes
3. J2EE: The Complete Reference by James Keogh
4. Java EE and HTML-5 Enterprise Application Development (Oracle Press) by John Brock, Arun Gupta, Geertjan Wielenga.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/		Table work / Experiments	
Total Marks :		100	

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH

Part A Introduction		
Program: Degree	Class :UG	Year: III
Session: 2023-24		
Subject: BCA		
1	Course Code	3YBCAM
2	Course Title	Python Programming (Theory)
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/Generic Elective /Vocational)	Minor
4	Pre-requisite (if any)	
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: 1. Develop and execute simple Python programs. 2. Structure a Python program into functions. 3. Using Python lists, tuples to represent compound data 4. Develop Python Programs for file processing
6	Credit Value	4
7	Total Marks	Max. Marks: 30 + 70 Min. Passing Marks: 35
Part B- Content of the Course		
No. of Lectures (in hours per week): 3 Hrs. per week Total No. of Lectures: 60 Hrs.		
Module	Topics	No. of Lectures(1 Hour Each)
Unit - I	<p>What is Python? WHY PYTHON? History, Features, Dynamic, Interpreted, Object oriented, Embeddable, Extensible, Large standard libraries, Free and Open source. Download & Python Installation Process in Windows, Unix, Linux and Mac, Online Python IDLE, Python Realtime IDEs like Spyder, Jupyter Note Book, PyCharm, Rodeo, Visual Studio Code, ATOM, PyDev etc,</p> <p>Variables and Expressions Values and Types, Variables, Variable Names and Keywords, Type conversion, Operators and Operands, Expressions, Input output operation in Python. Comments in Python.</p> <p>Strings: A String Is a Sequence, Traversal with a for Loop, String Slices, Strings Are Immutable, Searching, Looping and Counting, String Methods, The in Operator, String Comparison, String Operations. capitalize(), casefold(), center(), count(), startswith(), islower(), isupper(), replace(), find().</p>	14
Unit - II	<p>Control Statements: Conditional control statements - if, If- else, If-elseif-else, Loop control statements- for, while, Data Structure & Collection: -String, List, Tuple, Set, Dictionary, Comparison of List, Tuple, and Set, Function in Python, types of function in Python, map, reduce, filter function. Lambda Function</p>	10

Unit - III	Importance of modular programming. What is module? Types of Modules - Pre defined, User defined. User defines module creation, OS, Date-time, math modules, organizing python project into packages, Types of packages – pre-defined, user-defined. Package v/s Folder, File and Directory handling in Python.	12
Unit - IV	Procedural v/s Object-oriented programming, Principles of OOP - Encapsulation, Abstraction (Data Hiding), Polymorphism, Inheritance. Inner Classes. Exception handling and types of errors, try, except, finally, raise, and Need to Custom exceptions, Case studies, regular expression.	12
Unit - V	Multi-threading and multiprocessing in Python, the Life cycle of a thread. Need to start() method , Sleep() & Join(), Synchronization -Lock class - acquire(), release() functions. Python Data Base Communications (PDBC), Introduction of Numpy, Numpy Array, Pandas data frame & Matplotlib, Drawing plots.	12

Part C-Learning Resources

Text Books, Reference Books, and Other resources

Suggested Readings:

1. Mark Lutz, Learning Python
2. Tony Gaddis, Starting Out With Python
3. Kenneth A. Lambert, Fundamentals of Python
4. James Payne, Beginning Python using Python 2.6 and Python 3.2

Reference Books:

1. Python Crash Course: A Hands-On, Project-Based Introduction to Programming Edition Eric Matthes.
2. The Python Language Reference Manual (version 3.2), Guido van Rossum, Drake, Jr. (Editor), ISBN: 1906966141, Network Theory Ltd, 120 pages

Suggestive digital platforms/ web links:

1. www.javatpoint.com
2. www.w3school.com
3. www.python.org
4. <https://www.tutorialspoint.com/Python/index.htm>

Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks External Exam (UE): 70 Marks

Section(A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH

Part A Introduction			
Program: Degree		Class : UG	Year: HI
Session: 2023-24			
Subject: Computer Application			
1	Course Code	S3-BCAA2Q	
2	Course Title	Python Programming (Practical)	
3	Course Type (Core Course/ Specific Elective/ Elective /Vocational/)	Discipline Elective/ Generic	
4	Pre-requisite (if any)	To study this course, a student must have basic Logical, and analytical skills.	
5	Course Learning outcomes(CLO)	On successful completion of this course,the students will be able to: <ol style="list-style-type: none"> 1. Develop Simple programs in Python 2. Knowledge of conditional and loop statements. 3. Learning of Tuple, List, Directory in Python 4. Knowledge of Files and Oops Concepts in Python. 5. Introductory Knowledge of Pandas, PDBC and Numpy. 	
6	Credit Value	2	
7	Total Marks	Max. Marks: 100	Min. Passing Marks:35
Part B- Content of the Course			
Number of Lab Practical's (in hours per week): 2 Hours Per Week			
Total No. of Lab : 30 (Each Lab of 2 Hours)			

	<ol style="list-style-type: none"> 1. Write a program to demonstrate different number data types in Python. 2. Write a program to perform different Arithmetic Operations on numbers in Python. 3. Write a program to create, concatenate and print a string and accessing sub-string from a given string. 4. Write a python script to print the current date in the following format a. "Fri Oct 11" 5. Write a program to create, append, and remove lists in python. 6. Write a program to demonstrate working with tuples in python. 7. Write a program to demonstrate working with dictionaries in python. 8. Write a python program to find largest of three numbers. 9. Write a Python program to construct the following pattern, using a nested for loop <ul style="list-style-type: none"> <li style="margin-left: 40px;">* <li style="margin-left: 40px;">* <li style="margin-left: 40px;">* * <li style="margin-left: 40px;">* * * <li style="margin-left: 40px;">** <li style="margin-left: 40px;">* <li style="margin-left: 40px;">* 10. Write a Python script that prints prime numbers less than 20. 11. Write a python program to define a module to find Fibonacci Numbers and import the module to another program. 12. Write a python program to define a module and import a specific function in that module to another program. 13. Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order. 14. Write a Python program to convert an integer to Roman numeral. 15. Write a Python program to reverse a string word by word. 	
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Part C-Learning Resources
Text Books, Reference Books, Other resources
Suggested Readings:
1. Mark Lutz, Learning Python
2. Tony Gaddis, Starting Out With Python
3. Kenneth A. Lambert, Fundamentals of Python
4. James Payne. Beginning Python using Python 2.6 and Python 3.2.
Suggestive digital platforms/ web links: I.
www.javatpoint.com
www.w3school.com
www.python.org
https://www.tutorialspoint.com/python/index.htm

Suggested equivalent online courses:				
S.No.	Online Course	Duration	Plate-form	
01	Joy of Computing using Python https://nptel.ac.in/courses/106106182	12 Weeks	NPTEL	
02	Complete Python course https://www.udemy.com/topic/python/	12 Weeks	Udemy	
Part D-Assessment and Evaluation				
Suggested Continuous Evaluation Methods:				
Internal Assessment		Marks	External Assessment	Marks
Class Interaction /Quiz		30	Viva Voce on Practical	70
Attendance			Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/			Table work / Experiments	
		Total Marks : 100		

St. Aloysius' College (Autonomous), Jabalpur			
PART A: Introduction			
Program: Degree	Class: BCA	Year 3	Session: 2023-24
Subject: Computer Application			
1	Course Code		
2	Course Title	Data Science & Machine Learning	
3	Course Type (Core/ Elective/Generic Elective / Vocational)	Elective- 1	
4	Pre-Requisite (if any)	To study this course, a student must basic knowledge of Computers	
5	Course Learning Outcomes(CLO)	<p>After the completion of the course, a successful student will be able to do the following:</p> <p>CO1. Understanding of the need for data science, its benefits and uses, the facets of data, and the data science</p> <p>CO2. Apply statistical concepts and techniques to analyze and interpret data.</p> <p>CO3. Execute a variety of data analysis tasks using Python, specifically utilizing libraries like Pandas and Numpy.</p> <p>CO4. Apply and analyze various machine learning algorithms.</p>	
6	Credit values	Theory - 3 credits	
7	Total Marks	Maximum Marks- External: 70 Internal: 30	Min. Marks: 35
Part B: Content of the course			
No. of Lectures (in hrs / week): 3 hrs. / week			
Total No. of Lecture: 45			
Unit	Topics	No. of Lectures	
1	INTRODUCTION TO DATA SCIENCE Need for data science – benefits and uses – facets of data – data science process – setting the research goal – retrieving data – cleansing, integrating, and transforming data – exploratory data analysis – build the models – presenting and building applications.	10	
2	Introduction to Statistics- variables (discrete random variable, continuous random variable, numerical variable, categorical variable); descriptive statistics (mean, mode, median standard deviation, variance, covariance, correlation); Regression and its types, relationship between variables (dependent and independent)	10	
3	Data analysis using Python- pandas, importing and reading a CSV sheet, basic exploration of data, converting a python data structure to data frame, numerical description of a data frame, understanding iloc() and loc(), tackling Null values, data frames(concatenating, merging, join), Introduction to Seaborn	10	
4	Introduction to Machine Learning, ML types (Supervised Learning, Unsupervised Learning, Reinforcement Learning), Algorithms- Supervised learning (K-nearest neighbor, Naive Bayes), Unsupervised (K-means Clustering); Basics of Decision trees, Support Vector Machines, Principal Component Analysis, and Cost Function in Machine learning.	10	
5	Scikit learn : modeling process, Data Representation, Estimator API, Conventions, Linear Modeling, Decision Tree Classifier module, K-Means	5	

	Clustering module, SVM algorithm, Role of Loss Functions and Optimization, Concept of CNNs, Popular CNN Architectures, GAN, Introduction to Natural Language Processing.	
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PART C: Learning References

Textbooks, Reference Books, other resources

Suggested Readings

Text Books:

1. David Cielen, Arno D. B. Meysman, and Mohamed Ali, "Introducing Data Science: Big Data, Machine Learning, and More, Using Python Tools", Dreamtech Press, 2016. (Unit I).
2. Machine Learning, Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, Pearson publication (Unit 2)
3. Himanshu Singh, Statistics for Machine Learning, BPB Publication, 1 edition, 2021 (Unit 3,4,5)

Reference Books:

1. Roger Peng, "The Art of Data Science", lulu.com 2016.
2. MurtazaHaider, "Getting Started with Data Science – Making Sense of Data with Analytics", IBM press, E-book.
3. Annalyn Ng, Kenneth Soo, "Numsense! Data Science for the Layman: No Math Added", 2017, 1st Edition.
4. Cathy O'Neil, Rachel Schutt, "Doing Data Science Straight Talk from the Frontline", O'Reilly Media 2013.
5. Lillian Pierson, "Data Science for Dummies", 2017, 2nd Edition.

Suggested digital platform web links:

Suggested equivalent online courses

S.No	Online courses	Duration	Platform
1	Machine Learning & Data Science	43 hrs	Udemy
2	Data Science	218 Hrs Self-paced Videos	Intellipaat

PART D: Assessment and Evaluation

Internal Assessment: Continuous Comprehensive Evaluation (CCE): 30 Marks

Shall be based on allotted assignments and Class Tests based on the Course outcomes.

Attainment Expressions	PO Mapping	PSO Mapping	Cognitive level
Discuss the benefits and uses of data science and describe the different facets of data (CO1)	PO1	PSO1	R,U
Given a dataset containing information about students' exam scores and study hours, apply the concepts of variables and descriptive statistics to analyze the data (CO2)	PO4	PSO1	AP
Generate descriptive statistics, such as mean, median, and standard deviation, for a specific numerical variable in the dataset (CO3)	PO2, PO4	PSO6	AN
Provide a detailed analysis of each algorithm's performance, interpret the results, and discuss the potential insights gained from the analysis (CO4).	PO9	PSO5, PSO7	AN, E

External Assessment: 60 Marks hours

Time: 3

Section	Mark x No. of Questions
A: Very Short Questions	1 x 4
B: Short Questions	4 x 4
C: Long Questions	7 x 4

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR

PART A:			
Program: Degree		Class: BCA	III yr
Session: 2023-24			
Subject: Computer			
1.	Course Code		
2.	Course Title	Basic Machine learning Lab	
3.	Course Type (Core)	Lab	
4.	Pre-Requisite (if any)	To study this course, a student must basic knowledge of Computers	
5.	Course Learning Outcomes (CLO)	After the completion of this course, a student shall be able to: CO1. Calculate and interpret statistical measures CO2. Conduct regression analysis to identify and understand relationships between numerical variables. CO3. Apply data analysis techniques using Python libraries such as pandas and numpy	
	Credit Value	1 Credits	
	Total Marks	Max. Marks : Int: 30 Ext:70	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab. Practicals (in hours per week): 1 Lab. per week			
Total No. of Lab.: 15 Hrs.			
SNo	Suggestive List of Practical		No. of
1	Create a list of random numbers and classify them as discrete or continuous variables.		15
2	Convert a numerical variable into a categorical variable based on specific criteria.		
3	Calculate the mean, mode, median, standard deviation, variance, covariance, and correlation of a given dataset.		
4	Perform a regression analysis to determine the relationship between two numerical variables.		
5	Use the pandas library to read a CSV file using the read_csv() function.		
6	Use functions like head(), tail(), info(), and describe() to get an overview of the data.		
7	Convert a Python list, dictionary, or NumPy array to a DataFrame using the pandas library.		
8	Calculate statistical measures like mean, median, standard deviation on DataFrame columns.		
9	Use iloc() for integer-based indexing and loc() for label-based indexing to access specific rows or columns in a DataFrame.		
10	Identify and handle missing or Null values using functions like isnull(), fillna(), or dropna().		
11	Perform DataFrame operations like concatenating, merging, and joining multiple DataFrames using concat(), merge(), and join() functions.		
12	Use NumPy functions for indexing, reshaping arrays, generating random values, and performing mathematical operations on arrays.		

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

Eric Matthes, Python Crash Course: A Hands-On, Project-Based Introduction to Programming (2nd Edition)

Zed A. Shaw Learn Python the Hard Way: 3rd Edition

John M. Zelle Python Programming: An Introduction to Computer Science (3rd Edition)

PART D: Assessment and Evaluation

Internal Assessment : Continuous

Comprehensive Evaluation (CCE) : 30 Marks

External Assessment: 70 Marks

Time : 02.00 Hours

Internal Assessment	Marks	External Assessment	Marks
Hands-on Lab Practice	10 Marks	Practical record file	20 Marks
Viva	10 Marks	Viva voce practical	10 Marks
Lab Test from practical list	10 Marks	Table works/ Exercise Assigned /Execution (02) in practical exam	40 Marks
Total	30 Marks	Total	70 Marks

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BCA	Year: III	SESSION: 2023-24
Subject: Computer Application (BCA)				
Course Code		S3-BCAC2G		
Course Title		Cyber Security		
Course Type		Elective - 2		
Pre-Requisite (if any)		Students must have basic Computer Knowledge		
Course learning outcome	On successful completion of this course, the students will be able to: 1. Identify the key components of cyber security network architecture. 2. Employ, design and implement appropriate security technologies and policies to protect computers and digital information 3. Analyze threats and risks within context of the cyber security architecture. 4. Apply cyber security architecture principles. 5. Gain familiarity with prevalent network and distributed system attacks			
Credit Value	4			
Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35		

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Cyber Security: introduction, Need for security. Basics of Cryptography: Plain text and Cipher Text, Substitution techniques, Caesar Cipher, Mono-alphabetic Cipher, Polygram, Polyalphabetic Substitution, Play fair, Hill Cipher, Transposition Cipher.	18
II	Encryption and Decryption, Symmetric Key Algorithms and AES: Brief history of Asymmetric Key Cryptography, Overview of Asymmetric Key Cryptography, RSA algorithm. Overview of Symmetric key Cryptography, Data Encryption Standard (DES)	18
III	Network Security, Types of Attacks, Firewalls and Virtual Private Networks: Brief Introduction to TCP/IP, Firewalls, Virtual Private Networks (VPN), Secure Socket Layer (SSL), Transport Layer Security (TLS), Secure Hyper Text Transfer Protocol (SHTTP), Time Stamping Protocol (TSP), Secure Electronic Transaction (SET), Secure Sockets Layer (SSL), E-mail Security	18
IV	Introduction to information systems, Types of information Systems, Development of Information Systems, Need for Information security, Threats to Information Systems, information Assurance, Cyber Security and Security Risk Analysis	18
V	Security Policies, Why Policies should be developed, WWW policies, Email Security policies, Policy Review Process-Corporate policies-Sample Security Policies, Publishing and Notification Requirement of the Policies. Information Security Standards-ISO, IT Act, Copyright Act, Patent Law, IPR	18

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

1. Bernard Menezes, "Network Security and Cryptography", CEGAGE Learning, ISBN-10: 81-315-1349-1, ISBN-I 3: 978-81-315-1349-1, 2014.
2. Charles Pfleeger, "Security in Computing", Prentice Hall, 4th Edition, ISBN- I 0: 0 I 32390779, ISBN-I 3: 978-0 I 323907744, 2006.
3. Ulysess Black, "Internet Security Protocols: Protecting IP Traffic", Prentice Hall PTR, I st edition, ISBN-JO: 0130142492, iISBN-13: 978-0130142498, 2000.
4. William Stallings, "Cryptography and Network Security", Pearson Education, 6th Edition, ISBN 10: 0133354695, 2013.
5. Jonathan Rosenoer, "Cyber Law: The law of the Internet", Springer-Verlag, 1997.
6. Mark F Grady, Francesco Parisi, "The Law and Economics of Cyber Security", Cambridge University Press, 2006.

Suggestive digital platforms/ web links

1. <https://onlinccourses.swayam2.ac.in/nou19cs08/Qreview>
2. <https://onlinecourses.swayam2.ac.in/cec20cs15/12review>
3. <https://nptel.ac.in/courses/106106129>
4. <https://nptel.ac.in/courses/J06105031>
5. <https://nptel.ac.in/courses/106106199>

Suggested equivalent online courses:

1. <https://www.simplilcarn.com/cyber-security/certification>
2. <https://study.torontosom.ca/cybersecurity/diploma>
3. https://aws.amazon.com/securitycourses/byaws_experts
4. <https://www.udemv.com/topic/cyber-security/>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE):30	Class Test Assignment/Presentation	Total 30
External Assessment University Exam Section: 70 Time : 03.00	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 70

St. Aloysius' College (Autonomous), Jabalpur

Semester I

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com 1 st Semester/ बी. कॉम 1 st सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMC1T
Course Type/ पाठ्यक्रम का प्रकार:	OPEN ELECTIVE
Course Title/पाठ्यक्रम का शीर्षक:	DATA PROCESSING SOFTWARE – I
Pre-requisite/ पूर्वापेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की पररलवधिया:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO 1- To understand the basic concepts of computer system, memory and data</p> <p>CO2- To understand the concept of office automation</p> <p>CO 2-To understand the basic concepts of various application softwares.</p> <p>CO 3- To study various methods of formatting of documentation.</p> <p>CO4- To apply acquired knowledge in</p> <p>CO5- To develop and enhance the presentation skill using power point.</p>
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: (internal) + (external)

Part B – Course Content

Unit I	<p>Fundamentals of Computer- Computer- Block diagram, Uses, types, Input Devices: Point and drawn devices, scanning devices, Output Devices: Monitors & its Types. Printers - Impact, Non-Impact, Plotters. Primary Memory:-RAM (Dynamic & Static), ROM (PROM, EPROM, EEPROM), Secondary Memory - Disk, Optical disk, Data representation: Number system: Binary, Decimal, Octal and hexadecimal, Conversions.</p>
Unit II	<p>BASICS OF MS WORD : Creating word documents ; the word window , applying fonts and font styles in word, Aligning and formatting, finding and replacing texts spelling and grammar using the thesaurus command, getting print using print preview, changing page orientation and paper size, aligning text vertically, setting margins , printing options .Cross reference, Bookmarks, Macro and Hyperlink, Index creation, creating headers and footers , creating and modifying page numbers ,working with columns working with newspaper columns , creating tables ,</p>

	modifying table structure, formatting table ; use of mail merge in Microsoft word.		
Unit III	Spreadsheet Processor Creating Excel Worksheets: Workbook and Worksheets, Entering Text and Numbers, Creating Formulae, Changing Worksheet Layout : Adjusting Column Width and Row Height, Inserting and Deleting Rows and Columns, Naming Worksheet , Selecting Worksheets, Inserting and Deleting Worksheets, Aligning Text , Border and Color. Printing in Excel Advanced Techniques in Excel: Functions , Entering Functions , Relative and Absolute Cell References. Create Named Ranges, Creating Charts ; Editing and Formatting Charts ; Adding a Data Series , Deleting a Data Series , Modifying and Formatting Charts. Creation of Pivot Table To analyze worksheet data.		
Unit IV	CREATING POWERPOINT PRESENTATION: Introduction of MS PowerPoint, Creating a Basic Presentation using templates, themes Building Presentations, Modifying Visual Elements, Formatting and Checking Text, Adding Objects, Applying Transitions, Inserting Audio & video in slide, Animation Effects and Linking, Preparing handouts, custom slide show.		
Part C – Suggested Readings			
S. No.	Author	Name of the Book	Publication
1.	Will Train, Gini Courter, Annette Marquis	Microsoft Office 97	B.P.B. Publications
2.	Gini Courter, Annette Marquis.	Microsoft Office 2000	B.P.B. Publications
3.	Saxena Sanjay, S Schnd	Microsoft Office 2000 for everyone	Vikas Publishing
4.	Kari Holloway	Writer's Guide to Microsoft Word	Hearts & Blades Publishing
5.	Michael Alexander, Richard Kusleika	Access 2016 Bible	Wiley
6.	Greg Harvey	Excel 2019	For Dummies
7	Chris Smith	Microsoft PowerPoint made easy	Flame Tree Publishing
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method			
Maximum Marks: 100			
Continuous Comprehensive Evaluation (CCE): 40 Marks			
External Exam: 60 Marks			

St. Aloysius' College (Autonomous), Jabalpur

Semester II

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Commerce / कॉमर्स
Programme/ कायदा म:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. Com II Semester/ बी. कॉम II सेमेस्टर
Course Code/ पाठ्यक्रम कोड:	C1-COMC1T
Course Type/ पाठ्यक्रम का प्रकार:	OPEN ELECTIVE
Course Title/पाठ्यक्रम का शीर्षक:	Basics of Programming Methodology and Database
Pre-requisite/ पूर्वापेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की पररलवधिया:	After completion of this course, it is expected that the student shall be able CO1- To understand the basic concepts of computer programming CO2: to understand the concept of functions and arrays CO3- To understand the concept of database CO4-To understand the basic concepts of MS-Access CO5:To develop the concept of form designing and report designing using MS-Access
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: (internal) + (external)

Part B – Course Content

Unit I	MS Access: Concepts & terms : database tables, relational database, records, fields , controls & objects , queries forms, reports , properties , wizards , macros , Creating database & tables with & without wizard, data types & properties, adding & deleting fields, primary key field & indexing fields.
Unit II	MS Access Form: Form wizard , Saving & Modifying forms Entering & Editing data , Finding , sorting & displaying data creating queries , using select queries and wild cards.MS Reports: Creating reports, Previewing reports, Printing reports, modifying & Saving reports. Expressions, Create Pivot Table or Pivot Chart views in an Access desktop database.
Unit III	Introduction to Programming and Characteristics. Stages in Program Development. Algorithms, Flowcharts, Types of Programming, Introduction to C Programming - Basic Program Structure, Data Types, Variables, Constants, Operators, Keywords. Data types in C(int, float and char).

Unit IV	Control statements in C , Arrays - Declaration and Execution, Syntax, one dimensional array, Functions Pre-defined and User Defined Functions, Structure.
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Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Gini Courter, Annette Marquis.	Microsoft Office 2000	B.P.B. Publications
2.	Saxena Sanjay, S Schnd	Microsoft Office 2000 for everyone	Vikas Publishing
3.	Michael Alexander, Richard Kusleika	Access 2016 Bible	Wiley
4.	Greg Harvey	Excel 2019	For Dummies
5	S.S. Bhatia	Programming in C	PHI Publication

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 **Marks**

External Exam: 60 **Marks**

St.Aloysius' College (Autonomous) Jabalpur

Class :- B.Com III Sem

Session :- 2023-24

Subject:- Computer Application

Course Type:- Elective

Paper :- Database Management System

Credit Value:- 3(theory)+1(Practical)

Max. Marks: 40+60

Min. Passing Marks:35

Unit	Topics	No. of Lectures
I	Introduction: Database system concepts, Data base system, Advantages of database systems; Data Architecture of data system: View/Schema, logical, conceptual and physical and their interrelationship, data dictionary, Data base administrator. Types of Data Models:- Relational, Hierarchical and Network Model their advantages and disadvantages	12
II	Entity Relationship Model as a tool of conceptual design: Entities &Entity set, Relationship & Relationship set, Attributes, Mapping Constraints, Keys, Entity- Relationship diagram (E-R diagram) : Strong & weak entities, Generalization, Specialization, Aggregation, Reducing ER diagram to tables.	11
III	Normalization and SQL concept :- Normalization: First, Second, Third &BCNF Normal Forms, Introduction to SQL, tuple, attribute, Data types, key constraints:- primary key, Candidate key, Integrity rules : Entity integrity, Referential integrity rule. SQL Commands:- , DDL, DML, DCL, TCL syntax and examples, select query with all the clauses. Like Predicate , Operator (Between, In , Not in)	11
IV	Advance SQL:- SQL join operations, Sub queries and correlated queries, SQL Functions. Constraints in SQL. Introduction to PL/SQL -PL/SQL structure, Cursors, Triggers, Stored Procedures and functions.	11

Assessment and Evaluation**Suggested Continuous Evaluation Methods:**

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 40 marks 'University Exam (UE) : 60 marks

Internal Assessment : Class Test Total 40

Continuous Comprehensive Assignment/Presentation

Section(A) : Objective Questions Total 60**Section (B) :** Short Questions**Section (C) :** Long Question

Evaluation (CCE):40

External Assessment:

University Exam Section: 60 Time : 03.00 Hours

St.Aloysius' College Autonomous Jabalpur

B.Com Sem:- IV

session:2023- 2024

Subject : Computer Application

Course Code:- S2-COAP2I

Paper :- Introduction to ASP.NET& C#

Course Type:- Elective

Credit Value :-Theory:- 3

Total Marks

Max.Marks:60+40

Min.PassingMarks:35

Unit	Topics	No. of Lectures
I	Introduction to .NET Framework: Programming Platform .NET Framework, .NET Architecture, CLR, the Just-in-Time Compiler, C# - The Basics and Console Applications in C#: Introduction to C#, Visual development & event driven Programming Methods and events. Data type, type conversion. Variables constants, operators, Decision making, Loops, Arrays.	12
II	Overview of OOPs: Class, Object, Encapsulation, inheritance, polymorphism, abstraction, Understanding Constructors and instance Variables Handling and Using Interfaces. Preprocessor directives, Exception handling, Understanding Delegates in c#. Windows Forms and Controls: The Windows Forms Model, Creating Windows Forms, Windows Forms Properties and Events, Windows Form Controls, Menus - Dialogs - ToolTips.	11

III	Introduction to ASP.NET :- ASP.NET Life Cycle, page life cycle phases, Understanding ASP.NET Controls, Web forms, Web form controls, server controls, client controls, HTML controls, Navigation controls.	11
IV.	Session Management :- Event Handling- Application and Session Events, Page and Control Events. Validation controls: RequiredFieldvalidator, RangeValidator, CompareValidator, RegularExpressionValidator, CustomValidator, ValidationSummary Database connectivity in ASP.NET: Architecture of ADO.NET, Connection Class, Command Class, Data Adapter Class, and Dataset Class, Display data on web form using Data bound controls.	11

Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks : '100

Continuous Comprehensive Evaluation (CCE) : 40 marks University Exam (UE) :

60 marks Internal Assessment : Class Test Total 40

Continuous Comprehensive Assignment/Presentation

Evaluation (CCE):40

External Assessment : Section(A) : Objective Questions Total 60

University Exam Section: 60 Section (B) : Short Questions

Time : 03.00 Hours Section (C) : Long Questions

St. Aloysius College (Autonomous), Jabalpur

Class: B.Com III year

Session: 2023-2024

Subject : Computer Application

Course Code:- S3-COAPT2T

Paper :-Internet and its Applications(theory)

Course :-Elective

Credit 04(Theory)+2(Practical)

Total Marks Maximum Marks:- 70+30

Min Marks:-35

Units	Topic	No. of lectures
I	Basics of Computer networks: types of network , LAN topologies: ring, bus, star, mesh and tree topologies network models, client server network and Peer to peer network, OSI, TCP/IP, layers and functionalities, transmission media: introduction, guided media and unguided media twisted pair, coaxial cable, optical fiber, Network devices: NIC, repeaters, hub, bridge, switch, gateway and router.	12
II	Introduction to World Wide Web (WWW) , Search Engines, Basics of Electronic Mail, E-mail addressing, Introduction to HTML , Syntax ,Elements and attributes,HTML tags, Forms and Form elements , tables, images, hyperlinks,Introduction to Java Script, Pop-up boxes, Event, validation	12
III	Introduction to Cascading Style sheets: Syntax, Selector. Inserting CSS: External, Internal and Inline. CSS: Text, Fonts, Links, Lists, and Tables. Introduction to PHP: HTML and PHP. Variables, Constants, Operators. Control Structures: if, switch, for, while, do...while, for-each.	12
IV	Arrays,Functions: function call, passing arguments, pass by value, and pass by reference, returning values to functions. Forms, GET and POST data, Date and Time, File Upload,	12
V	Introduction to My-SQL , creating Database in My-SQL, My-SQL and PHP: Database connectivity, Adding, modifying and deleting records, Access Records From Database. Creating and managing sessions in PHP.	12

Part D:- Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks University Exam (UE): 70 Marks

Internal Assessment : Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30
External Assessment : University Exam Section Time : 03.00 Hours	Section(A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions	70

St.Aloysius' College (Autonomous) Jabalpur
BA I Semester
Course Type:- Minor
Course Title:- Data Processing Software

Credit Value:- 4

Course Learning Outcomes:-

After completion of this course, it is expected that the student shall be able

CO 1:- To understand the basic concept of computer system, memory and data.

CO 2:- To understand the concept of office automation.

CO 3:- To study various methods of formatting of documentation.

CO 4:- To develop and enhance the presentation skill using power point.

	Course Content
Unit I	Fundamentals of computer:- computer block diagram, uses types, Input devices:- point and draw devices, scanning devices, Output devices:- Monitors and its types. Printers:- Impact and Non Impact. Primary Memory:-(RAM) dynamic and static),ROM(PROM.EPROM,EEPROM),Secondary memory:- Disk, Optical Disk,Data Representation, Number System:- Binary, Decimal, Octal and hexadecimal, Conversions.
Unit II	MS Window:- Introduction to MS Windows,Features of Windows, Various versions of windows, Working with windows,My Computer, Recycle Bin,Desktop, Icons, Windows Explorer, Working with files, folders and shortcuts, Accessories and Winows setting Control Panel, Start Button,Program lists, Installing new Hardware and Software's.
Unit III	Basics of MS Word:- Creating Word documents: The word window, applying fonts and font style in words, Aligning and formatting; finding and replacing text, spelling and grammer using thesaurus command, getting print using print preview, changing page orientation and print size, aligning text vertically, setting margins, printing options, Cross reference, Bookmark, Macro and Hyperlink, Index creation, Creating headers and

	<p>footers, Creating and modifying page numbers, working with columns, working with newspaper columns, creating tables ,modifying table structure, formatting table ;Use of mail merge in MS Word</p>
Unit IV	<p>Spreadsheets Processor:- Creating excel worksheets: Workbook and worksheet, Entering text and numbers, creating formulae, Changing worksheet layout: Adjusting column width and row height, Inserting and deleting rows and columns, Naming worksheet, deleting worksheets, Inserting and deleting worksheets, Aligning text, border and color, Printing in Excel.</p> <p>Advanced Techniques in Excel: Functions, Entering functions, Relative and Absolute Cell References, Creating named ranges, Creating Charts; Editing and formatting charts; Adding a data series, Deleting a data series, Modifying and formatting charts, Creation of Pivot table to analyze worksheet data.</p>
Unit V	<p>Creating Power Point Presentation:- Introduction of MS PowerPoint, Creating a basic presentation using templates, themes Building Presentation, Modifying Visual Elements, Formatting and Checking text, Adding objects, Applying Transitions, Inserting Audio and Video in slide, Animation Effects and Linking, Preparing Handout, Custom Slide Show.</p>

St.Aloysius' College (Autonomous) Jabalpur
BA I Semester
Course Type:- Elective
Course Title:- Data Processing Software

Credit Value:- 4

Course Learning Outcomes:-

After completion of this course, it is expected that the student shall be able

CO 1:- To understand the basic concept of computer system, memory and data.

CO 2:- To understand the concept of office automation.

CO 3:- To study various methods of formatting of documentation.

CO 4:- To develop and enhance the presentation skill using power point.

	Course Content
Unit I	Fundamentals of computer:- computer block diagram, uses types, Input devices:- point and draw devices, scanning devices, Output devices:- Monitors and its types. Printers:- Impact and Non Impact. Primary Memory:-(RAM) dynamic and static),ROM(PROM.EPROM,EEPROM),Secondary memory:- Disk, Optical Disk,Data Representation, Number System:- Binary, Decimal, Octal and hexadecimal, Conversions.
Unit II	Basics of MS Word:- Creating Word documents: The word window, applying fonts and font style in words, Aligning and formatting; finding and replacing text, spelling and grammer using thesaurus command, getting print using print preview, changing page orientation and print size, aligning text vertically, setting margins, printing options, Cross reference, Bookmark, Macro and Hyperlink, Index creation, Creating headers and footers, Creating and modifying page numbers, working with columns, working with newspaper columns, creating tables ,modifying table structure, formatting table ;Use of mail merge in MS Word

Unit III	<p>Spreadsheets Processor:- Creating excel worksheets: Workbook and worksheet, Entering text and numbers, creating formulae, Changing worksheet layout: Adjusting column width and row height, Inserting and deleting rows and columns, Naming worksheet, deleting worksheets, Inserting and deleting worksheets, Aligning text, border and color, Printing in Excel.</p> <p>Advanced Techniques in Excel: Functions, Entering functions, Relative and Absolute Cell References, Creating named ranges, Creating Charts; Editing and formatting charts; Adding a data series, Deleting a data series, Modifying and formatting charts, Creation of Pivot table to analyze worksheet data.</p>
Unit IV	<p>Creating Power Point Presentation:- Introduction of MS PowerPoint, Creating a basic presentation using templates, themes Building Presentation, Modifying Visual Elements, Formatting and Checking text, Adding objects, Applying Transitions, Inserting Audio and Video in slide, Animation Effects and Linking, Preparing Handout, Custom Slide Show.</p>

St. Aloysius' College (Autonomous), Jabalpur

Semester II

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Computer Application
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	B. A II Semester
Course Code/ पाठ्यक्रम कोड:	CI-COMCIT
Course Type/ पाठ्यक्रम का प्रकार:	Major/Minor
Course Title/पाठ्यक्रम का शीर्षक:	Basics of Programming Methodology and Database
Pre-requisite/ प्री-सपेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की पररलवधियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO1- To understand the basic concepts of computer programming</p> <p>CO2: to understand the concept of functions and arrays</p> <p>CO3- To understand the concept of database</p> <p>CO4-To understand the basic concepts of MS-Access</p> <p>CO5:To develop the concept of form designing and report designing using MS-Access</p>
Credit Value/ क्रेडिट मान:	6 credits
Total Marks/ कुल अंक:	Max. Marks: (internal) + (external)

Part B – Course Content

Unit I	<p>MS Access: Concepts & terms : database tables, relational database, records, fields , controls & objects , queries forms, reports , properties , wizards , macros ,</p> <p>Creating database & tables with & without wizard, data types & properties, adding & deleting fields, primary key field & indexing fields.</p>
Unit-II	<p>MS Access Form: Form wizard , Saving & Modifying forms Entering & Editing data , Finding , sorting & displaying data creating queries , using select queries and wild cards.</p>

Unit III	MS Reports: Creating reports, Previewing reports, Printing reports, modifying & Saving reports. Expressions, Create Pivot Table or Pivot Chart views in an Access desktop database.
Unit IV	Introduction to Programming and Characteristics. Stages in Program Development. Algorithms, Flowcharts, Types of Programming, Introduction to C Programming - Basic Program Structure, Data Types, Variables, Constants, Operators, Keywords. Data types in C(int, float and char).
Unit V	Control statements in C, Arrays - Declaration and Execution, Syntax, one dimensional array, Functions Pre-defined and User Defined Functions, Structure.

Part C – Suggested Readings

S. No.	Author	Name of the Book	Publication
1.	Gini Courter, Annette Marquis.	Microsoft Office 2000	B.P.B. Publications
2.	Saxena Sanjay, S Schnd	Microsoft Office 2000 for everyone	Vikas Publishing
3.	Michael Alexander, Richard Kusleika	Access 2016 Bible	Wiley
4.	Greg Harvey	Excel 2019	For Dummies
5.	S.S. Bhatia	Programming in C	PHI Publication

Part D: Assessment & Evaluation

Suggested Continuous Evaluation Method

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks

External Exam: 60 Marks

List of practical

Create database named "Student", create table name "Student_details". Insert 10 rows and find all the students whose marks are greater than 60%.

1. Create sql query to sort the above data in ascending order.
2. Design a form using form wizard and update the data base.
3. Design a form using design view and update the records .
4. Design a report on above said database and implement the mathematical functions.
5. Write a program in C to find simple interest using arithmetic operators.
6. Write a program in C to implement decision control statements.

7. Write a program to find factorial using loop.
8. Write a program to implement array
9. Write a program to create user defined functions.
10. Write a program to implement structures.

St. Aloysius' College (Autonomous), Jabalpur

Semester II

Part A – Introduction

Session:	2023-24
Subject/ विषय:	Computer Application
Programme/ कार्यक्रम:	Certificate / सर्टिफिकेट
Class/ कक्षा:	BA II Semester
Course Code/ पाठ्यक्रम कोड:	C1-COMC1T
Course Type/ पाठ्यक्रम का प्रकार:	OPEN ELECTIVE
Course Title/पाठ्यक्रम का शीर्षक:	Basics of Programming Methodology and Database
Pre-requisite/ पूर्वापेक्षा:	OPEN FOR ALL
Course Learning Outcome/ पाठ्यक्रम अध्ययन की पररलवधियां:	<p>After completion of this course, it is expected that the student shall be able</p> <p>CO1- To understand the basic concepts of computer programming</p> <p>CO2: to understand the concept of functions and arrays</p> <p>CO3- To understand the concept of database</p> <p>CO4-To understand the basic concepts of MS-Access</p> <p>CO5:To develop the concept of form designing and report designing using MS-Access</p>
Credit Value/ क्रेडिट मान:	4 credits
Total Marks/ कुल अंक:	Max. Marks: (internal) + (external)

Part B – Course Content

Unit I	<p>MS Access: Concepts & terms : database tables, relational database, records, fields , controls & objects , queries forms, reports , properties , wizards , macros ,</p> <p>Creating database & tables with & without wizard, data types & properties, adding & deleting fields, primary key field & indexing fields.</p>
Unit II	<p>MS Access Form: Form wizard , Saving & Modifying forms Entering & Editing data , Finding , sorting & displaying data creating queries , using select queries and wild cards. MS Reports: Creating reports, Previewing reports, Printing reports, modifying & Saving reports. Expressions, Create Pivot Table or Pivot Chart views in an Access</p>

	desktop database.
Unit III	Introduction to Programming and Characteristics. Stages in Program Development. Algorithms, Flowcharts, Types of Programming, Introduction to C Programming -

	Basic Program Structure, Data Types, Variables, Constants, Operators, Keywords. Data types in C(int, float and char).		
Unit IV	Control statements in C , Arrays - Declaration and Execution, Syntax, one dimensional array, Functions Pre-defined and User Defined Functions, Structure.		
Part C – Suggested Readings			
S. No.	Author	Name of the Book	Publication
1.	Gini Courter, Annette Marquis.	Microsoft Office 2000	B.P.B. Publications
2.	Saxena Sanjay, S Schnd	Microsoft Office 2000 for everyone	Vikas Publishing
3.	Michael Alexander, Richard Kusleika	Access 2016 Bible	Wiley
4.	Greg Harvey	Excel 2019	For Dummies
5	S.S. Bhatia	Programming in C	PHI Publication
Part D: Assessment & Evaluation			
Suggested Continuous Evaluation Method(Theory and Practical) Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 40 Marks External Exam: 60 Marks			

List of practical

Create database named "Student", create table name "Student_details". Insert 10 rows and find all the students whose marks are greater than 60%.

1. Create sql query to sort the above data in ascending order.
2. Design a form using form wizard and update the database.
3. Design a form using design view and update the records.
4. Design a report on above said database and implement the mathematical functions.
5. Write a program in C to find simple interest using arithmetic operators.
6. Write a program in C to implement decision control statements.
7. Write a program to find factorial using loop.
8. a program to implement array.
9. Write a program to create user defined functions.
10. Write a program to implement structures.

St. Aloysius' College (Autonomous) Jabalpur

Part A :Introduction

Program: DIPLOMA		Class : BA	Sem:- III	Session :2023-2024
Subject:-		Computer Application		
1.	Course Code	S2-COAPIT		
2.	Course Title	Database Management System		
3.	Course Type(Elective Course		
4.	Pre-requisite (If any)			
5.	Course Learning Outcomes (CLO)	<p>On the completion of this course student will be able -</p> <ul style="list-style-type: none"> • To understand database concepts, applications, structure, need and database terminologies. • To know about fundamentals of Relational Algebra and recovery & backup. • To gain skills to create logical design of databases, including the ER method and normalization approach. • To explore issues of transaction processing and concurrency control. • To acquire knowledge of back-end project management skills. • To get knowledge of Database and create own Database. • For implementation of different security features to secure the database. 		
6.	Credit Value	Theory -3		
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35	

Part B: Content Of the Course

Database Management System

Total No. of Lectures =45 (in hours per week):3-0-0

Unit	Topics	No. of Lectures
i	Introduction: Database system concepts, Data base system, Advantages of database systems; Data Architecture of data system: View/Schema, logical, conceptual and physical and their interrelationship, data dictionary, Data base administrator. Types of Data Models:- Relational, Hierarchical and Network Model their advantages and disadvantages.	12
ii	Entity Relationship Model as a tool of conceptual design: Entities & Entity set, Relationship & Relationship set, Attributes, Mapping Constraints, Keys, Entity- Relationship diagram (E-R diagram) : Strong & weak entities, Generalization, Specialization, Aggregation, Reducing ER diagram to tables.	11

III	Normalization and SQL concept :- Normalization: First, Second, Third & BCNF Normal Forms, Introduction to SQL, tuple, attribute, Data types, key constraints:- primary key, Candidate key, Integrity rules : Entity integrity, Referential integrity rule. SQL Commands:- , DDL, DML, DCL, TCL syntax and examples, select query with all the clauses. Like Predicate , Operator (Between, In , Not in)	11
IV	Advance SQL:- SQL join operations, Sub queries and correlated queries, SQL Functions. Constraints in SQL. Introduction to PL/SQL :- PL/SQL structure, Cursors, Triggers, Stored Procedures and functions.	11
Part C: Learning Resources		
	<p style="text-align: center;">Suggested Digital Platforms, Web links</p> <ol style="list-style-type: none"> 1. https://www.greatlearning.in/academy/learn-for-free/courses/database-management-systems-dbms 2. https://www.learnvern.com/course/database-management-tutorial-hindi 3. https://www.geeksforgeeks.org/dbms/ 4. https://www.tutorialspoint.com/database-tutorials.htm 5. https://www.iavatpoint.com/dbms-tutorial 6. https://beginnersbook.com/2015/04/dbms-tutorial 7. https://www.studytonight.com/dbms/ 8. https://www.w3schools.in/dbms/ 9. https://www. .com/dbms-tutorial.html 10. https://www.tutorialcuy.com/dbms 11. http://i/yww.mphindiqranthacademy.org/ <p style="text-align: center;">Suggested Readings:</p> <ol style="list-style-type: none"> 1. An Introduction to Database System by Bipin Desai. 2. "Database System Concepts" by Abraham Silberschatz and S Sudarshan 3. "Database Management Systems" by Raghu Ramakrishnan 4. "Fundamentals of Database Systems" by R Elmasri and S Navathe 5. "Database Management Systems" by Johannes Gehrke and Raghu Ramakrishnan 6. Books published by M.P. Hindi Granth Academy, Bhopal 	
Part D-Assessment and Evaluation		

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 40 marks 'University Exam (UE) : 60marks

Internal Assessment : Class Test Total 40

Continuous Comprehensive Evaluation (CCE):40 Assignment/Presentation

External Assessment:

University Exam Section: 60

Time : 03.00 Hours

Section(A) : Objective Questions Total 60

Section (B) : Short Questions

Section (C) : Long Questions

St.Aloysius' College Autonomous Jabalpur

PartA: Introduction

Program: Diploma		Class : BA	Sem :- III	session:2023-2024
Subject:		Computer Application		
1.	Course Code	S2-COAPIT		
2.	Course Title	DBMS (Practical)		
3.	Course Type	Elective		
4.	Pre-requisite			
5.	Course Learning Out comes(CLO)	<p style="text-align: center;">On the completion of this course student will be able -</p> <ul style="list-style-type: none"> To understand database concepts, applications, structure, need and database terminologies. To know about fundamentals of Relational Algebra and recovery & backup. To gain skills to create logical design of databases, including the E R method and normalization approach. To explore issues of transaction processing and concurrency control. To acquire knowledge of back-end project management skills. To get knowledge of Database and create own Database. <p style="text-align: center;">For implementation of different security features to secure the database.</p>		
6.	Credit Value	1		
7.	Total Marks	Max.Marks: 40+60	Min.PassingMarks: 35	

Part B: Contents of the Course

Data Base Management System(Practical)

Total No. of Practical =30 (each of 2 hours duration (1 Practical per week))

Practical will be conducted based on the theory Syllabus

1. Create a table with name "Employee" having following fields:-

Field Name	Data Type	Size	Constraint
Eid	Number	10	Primary Key
Ename	Char	20	Not null
Designation	Char	30	Not null
Age	Number	10	Not null
City	Varchar2	25	Not null
Department no	Varchar2	30	Not null
Salary	Decimal	(7,2)	Not null
BankName	Varchar2	30	Not null

Insert the following records in above table structure .

Eid	Ename	Designation	Age	City	Department	Salary	BankName
101	Ford	Manager	24	Mumbai	D1	67820.50	HDFC
102	Jenny	Asst. Mng .	30	Delhi	D1	45750.40	Axis
103	Mary	Clerk	35	Goa	D1	32000.00	Canara
104	Smith	Clerk	28	Madras	D1	28000.00	FBC

105	James	Clerk	27	Mumbai	D1	29000.00	ICICI
106	Anny	Clerk	32	Kolkata	D1	25000.00	Axis
107	Jones	Clerk	34	Delhi	D1	27000.00	HDFC
108	Michal	Clerk	31	Goa	D1	24000.00	FBC

Execute the following queries

1. WAQ to insert one new record in the table.
2. WAQ to change the Ename from Anny to Robin.
3. Delete any one record from table.
4. Add a new column in the employee table with name "email id" having datatype varchar2(15).
5. WAQ to display the entire table using DQL Command .
6. WAQ to display the specific records whose age is greater than 30 using where clause.
7. Display only the city column using where clause.
8. Display the name of employee whose name starts with "J" using predicate.
9. WAQ to find the name of the employees whose salary lies between 24000.00 to 28000.00
10. WAQ to list the number of employees whose name is not "Jenny","Mary","Ford".

St. Aloysius' College (Autonomous) Jabalpur

Part A : Introduction

Program: Diploma	Class : BA	Sem:- III	Session :2023-2024
Subject :		Computer Application	
1.	Course Code	S2-COAP1T	
2.	Course Title	Database Management System	
3.	Course Type(Core Course/Elective/Generic Elective/Vocational/...)	Minor Course	
4.	Pre-requisite(If any)		
5.	Course Learning Outcomes (CLO)	<p>On the completion of this course student will be able -</p> <ul style="list-style-type: none"> To understand database concepts, applications, structure, need and database terminologies. To know about fundamentals of Relational Algebra and recovery & backup. To gain skills to create logical design of databases, including the ER method and normalization approach. To explore issues of transaction processing and concurrency control. To acquire knowledge of back-end project management skills. To get knowledge of Database and create own Database. For implementation of different security features to secure the database. 	
6.	Credit Value	Theory -4	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B: Content Of the Course Database Management System

Total No. of Lectures =60 (in hours per week):3-0-0

Unit	Topics	No. of Lectures
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i	Introduction: Database system concepts:- Data base system, Advantages of database systems; Data Architecture of data system: View/Schema, logical, conceptual and physical and their interrelationship, data dictionary, Data base administrator. Types of Data Models:- Relational, Hierarchical and Network Model their advantages and disadvantages	12
II	Entity Relationship Model as a tool of conceptual design: Entities & Entity set, Relationship & Relationship set, Attributes, Mapping Constraints, Keys, Entity- Relationship diagram (E-R diagram) : Strong & weak entities, Generalization, Specialization, Aggregation, Reducing ER diagram to tables.	12
III	Normalization and SQL concept :- Normalization First, Second, Third & BCNF Normal Forms, Introduction to SQL, tuple, attribute, Data types, key constraints:- primary key, Candidate key, Integrity rules : Entity integrity, Referential integrity rule. SQL Commands:- , DDL, DML, DCL, TCL syntax and examples, select query with all the clauses. Like Predicate , Operator (Between, In , Not in)	12
IV	Advance SQL:- SQL join operations, Sub queries and correlated queries, SQL Functions. Constraints in SQL. Introduction to PL/SQL :- PL/SQL structure, Cursors, Triggers, Stored Procedures and functions.	12
V	Functional Protection and Crash Recovery: protection against crashes: different types of crashes; backup, journal, rollback, committed and uncommitted transactions; security on database	12

Part C: Learning Resources

	<p style="text-align: center;">Suggested Digital Platforms, Web links</p> <ol style="list-style-type: none"> 1. https://www.greatlearning.in/academy/learn-for-free/courses/database-management-systems-dbms 2. https://www.learnvern.com/course/database-management-tutorial-hindi 3. https://www.geeksforgeeks.org/dbms/ 4. https://www.tutorialspoint.com/database_tutorials.htm 5. 5. https://www.iavatpoint.com/dbms-tutorial 6. https://beginnersbook.com/2015/04/dbms-tutorial 7. https://www.studytonight.com/dbms/ 8. https://www.w3schools.in/dbms/ 9. https://www.«g.com/dbms-tutorial.html 10. https://www.tutorialcuy.com/dbms 11. http://www.mphindiqrantacademy.org/ <p style="text-align: center;">Suggested Readings:</p> <ol style="list-style-type: none"> 1. An Introduction to Database System by Bipin Desai. 2. "Database System Concepts" by Abraham Silberschatz and S Sudarshan 3. "Database Management Systems" by Raghu Ramakrishnan 4. "Fundamentals of Database Systems" by R Elmasri and S Navathe 5. "Database Management Systems" by Johannes Gehrke and Raghu Ramakrishnan 6. Books published by M.P. Hindi Granth Academy, Bhopal 	
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Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 40 marks 'University Exam (UE) : 60marks

Internal Assessment :	Class Test	Total 40
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Continuous Comprehensive Evaluation (CCE):40	Assignment/Presentation
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Section(A) : Objective Questions Total 60

Section (B) : Short Questions

Section (C) : Long Questions

External Assessment: University Exam Section: 60 Time : 03.00 Hours

St.Aloysius' College Autonomous Jabalpur

PartA: Introduction

Program: Diploma		Class : BA	Sem :- III	session:2023-2024
Subject:		Computer Application		
1.	Course Code	S2-COAP1T		
2.	Course Title	DBMS (Practical)		
3.	Course Type	Minor		
4.	Pre-requisite			
5.	Course Learning Out comes(CLO)	<p style="text-align: center;">On the completion of this course student will be able -</p> <ul style="list-style-type: none"> To understand database concepts, applications, structure, need and database terminologies. To know about fundamentals of Relational Algebra and recovery & backup. To gain skills to create logical design of databases, including the E R method and normalization approach. To explore issues of transaction processing and concurrency control. To acquire knowledge of back-end project management skills. To get knowledge of Database and create own Database. For implementation of different security features to secure the database. 		
6.	Credit Value	2		
7.	Total Marks	Max.Marks: 40+60	Min PassingMarks: 35	

Part B: Contents of the Course

Data Base Management System(Practical)

Total No. of Practical =30 (each of 2 hours duration (1 Practical per week))

Practical will be conducted based on the theory Syllabus

2. Create a table with name "Employee" having following fields:-

Field Name	Data Type	Size	Constraint
Eid	Number	10	Primary Key
Ename	Char	20	Not null
Designation	Char	30	Not null
Age	Number	10	Not null
City	Varchar2	25	Not null
Department no	Varchar2	30	Not null
Salary	Decimal	(7,2)	Not null
BankName	Varchar2	30	Not null

Insert the following records in above table structure .

Eid	Ename	Designation	Age	City	Department	Salary	BankName
101	Ford	Manager	24	Mumbai	D1	67820.50	HDFC
102	Jenny	Asst. Mng .	30	Delhi	D1	45750.40	Axis
103	Mary	Clerk	35	Goa	D1	32000.00	Canara
104	Smith	Clerk	28	Madras	D1	28000.00	FBC
105	James	Clerk	27	Mumbai	D1	29000.00	ICICI

106	Anny	Clerk	32	Kolkata	D1	25000.00	Axis
107	Jones	Clerk	34	Delhi	D1	27000.00	HDFC
108	Michal	Clerk	31	Goa	D1	24000.00	FBC

Execute the following queries

11. WAQ to insert one new record in the table.
12. WAQ to change the Ename from Anny to Robin.
13. Delete any one record from table.
14. Add a new column in the employee table with name "email id" having datatype varchar2(15).
15. WAQ to display the entire table using DQL Command .
16. WAQ to display the specific records whose age is greater then 30 using where clause.
17. Display only the city column using where clause.
18. Display the name of employee whose name starts with "J" using predicate.
19. WAQ to find the name of the employees whose salary lies between 24000.00 to 28000.00
20. WAQ to list the number of employees whose name is not "Jenny","Mary","Ford".

St.Aloysius' College Autonomous Jabalpur

Part A: Introduction

Program: Diploma		Class : BA	Sem:- IV	Session:2023-2024
Subject :		Computer Application		
1.	Course Code	S2-COAP2T		
2.	Course Title	Introduction to ASP.NET& C#		
3.	Course Type	Elective		
4.	Pre-requisite			
5.	Course Learning Out comes(CLO)	<p style="text-align: center;">On the completion of this course student will be able-</p> <ul style="list-style-type: none"> To learn fundamentals of .net framework To enrich knowledge about Windows Forms, Controls and ASP.NET based applications. To gain proficiency in C# by building stand-alone applications in the .NET framework using C#. To build data-driven applications using the .NET Framework, C#, and ADO.NET To acquire skills to create web-based applications and Reports using net technologies 		
6.	Credit Value	Theory:- 3		
7.	Total Marks	Max.Marks:40+60	Min.PassingMarks:35	

Part B: Contents of the Course

Introduction to ASP.NET& C#

Total No .of Lectures =45(3 hours/ lecture per week)

Unit	Topics	No. of Lectures
I	Introduction to .NET Framework: Programming Platform .NET Framework, .NET Architecture, CLR, the Just-in-Time Compiler, C# - The Basics and Console Applications in C#: Introduction to C#, Visual development & event driven Programming Methods and events. Data type, type conversion. Variables constants, operators, Decision making, Loops, Arrays.	12
n	Overview of OOPs: Class, Object, Encapsulation, inheritance, polymorphism, abstraction, Understanding Constructors and instance Variables Handling and Using Interfaces. Preprocessor directives, Exception handling, Understanding Delegates in c#. Windows Forms and Controls: The Windows Forms Model, Creating Windows Forms, Windows Forms Properties and Events, Windows Form Controls, Menus - Dialogs - ToolTips.	11

III	Introduction to ASP.NET:- ASP.NET Life Cycle, page life cycle phases, Understanding ASP.NET Controls, Web forms, Web form controls, server controls, client controls, HTML controls, Navigation controls.	11
IV	Session Management :- Event Handling- Application and Session Events, Page and Control Events. Validation controls: RequiredFieldValidator, RangeValidator, CompareValidator, RegularExpressionValidator, CustomValidator, ValidationSummary Database connectivity in ASP.NET: Architecture of ADO.NET, Connection Class, Command Class, Data Adapter Class, and Dataset Class, Display data on web form using Data bound controls.	11
Part C: Learning Resources		
Suggested Digital Platforms; Weblinks		
<ol style="list-style-type: none"> https://docs.microsoft.com/en-us/dotnet/framework/eet-started/system-requirements https://www.c-sharpcorner.com/UploadFile/18585c/overview-of- https://www.dotnettricks.com/learn/designpatterns/adapter-design-pattern-dotnet http://www.mphindieranthacademy.org/ <p style="text-align: center;">Suggested Readings:</p> <ol style="list-style-type: none"> ASP .NET Unleashed C# programming — Wrox Publication. C# Programming Black Book by Matt Talles. VB.NET Programming Black Book by st.evenholzner — dreamteef publications Mastering VB.NET by Evangelospetroustos- BPB publications Introduction to .NET framework- Wrox publication Books published by M.P. Hindi Granth Academy, Bhopal 		

Part D-Assessment and-Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 40 marks University Exam (UE) :

60 marks Internal Assessment : Class Test Total 40

Continuous Comprehensive Evaluation (CCE):40 Assignment/Presentation

External Assessment : Section(A) : Objective Questions Total 60

University Exam Section: 60 Section (B) : Short Questions

Time : 03.00 Hours Section (C) : Long Questions

St.Aloysius' College Autonomous Jabalpur

PartA: Introduction

Program: Diploma		Class : BA	Sem :- IV	session:2023-2024
Subject:		Computer Application		
1.	Course Code	S2-COAP2P		
2.	Course Title	Introduction to ASP.NET & C# (Practical)		
3.	Course Type	Elective		
4.	Pre-requisite			
5.	Course Learning Out comes(CLO)	<p>On the completion of this course student will be able-</p> <ul style="list-style-type: none"> • To learn fundamentals of .net framework • To enrich knowledge about Windows Forms, Controls and ASP.NET based applications. • To gain proficiency in C# by building stand-alone applications in the .NET framework using C#. • To build data-driven applications using the .NET Framework, C#, and ADO.NET • To acquire skills to create web-based applications and reports using .NET technologies 		
6.	Credit Value	1		
7.	Total Marks	Max.Marks: 40+60	Min PassingMarks: 35	

Part B: Contents of the Course

Introduction to ASP.NET & C# (Practical)

Total No. of Practical =30 (each of 2 hours duration (1 Practical per week))

Practical will be conducted based on the theory Syllabus

List of Practicals

1. Develop a console application in c# to find the addition of two numbers.
2. Develop a console application in c# to find the simple interest.
3. Develop a console application in c# to find the factorial of any n entered number.
4. Develop a console application in c# to display a fibonacci series.
5. Develop a console application in c# to check whether a number is even or odd.
6. Develop a console application in c# to implement array.
7. Develop a console application in c# to find the product and division of entered number.
8. Write a program to declare a class "staff" having data of the members such as name and post. Accept this data and display the result.
9. Define a class having "salary" of members displaying variables such as BASIC, DA, HRA. Develop a window application to find the total salary of the employee.
10. Develop a window application using text box, check box, radio button, list box, labels and validation.
11. Develop a ASP.NET dynamic website for student registration detail.

St.Aloysius' College Autonomous Jabalpur

Part A: Introduction

Program: Diploma		Class : BA	Sem:- IV	session:2023-2024
Subject :		Computer Application		
1.	CourseCode	S2-COAP2T		
2.	CourseTitle	Introduction to ASP.NET& C#		
3.	Course Type	Minor		
4.	Pre-requisite			
5.	Course Learning Outcomes (CLO)	<p>On the completion of this course student will be able-</p> <ul style="list-style-type: none"> To learn fundamentals of .net framework To enrich knowledge about Windows Forms, Controls and ASP.NET based applications. To gain proficiency in C# by building stand-alone applications in the .NET framework using C#. To build data-driven applications using the .NET Framework, C#, and ADO.NET To acquire skills to create web-based applications and Reports using .net technologies 		
6.	CreditValue	4		
7.	Total Marks	Max.Marks:40+60	Min.PassingMarks:35	

Part B: Contents of the Course Introduction to ASP.NET& C#

Total No. of Lectures =60(3 hours/ lecture per week)

Unit	Topics	No. of Lectures
I	Introduction to .NET Framework: Programming Platform .NET Framework, .NET Architecture, CLR, the Just-in-Time Compiler, C# - The Basics and Console Applications in C#: Introduction to C#, Visual development & event driven Programming Methods and events, Data type, type conversion, Variables constants, operators, Decision making, Loops, Arrays.	12
ii	<p>Overview of OOPs: Class, Object, Encapsulation, inheritance, polymorphism, abstraction, Understanding Constructors and instance Variables Handling and Using Interfaces. Preprocessor directives, Exception handling, Understanding Delegates in c#.</p> <p>Windows Forms and Controls: The Windows Forms Model, Creating Windows Forms, Windows Forms Properties and Events, Windows Form Controls, Menus - Dialogs - ToolTips.</p>	12

III	Introduction to ASP.NET:- ASP.NET Life Cycle, page life cycle phases, Understanding ASP.NET Controls, Web forms, Web form controls, server controls, client controls, HTML controls, Navigation controls.	12
IV	Session Management :- Event Handling- Application and Session Events, Page and Control Events. Validation controls: RequiredFieldValidator, RangeValidator, CompareValidator, RegularExpressionValidator, CustomValidator, ValidationSummary	12
V	Database connectivity in ASP.NET: Architecture of ADO.NET, Connection Class, Command Class, Data Adapter Class, and Dataset Class, Display data on web form using Data bound controls.	12
Part C: Learning Resources		
Suggested Digital Platforms ;Weblinks		
<ol style="list-style-type: none"> 1. https://docs.microsoft.com/en-us/dotnet/framework/eet-started/system-requirements 2. https://www.c-sharpcorner.com/UploadFile/18585c/overview-of- 3. https://www.dotnettricks.com/learn/designpatterns/adapters-design-pattern-dotnet 4. http://www.mphindieranthacademy.org/ <p style="text-align: center;">Suggested Readings:</p> <ol style="list-style-type: none"> 1. ASP .NET Unleashed C# programming — Wrox Publication. 2. C# Programming Black Book by Matt Talles. 3. VB.NET Programming Black Book by st.evenholzner—dreamteef publications 4. Mastering VB.NET by Evangelos petroutsos- BPB publications 5. Introduction to .NET framework- Worx publication 6. Books published by M.P. Hindi Granth Academy, Bhopal 		

Part D-Assessment and-Evaluation.

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 40 marks University Exam (UE) :

60 marks Internal Assessment :

Class Test Total 40

Continuous Comprehensive Evaluation (CCE):40 Assignment/Presentation

External Assessment : Section(A) : Objective Questions Total 60

University Exam Section: 60 Section (B) : Short Questions

Time : 03.00 Hours

Section (C) : Long Questions

Part A: Introduction

Program: Diploma		Class : BA	Sem :- IV	session:2023-2024
Subject:		Computer Application		
1.	CourseCode	S2-COAP2P		
2.	CourseTitle	Introduction to ASP.NET & C# (Practical)		
3.	Course Type	Minor		
4.	Pre-requisite			
5.	Course Learning Out comes(CLO)	<p>On the completion of this course student will be able-</p> <ul style="list-style-type: none"> • To learn fundamentals of .net framework • To enrich knowledge about Windows Forms, Controls and ASP.NET based applications. • To gain proficiency in C# by building stand-alone applications in the .NET framework using C#. • To build data-driven applications using the .NET Framework, C#, and ADO.NET • To acquire skills to create web-based applications and reports using .NET technologies 		
6.	Credit Value	2		
7.	Total Marks	Max.Marks: 40+60	Min.Passing Marks: 35	

Part B: Contents of the Course
Introduction to ASP.NET & C# (Practical)

Total No.of Practical =30 (each of 2 hours duration (1 Practical per week))

Practical will be conducted based on the theory Syllabus

List of Practicals

1. Develop a console application in c# to find the addition of two numbers.
2. Develop a console application in c# to find the simple interest.
3. Develop a console application in c# to find the factorial of any n entered number.
4. Develop a console application in c# to display a fibonacci series.
5. Develop a console application in c# to check whether a number is even or odd.
6. Develop a console application in c# to implement array.
7. Develop a console application in c# to find the product and division of entered number.
8. Write a program to declare a class "staff" having data of the members such as name and post. Accept this data and display the result.
9. Define a class having "salary" of members displaying variables such as BASIC, DA , HRA. Develop a window application to find the total salary of the employee.
10. Develop a window application using text box, check box, radio button, list box, labels and validation.
11. Develop a ASP.NET dynamic website for student registration detail.

St. Aloysius College (Autonomous), Jabalpur

Part A : Introduction

Program: Degree	Class: B.A III year	Year : III	Session: 2023-2024
Subject :	Computer Application		
Course Code	S3-COAPT2T		
Course Title	Internet and its Applications(theory)		
Course Type	Minor /Elective		
Course Learning Outcome(CLO)	<p>On successful completion of this course, the student will be able to</p> <ul style="list-style-type: none"> • Understand the features and applications of internet • able to get the concepts of computer networks • able to develop a webpage using html • Able to design a webpage using CSS. • Able to develop static and dynamic websites 		
Credit	04(Theory)+2(Practical)		
Total Marks	Maximum Marks:- 70+30		Min Marks:-35

**Part B:- Content of the Course
Internet and its Applications(theory)**

Units	Topic	No. of lectures
I	Basics of Computer networks: types of network , LAN topologies: ring, bus, star, mesh and tree topologies network models, client server network and Peer to peer network, OSI, TCP/IP, layers and functionalities, transmission media: introduction, guided media and unguided media twisted pair, coaxial cable, optical fiber, Network devices: NIC, repeaters, hub, bridge, switch, gateway and router.	12
II	Introduction to World Wide Web (WWW) , Search Engines, Basics of Electronic Mail, E-mail addressing, Introduction to HTML , Syntax ,Elements and attributes,HTML tags, Forms and Form elements , tables, images, hyperlinks,Introduction to Java Script, Pop-up boxes, Event, validation	12

III	Introduction to Cascading Style sheets: Syntax, Selector. Inserting CSS: External, Internal and Inline. CSS: Text, Fonts, Links, Lists, and Tables, Introduction to PHP: HTML and PHP. Variables, Constants, Operators. Control Structures: if, switch, for, while, do....while, for-each.	12
IV	Arrays, Functions: function call, passing arguments, pass by value, and pass by reference, returning values to functions. Forms, GET and POST data, Date and Time, File Upload,	12
V	Introduction to My-SQL , creating Database in My-SQL, My-SQL and PHP: Database connectivity, Adding, modifying and deleting records, Access Records From Database. Creating and managing sessions in PHP.	12

Part C:- Learning Resources

Suggested Readings
Computer Networks by Andrew Tanenbaum
HTML Black book
PHP for Web Designing

Part D:- Assessment and Evaluation

Suggested Continuous Evaluation Methods:		
Maximum Marks : 100		
Continuous Comprehensive Evaluation (CCE) : 30 Marks University Exam (UE): 70 Marks		
Internal Assessment : Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30
External Assessment : University Exam Section Time : 03.00 Hours	Section(A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions	70

BA III year

List of Practical's

1. WAP in HTML to implement tables, hyperlinks and images
2. WAP in HTML to implement Forms and input tools
3. WAP in HTML to design webpage using CSS elements.
4. WAP in java script to find the factorial using loops.
5. WAP in java script to implement events and validations.
6. WAP in PHP to implement looping.
7. WAP in PHP to implement arrays.
8. WAP in PHP to implement functions
9. WAP in PHP to implement GET and POST method
10. Develop a dynamic website in PHP using PHP forms and validation .

B.Sc I Sem
Computer Science
Major/Minor
Computer System Architecture
Max: 60
Min:40

- CO1: Understand the basic structure, operation and characteristics of digital computer
- CO2: Be able to design simple combinational digital circuits based on given parameters.
- CO3: Familiarity with working of arithmetic and logic unit as well as the concept of pipelining.
- CO4: Know about hierarchical memory system including cache memories and virtual memory.
- CO5: Understand concept and advantages of parallelism, threading, multi-processors and multi-core processors.
- CO6: Know the contributions of Indians in the field of computer architecture and related technologies.

Unit-I: Fundamentals of Digital Electronics: Number System-Binary, Decimal, Octal, Hexa-Decimal, Conversions, Binary Arithmetic- Addition Subtraction, Multiplication, Division, Underflow, Overflow, Sign Magnitude, Complements-1's and 2's, Fixed-Point Representation, Floating-Point Representation.

Unit-II: Boolean Algebra, Reducing Boolean Expression, Logic Gates AND, OR, NOT, Universal Gates- NAND, NOR, Analog and Digital Signals, Clock Waveform Timing Map Simplification, K- Map: Two, Three and Four variables.

Unit-III :Combinational Circuits Adder, Subtractor, Multiplexer, De multiplexer, Decoders, Encoders, Binary Codes Gray Codes, ASCII code, BCD code, EBCDIC, Error Detection Code and Correction Code, Hamming Code.

Unit-IV :Sequential Circuits Flip-Flops, SR, D, T, JK, Master-Slave, Registers, Shift Registers SISO, SIPO, PISO, PIPO, Counters, Instruction Format, Instruction Codes, instructions Cycles, Addressing Modes.

Unit-V: Handshaking, Concepts of RISC, CISC, DMA Data Transfer, Auxiliary Memory, Cache Memory, Associative Memory, Virtual Memory, Flynn's classification Introduction to SISD, SIMD, MISD, MIMD, Parallelism, Multicore processors.

Unit-IV: Indian contribution to the field - Contributions of reputed scientists of Indian origin like Dr. Vinod Dham Father of Intel Pentium Processor, Dr. Ajay Bhat - Co-Inventor of USB Technology, Dr. Vinod Khosla- co-founder of Sun Microsystems, Dr. Vijay P Bhatkar - architect of India's national initiative in supercomputing, and many others. Parallel Computing projects of India PARAM, ANUPAM, FLOSOLVER, CHIPPS etc. Other relevant contributors and contributions.

Suggested Readings:

- M. Morris Mano, "Computer System Architecture". PHI
- Heuring Jordan, "Computer System Design & Architecture" (A.W.L.)
- William Stalling, "Computer Organization & Architecture", Pearson Education Asia.
- V. Carl Hamacher, "Computer Organization", TMH
- Tannenbaum, "Structured Computer Organization". PHI DINT

**B.Sc I Sem
Computer Science
Major/Minor
Computer System Architecture
Max: 60
Min:40**

- CO1: Understand the basic structure, operation and characteristics of digital computer
CO2: Be able to design simple combinational digital circuits based on given parameters.
CO3: Familiarity with working of arithmetic and logic unit as well as the concept of pipelining.
CO4: Know about hierarchical memory system including cache memories and virtual memory.
CO5: Understand concept and advantages of parallelism, threading, multi-processors and multi-core processors.
CO6: Know the contributions of Indians in the field of computer architecture and related technologies.

Unit-I: Fundamentals of Digital Electronics: Number System-Binary, Decimal, Octal, Hexa-Decimal, Conversions, Binary Arithmetic- Addition Subtraction, Multiplication, Division, Underflow, Overflow, Sign Magnitude, Complements-1's and 2's, Fixed-Point Representation, Floating-Point Representation.

Unit-II: Boolean Algebra, Reducing Boolean Expression, Logic Gates AND, OR, NOT, Universal Gates- NAND, NOR, Analog and Digital Signals, Clock Waveform Timing, Map Simplification, K- Map: Two, Three and Four variables.

Unit-III :Combinational Circuits Adder, Subtractor, Multiplexer, De multiplexer, Decoders, Encoders, Binary Codes Gray Codes, ASCII code, BCD code, EBCDIC, Error Detection Code and Correction Code, Hamming Code.

Unit-IV :Sequential Circuits Flip-Flops, SR, D, T, JK, Master-Slave, Registers, Shift Registers SISO, SIPO, PISO, PIPO, Counters, Instruction Format, Instruction Codes, instructions Cycles, Addressing Modes. Indian contribution to the field - Contributions of reputed scientists of Indian origin like Dr. Vinod Dham Father of Intel Pentium Processor, Dr. Ajay Bhat - Co-Inventor of USB Technology, Dr. Vinod Khosla- co-founder of Sun Microsystems

Suggested Readings:

- M. Morris Mano, "Computer System Architecture". PHI
Heuring Jordan, "Computer System Design & Architecture" (A.W.L.)
William Stallng, "Computer Organization & Architecture", Pearson Education Asia.
V. Carl Hamacher. "Computer Organizag ion", TMH
Tannenbaum, "Structured Computer Organization". PHI DINT

PART A: Introduction

Program: Certificate	Class: B.Sc	Year: Sem II	Session: 2023-24
Subject: Computer Science			
1.	Course Code		
2.	Course Title	Programming using C++ and Data Structure	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Major/Minor	
4.	Pre-Requisite (if any)	To study this course, a student must have basic knowledge of Computers.	
5.	Course Learning Outcomes(CLO)	After the completion of this course, a successful student will be able to do the following: <ol style="list-style-type: none">1. Develop simple algorithms and flow charts to solve a problem with programming using top down design principles.2. Writing efficient and well-structured computer algorithms/programs.3. Learn to formulate iterative solutions and array processing algorithms for problems.4. Use recursive techniques, pointers and searching methods in programming.5. Will be familiar with fundamental data structures, their implementation; become accustomed to the description of algorithms in both functional and procedural styles.6. Have knowledge of complexity of basic operations like insert, delete, search on these data structures.7. Possess ability to choose a data structure to suitably model any data used in computer applications.8. Design programs using various data structures including hash tables, Binary and general search trees, heaps, graphs etc.9. Assess efficiency tradeoffs among different data structure implementations.10. Implement and know the applications of algorithms for searching and sorting.	
6.	Credit Value	Theory – 4 Credits Practical – 2 Credits	
7.	Total Marks	Max. Marks : 40+60	Min. Passing Marks: 35

PART B: Content of the CourseNo. of Lectures (in hours per week): **4 Hrs. per week**Total No. of Lectures: **60.**

Module	Topics	No. of Lectures
I	Basics of OOPs: Features and Characteristics of OOPs, History of C++, Application of C++, Data Types, Operator in C++, C++ Stream Classes, Unformatted and Formatted I/O Operation, Managing Output with Manipulators, Scope Resolution Operator	12
II	Functions In C++: The Main Function, Function Prototyping, Call by Reference Call by Address, Call by Value, Return by Reference, Inline Function, Default Arguments, Constant Arguments, Function Overloading Classes & Objects: A Sample C++ Program with class, Defining Member Functions (Private & Public), Static Data Members, Static Member Functions, Array of Objects, Object as Function Arguments, Friend Functions	12
III	Arrays: Representation of single, two-dimensional arrays Constructor & Destructor: Constructor, Constructors with Default Arguments, Parameterized Constructor, Copy Constructor, Multiple Constructors in a Class, Destructor Searching (linear & binary) and sorting (bubble sort, selection sort & insertion sorting)	12
IV	Inheritance: Defining Derived Classes, Single Inheritance, Making a Private Member Inheritable, Multilevel Inheritance, Hierarchical Inheritance, Multiple Inheritance, Hybrid Inheritance, Virtual Base Classes, Abstract Classes, Operator Overloading Polymorphism: Virtual functions Pointers, Exception Handling	12
V	Data Structure: Basic concepts, Linear and Non-Linear data structures Stacks: Operations, Array and Linked Implementations, Applications- Infix to Postfix Conversion, Infix to Prefix Conversion, Postfix Expression Evaluation. Queues: Definition, Operations, Array and Linked Implementations, Circular Queue- Insertion and Deletion Operations, Dequeue (Double Ended Queue), Priority Queue- Implementation Linked Lists: Singly Linked Lists, Operations, Circularly linked lists- Operations Doubly Linked Lists- Operations, Doubly Circular Linked List	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- J. R. Hanly and E. B. Koffman, "Problem Solving and Program Design in C", Pearson, 2015
- E. Balguruswamy, "C++", TMH Publication ISBN 0-07-462038-X
- Herbert Schildt, "C++ The Complete Reference "TMH Publication ISBN 0-07-463880-7

Reference Books:

- R. Lafore, 'Object Oriented Programming C++'
- N. Dale and C. Weems, "Programming and problem solving with C++: brief edition", Jones & Bartlett Learning.
- Adam Drozdek, "Data Structures and algorithm in C++", Third Edition, Cengage Learning.
- Sartaj Sahani, "Data Structures, Algorithms and Applications with C++", McGraw Hill.
- Robert L. Kruse, "Data Structures and Program Design in C++", Pearson.
- D.S. Malik, "Data Structure using C++", Second edition, Cengage Learning.
- M. A. Weiss, "Data structures and Algorithm Analysis in C", 2nd edition, Pearson.
- Lipschutz, "Schaum's outline series Data structures", Tata McGraw-Hill

Suggestive digital platform web links

<https://www.youtube.com/watch?v=BCIS40vzssA>

<https://www.youtube.com/watch?v=vLnPwxZdW4Y&vl=en>

<https://www.youtube.com/watch?v=Umm1ZQ5ltZw>

Suggested equivalent online courses

S.No.	Online Course	Duration	Platform
1	Programming in C++ https://nptel.ac.in/courses/106/105/106105151/	8 weeks	NPTEL
2	Beginning C++ Programming - From Beginner to Beyond https://www.udemy.com/course/beginning-c-plus-plus-programming/	Self paced	Udemy

PART D: Assessment and Evaluation

Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 40 Marks

Three test will be taken of which best of two marks will be considered

External Assessment: University Exam (UE) : 60 Marks

Time : 02.00 Hours

Objective type Text I	20 Marks	Section (A) : Very short questions (1 from each unit)	1 x 5 = 5 Marks
Class Test II (Subjective)	20 Marks	Section (B) : 5 Short Questions (200 Words Each)	4 x 5 = 20 Marks
Class Test III (Subjective)	20 Marks		Section (C): 5 Long Questions (500 Words Each)
Total	40 Marks	Total	60 Marks
<p>Any remarks/suggestions: Focus of the course/teaching should be on developing ability of the student in analyzing a problem, building the logic and efficient code for the problem.</p>			

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR

PART A: Introduction

Program: Certificate	Class: BSc	Year: I (sem 2)	Session: 2023-24
Subject: Computer Science			
1.	Course Code		
2.	Course Title	Programming using C++	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Electives	
4.	Pre-Requisite (if any)	To study this course, a student must have basic knowledge of Computers.	
5.	Course Learning Outcomes(CLO)	After the completion of this course, a successful student will be able to do the following: <ol style="list-style-type: none">1. Develop simple algorithms and flow charts to solve a problem with programming using top down design principles.2. Writing efficient and well-structured computer algorithms/programs.3. Learn to formulate iterative solutions and array processing algorithms for problems.4. Use recursive techniques, pointers and searching methods in programming.	
6.	Credit Value	Theory – 3 Credits Practical – 1 Credits	
7.	Total Marks	Max. Marks : 40+60	Min. Passing Marks: 35

PART B: Content of the Course

No. of Lectures (in hours per week): **4 Hrs. per week**

Total No. of Lectures: **45.**

Module	Topics	No. of Lectures
I	Basics of OOPs: Features and Characteristics of OOPs, History of C++, Application of C++, Data Types, Operator in C++, C++ Stream Classes, Unformatted and Formatted I/O Operation, Managing Output with Manipulators, Scope Resolution Operator	15
II	Functions In C++: The Main Function, Function Prototyping, Call by Reference Call by Address, Call by Value, Return by Reference, Inline Function, Default Arguments, Constant Arguments, Function Overloading.	10

	Classes & Objects: A Sample C++ Program with class, Defining Member Functions (Private & Public), Static Data Members, Static Member Functions, Array of Objects, Object as Function Arguments, Friend Functions	
III	Arrays: Representation of single, two-dimensional arrays Constructor & Destructor: Constructor, Constructors with Default Arguments, Parameterized Constructor, Copy Constructor, Multiple Constructors in a Class, Destructor Searching (linear & binary) and sorting (bubble sort, selection sort & insertion sorting)	10
IV	Inheritance: Defining Derived Classes, Single Inheritance, Making a Private Member Inheritable, Multilevel Inheritance, Hierarchical Inheritance, Multiple Inheritance, Hybrid Inheritance, Virtual Base Classes, Abstract Classes, Operator Overloading Polymorphism: Virtual functions Pointers, Exception Handling	10

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- J. R. Hanly and E. B. Koffman, "Problem Solving and Program Design in C", Pearson, 2015
- E. Balguruswamy, "C++", TMH Publication ISBN 0-07-462038-X
- Herbert Schildt, "C++ The Complete Reference" TMH Publication ISBN 0-07-463880-7

Reference Books:

- R. Lafore, 'Object Oriented Programming C++'
- N. Dale and C. Weems, "Programming and problem solving with C++: brief edition", Jones & Bartlett Learning.

Suggestive digital platform web links

<https://www.youtube.com/watch?v=BCIS40yzssA>

<https://www.youtube.com/watch?v=vLnPwxZdW4Y&vl=en>

<https://www.youtube.com/watch?v=Umm1ZQ5ltZw>

Suggested equivalent online courses

S.No.	Online Course	Duration	Platform
1	Programming in C++	8 weeks	NPTEL

	https://nptel.ac.in/courses/106/105/106105151/		
2	Beginning C++ Programming - From Beginner to Beyond https://www.udemy.com/course/beginning-c-plus-plus-programming/	Self paced	Udemy

PART D: Assessment and Evaluation

Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 40 Marks Three test will be taken of which best of two marks will be considered		External Assessment: University Exam (UE) : 60 Marks Time : 02.00 Hours	
Objective type Text I	20 Marks	Section (A) : Very short questions (1 from each unit)	1 x 5 = 5 Marks
Class Test II (Subjective)	20 Marks	Section (B) : 5 Short Questions (200 Words Each)	4 x 5 = 20 Marks
Class Test III (Subjective)	20 Marks		
Total	40 Marks	Total	60 Marks

Any remarks/suggestions: **Focus of the course/teaching should be on developing ability of the student in analyzing a problem, building the logic and efficient code for the problem.**

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: B.Sc.	Semester:
Subject: Computer Science (B.Sc.)			
1. Course Code	S2-COSC1T		
2. Course Title	Computer Networks & Information Security		
3. Course Type	Major		
4. Pre-Requisite (if any)	Nil		
Course learning outcome	<p>After Completing this course students will be able to</p> <ul style="list-style-type: none"> Define and describe the components of a data communication system such as various protocols, OSI Model, data transmission in analog and digital format Identify and differentiate among the network devices and drives Learn and describe various error detection and correction methods. describe the Various terminologies used in Network and Application layers. 		
5. Credit Value	Theory—4 Credits		
6. Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35	

III SEM

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	Introduction to Computer Network: Use of Computer network: Access to information, person-to-person communication electronic commerce, internet of things. Types of computer networks: Broadband access network, Mobile and wireless network, content delivery network, transit network, Enterprise network. Network Technology: Personal Area Network Local Area Network, Metropolitan Area Network, Wide Area Network, example of network (Internet, Mobile network, wireless network-Wi-Fi). Reference Model: OSI, TCP/IP. Critique of the OSI and TCP/IP reference models. Keywords: Io T Broadband, LAN MAN, WAN, OSI, TCP/IP	12
II	Physical Layer: Guided Transmission Media: Twisted pairs, coaxial cable, Fiber Optics; Wireless transmission: The electromagnetic spectrum, frequency hopping spread spectrum, direct sequence, spread spectrum, ultra deb communication; Cellular Network: Common concepts- cells, handoff, 1G 2G 3G,4G & 5G technology Keywords: Coaxial cable, fiber optics, 2G,3G,4G 5G	12
III	Data Link Layer: Service Provided to Network Layer: Data Link Control: Framing, Flow and Error Control: Error detecting codes, Error-correcting codes. Data Link Protocols: Basic transmission and receipt, simplex link layer protocol, full duplex, sliding window protocol, Packet over SONET, ADSL, Point-to-Point Protocol. Switching Techniques: Packet Switching, Circuit Switching, Datagram Networks, Virtual-Circuit Networks, and Structure of a Switch. Network Devices & Drivers: Router, Modem, Repeater, Hub, Switch, Bridge and Gateway (fundamental concepts) Keywords: error correcting codes, error detecting codes, So NET, ADSL, point-to-point protocol, Router, Modem, Repeater, Hub, Switch, Bridge, Gateways.	12
IV	Network Layer: Routing Algorithm: Optimality, Principal of Shortest path algorithm, Flooding, Distance Vector Routing, Broadcast Routing	12

	Congestion in network, traffic management approaches, IP addresses, IPv4 Addresses, IP v6 Addresses, Virtual Circuit Networks, Frame relay and ATM, Transport Layer, Process- Process Delivery, UDP, TCP, Application Layers, DNS, SMTP, POP, Ftp, http and https, Basics of Wi-Fi (Fundamental concepts Only)	
V	Network Security and Information Security: Fundamentals of network and information security: principles of security and attack, Security Goals (Confidentiality, Integrity, and Availability), Overview of Security Threats and Vulnerability: Types of attacks on Confidentiality, Integrity and Availability, Vulnerability and Threats: Phishing Attacks, E-mail threats, Web-threats, Intruders and Hackers, Insider threats, SQL injection Attacks, Ransomware, Malware: Worms, Virus Spams, Adware, Spyware, Trojans, Security Technology: Firewalls, intruding detection and prevention systems, Scanning and Analysis Tools: Biometric access controls, Cipher methods, cryptographic algorithms, cryptographic tools. Keywords: phishing, SQL injection, Worms, Computer virus, spyware, Trojans, Firewall, cipher, Cryptography	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Andrew S. J. Wetherall, Computer Networks, 6th Edition,(2021), Pearson.
- J Mattord, Principles of Information Security, Fourth Edition, 6 th Indian Reprint.
- Praveen Kinnar Shur la, Surya Prakash Tripathi, Ritendra Goe 1 "Introduction to Information Security an Cyber Laws", 2014, Dreamtech Press.
- Books published by Hindi Granth Academy, Bhopal

Reference books:

- Kurose James F., Ross Keith W., Computer Networking, A 4 op-Down Approach, Sixth Edition, 2017. Pearson
- Micki Krausc. Harold F. Tipton, Handbook of Information Security Management, Vol. 1-3, CRC Press LLC.
- B. A. Forouzan: Data Communications and Networking. Fourth edition, TMH Publishing Company Ltd.
- Basta W. Halton, Computer Security: Concepts, Issues and Implementation, Cengage Learning India.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	Total 40
External Assessment: Exam Section	Section(A): Objective Questions University Section(B): Short Questions Section(C): Long Questions	Total 60

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: B.Sc.	Semester: III SEM
Subject: Computer Science (B.Sc.)			
Course Code	S2-COSC 1T		
Course Title	Computer Networks & Information Security		
Course Type	LAB		
Pre-Requisite (if any)	Nil		
Course learning outcome	After completing lab course students will be able to: <ul style="list-style-type: none"> • Learn and identify various cables used in the Net working • Learn, and identify Various connectors used to connect different cables. • Use various tools for preparing the connectors for cables. • Configure and manage various local area networks. 		
Credit Value	Practical— 2 Credits		
Total Marks	Max. Marks: 100	Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 30 Hrs.

Module	Topics	No. of Labs.
	<ul style="list-style-type: none"> • Study of UTP cable <ul style="list-style-type: none"> ○ Color code of UTP cable ○ Categories of UTP n/w cable ○ Shielding of n/w cable ○ Maximum length for which data cable can be used ○ Crimping of RJ45 connector and punching of data cable • Knowledge of Structured Cabling and its components <ul style="list-style-type: none"> Information outlet with box <ul style="list-style-type: none"> ○ Network Rack (4U, 6U, 9U, 12U, 24U, 32U, 42U) ○ Patch Panel ○ Rack Management • Study of Optical Fiber cable <ul style="list-style-type: none"> ○ Different cores of OF C (6 core, 12, 24 core) ○ Multimode & Single mode OFC ○ Shielding of OFC ○ Splicing/Termination of OFC. OTDR Testing ○ LIU fix ○ LIU management (pigtail/fiber patchcord) and Media Converter. ○ FP module. ○ Rules of OFC laying • Use of tools <ul style="list-style-type: none"> ○ Crimping tool ○ Punching tool ○ Nose plier ○ Wire stripping and cable cutter ○ Multi-meter • Configuration/management of Local Area Network <ul style="list-style-type: none"> ○ Implementation of File and printer sharing ○ Installation of ft server and client. 	30

	<ul style="list-style-type: none"> ○ Connect the computers to Local Area Network. ○ Configuring Class, A IP address on LAN Connection in Computer LAB and use the following tools: <ul style="list-style-type: none"> ○ Ping, ipconfig, getmac, hostname, nslookup, tracert, systeminfo. ○ routing using packet tracer software ○ Dynamic routing using packet tracer ○ Implementation of Subnetting in Class A, B, C ○ Ping between 2 s2'stems using IPv6 	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks

- Andrew S. Tanenbaum, Nick Feamster, David J. Wetherall. Computer Nonworks, 6th Edition (2021), Pearson.
- Michael E Whitman and Herbert I Mattord, Principles of Information Security, Fourth Edition, CENG AGE Learning, 6th Indian Reprint.
- Books published by M.P. Hinai Granth Academy, Bhopal.

Reference books

- Hacking Exposed, Stuart McClure, Joel Scrambray, Ge urge Kurtz, TMII.
- Computer Security Art and Science, Matt Bishop, Pearson/PHI.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE)	<ul style="list-style-type: none"> • Internal Viva: 20 Marks • Practical File: 20 Marks 	Total 40
External Assessment University Exam Section	<ul style="list-style-type: none"> • Practical record file: 20 Marks • Viva voce practical: 10 Marks • Execution:10 Marks • Answer Script: 20 Marks 	Total 60

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: B.Sc.	Year: III SEM
Subject: Computer Science (B.Sc.)			
Course Code		S2-COSC 1T	
Course Title		Computer Networks & Information Security	
Course Type		Elective	
Pre-Requisite (if any)		Nil	
Course learning outcome	After Completing this course students will be able to <ul style="list-style-type: none"> • Define and describe the components of a data communication system such as various protocols. OSI Model, data transmission in analog and digital format • Identify and differentiate among the network devices anddrives • Learn and describe various error detection and correction methods. describe the Various terminologies used in Network and Application layers. 		
Credit	Theory—3 Credits	Practical— 1 Credits	

Value		
19. Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 45 Hrs.

Module	Topics	No. of Lectures
I	Introduction to Computer Network: Use of a Computer network: Access to information, person-to-person communication electronic commerce, internet of things. Types of computer networks: Broadband access networks, Mobile and wireless networks, content delivery networks, transit networks, and Enterprise networks. Network Technology: Personal Area Network Local Area Network, Metropolitan Area Network, Wide Area Network, an example of the network (Internet, Mobile network wireless network-Wi-Fi) Reference Model: OSI, TCP/IP, Critique of the OSI and FCP IP reference models. Keywords: to T Broadband, LAN MAN, WAN, OSI, TCP/IP	12
II	Physical Layer: Guided Transmission Media: Twisted pairs, coaxial cable, Fiber Optics; wireless transmission: The electromagnetic spectrum, frequency hopping spread spectrum, direct sequence, spread spectrum, ultra deb communication, Cellular Network: Common concepts- cells, handoff, 1G 2G, 3G, 4G & 5G technology. Keywords: Coaxial cable, fiber optics, 2G, 3G, 4G, 5G.	12
III	Data Link Layer: Service Provided to Network Layer: Data Link Control Framing, Flow and Error Control; Error detecting codes, Error-correcting codes, Data Link Protocols: Basic transmission and receipt, simplex link layer protocol, full duplex, sliding window protocol, Packet over SONET, ADSL, and Point-to-Point Protocol. Switching Techniques: Packet Switching, Circuit Switching, Datagram Networks, Virtual-Circuit Networks, and Structure of a Switch. Network Devices & Drivers: Router, Modem, Repeater, Hub, Switch, Bridge, and Gateway (fundamental concepts) Keywords: error correcting codes, error detecting codes, So SET, ADSL, point-to-point protocol, Router, Modem, Repeater, Hub, Switch, Bridge, Gateways.	11
IV	Network Layer: Routing Algorithm: Optimality, Principal of Shortest path algorithm, Flooding, Distance Vector Routing, Broadcast Routing, Congestion in the network, traffic management approaches, IP addresses, IPv4 Addresses, IP v6 Addresses, Virtual Circuit Networks, Frame relay and ATM, Transport Layer - Process- Process Delivery: UDP, TCP, Application Layers: DNS, SMTP, POP, FTP, HTTP, and HTTPS. Basics of Wi-Fi (Fundamental concepts Only)	10

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Andrew S. J. Wetherall, Computer Networks, 6th Edition, (2021), Pearson.
- J Mattord, Principles of Information Security, Fourth Edition, 6 th Indian Reprint.
- Praveen Kinnar Shur la, Surya Prakash Tripathi, Ritendra Goe 1 "Introduction to Information Security an Cyber Laws", 2014, Dreamtech Press.
- Books published by Hindi Granth Academy, Bhopal

Reference books:

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR**PART A: Introduction**

Program: Diploma	Session: 2023-24	Class: B.Sc.	Semester: IV
Subject: Computer Science (B.Sc.)			
1. Course Code	S2-COSC2T		
2. Course Title	Object Oriented Programming with Java		
3. Course Type	Major/ Minor		
4. Pre-Requisite (if any)	To study this course, a student must have successfully completed the course on Programming Methodology at Certificate Level.		
5. Course learning outcome	<ul style="list-style-type: none"> • Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and functions for developing skills of logic building activity. • Identify classes, objects, members of a class and the relationships among them needed for finding the solution to a specific problem. • Demonstrates how to achieve re-usability using inheritance, interfaces and packages and describes faster application development can be achieved. • Demonstrate, understanding and use of different exception-handling mechanisms and concepts of multi-threading for robust faster and efficient application development. • Identify and describe a common abstract user interface. components to design GUI in Java using Applet & Graphics. • Identify, Design & Develop complex Graphical user interfaces using AWT. 		
6. Credit Value	Theory—4 Credits		
7. Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	History, Java Features. How Java Differs from C and C++, Java and Internet, Java and World Wide Web, Java Supports Systems, Java Environment, Java Program Structure, Java Tokens. Constants, Variables, Scope of Variable, Data Types, Type Casting, Java Virtual Machine, Command Line, Arguments, Implementing a Java Program.	14
II	Operators - Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bitwise Operators, Special Operators, Arithmetic Expressions - Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions in Expressions, Operator Precedence and Associativity, Mathematical functions. Decision making with if Statement, Simple if Statement, if Else Statement. Nesting of its else Statement, if-else Ladder, the Switch statement, The ?: Operator. Loops - While Statement, Do-while Statement, For Statement, Jump in Loops, Labeled Loops.	14
III	Class - Defining a Class, Adding Variables, Adding Methods, Creating Objects, Accessing Class Members, Static Members, Methods- Defining Methods, Nesting of Methods, Method Overloading, Constructors, definition and types, Constructor Overloading, Inheritance - Extending a Class, Overloading Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract Methods and Classes, Visibility Control, Arrays: One and two Dimensional Array, Strings, Vectors, Wrapper Class.	14
IV	Interface- Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables, Packages - Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, and hiding Classes, Multithreading, Creating Threads, Extending the Thread Class, Life Cycle of a Thread, Implement the Runnable interface, Exceptions Handling, try, catch, finally	14
V	Applets - building Applet Code, Applet Life Cycle, Applet Tag, Passing Parameters to Applets, Getting Input from the user, Applet Graphics Methods: drawString, drawRect, fillRect, drawOval, fillOval, drawLine, drawImage, drawArc, fillArc, setColor, setFont, Concept of Stream - Stream Classes, Byte Stream Classes, Character Stream Classes.	14

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings**Text Books**

- E Balguruswami, Programming with Java, Tata McGrnw-Hill Publication.

Reference Books

- Bruce Eckel, Thinking in Java.
- Herbert Schildt Java: The Complete Reference.
- Y. Daniel Liang, Introduction to Java Programming.
- Paul Deitel, Harvey Deitel, Java: How To Program.
- Cay S. Horstmann, Core Java Volume I - Fundamentals .
- Java Projects, BPB Publication.
- Dr. S.S. Kandare, Programming in Java, S Chand Publication.
- Books published by M.P. Hindi Granth Academy, Bhopal

Suggestive digital platform web links

- <https://www.cs.cmu.edu/afs/cs.cmu.edu/usei/gchien/www/download/java/LeainJava.pdf>
- https://www.tutorialspoint.com/java/java_tutorial.pdf
- <https://www.youtube.com/watch=7soxDfdgtDw>
- http://www.mphindigranthaca_gemy.org/
- Suggested equivalent on line courses : <https://nptel.ac.in/courses/106/105/106105191/>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation and Other	Total 40
External Assessment University Exam Section	Section (A) : Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 60

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR**PART A: Introduction**

Program: Diploma	Session: 2023-24	Class: B.Sc.	Semester: IV
Subject: Computer Science (B.Sc.)			
8. Course Code		S2-COSC2P	
9. Course Title		Object Oriented Programming with Java	
10. Course Type		LAB	
11. Pre-Requisite (if any)		To study this course, a student must have successfully completed the course on Programming Methodology at Certificate Level.	
12. Course learning outcome	<p>After the completion of this course, will be able to do the following:</p> <ul style="list-style-type: none"> • Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and functions for developing skills of logical building activity. • Identify classes, objects, members of a class and the relationships among them needed for finding the solution to a specific problem. • Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved. • Demonstrate, understanding and use of different exception-handling mechanisms and concepts of multi-threading for robust faster and efficient application development. • Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with a response to events. • Identify, Design & Develop complex Graphical user Interfaces using principal Java. 		
13. Credit Value			Practical— 2 Credits
14. Total Marks	Max. Marks: 100	Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 30 Hrs.

Module	Topics	No. of Labs.
	<p>(Using any Text editor: Notepad/Eclipse/Netbeans/ Sublime etc.)</p> <ul style="list-style-type: none"> • Find a greater number between two numbers -using a conditional operator. • Find the factorial of the number, the number is given by the user using the command line argument. • Write a program to check if a number is prime or not. • Write a program to display tables from 2 to 10. • Write a program to print the Fibonacci series. • Enter a no. and check whether it is even or odd. • Write a Program to find the sum & average of 10 no. using arrays. • Write a program to display the reverse of a digit no. using an array. • Write a program to demonstrate function overloading. • Write a program to display grades according to the marks obtained by the student. • Write a program to calculate the salary of an employee if salary is greater than or equal to 20000 and year of service is greater than or equal to 5 years then bonus will be 2000 otherwise 1000 and print grass salary of 	20

	<p>employee.</p> <ul style="list-style-type: none"> • Write a program to convert the given no. of days into months, days using classes, objects and Method. • Write a program to convert given string into Uppercase and lowercase and get the length of string using array. • Create a package called "Arithmetic" that contains methods to deal all arithmetic operations. Also write a program to use the package. • Write a program to demonstrate use of constructor and destructor. • Define an exception called "Marks out of Bound" exception that is thrown if the entered marks are greater than 100. • Write a program using the application of single inheritance. Find the area of the rectangle & volume of a cube. • Develop a simple real-life application to illustrate the use of multithreading. • Write a program using multiple inheritances to calculate the area and perimeter of a circle using the interface. • Write an applet program to draw a Rectangle (color= orange) and a right-aligned oval. • Develop an applet that receives 3 numeric values as inputs from the user and then displays the largest no. on the screen. • Write a Java Program to read data from the inputted text file name, and print its content on the console. • Write a Java Program to merge two files into a third file • Write a Java program to delete duplicate lines in a text file • Write a Java Program to implement FileInputStream class to read binary data from any image file. 	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- E Balguruswami, Programming with Java, Tata McGraw-Hill Publication, 2nd Edition
 - Books published by M.P. Hindi Granth Academy, Bhopal
- Reference Books -
- Bruce Eckel, Thinking in Java (4e)
 - Herbert Schildt, Java: The Complete Reference (9e)
 - Y. Daniel Liang, Introduction to Java Programming (10e)
 - Paul Deitel, Harvey Deitel, Java: How To Program (10e)
 - Cay S. Horstmann, Core Java Volume 1 -Fundamentals (10e)
 - Java Projects, BPB Publication.
 - Dr. S.S. Kandare, Programming in Java, S Chand Publication

Suggestive digital platform web links

- https://www.cs.cit.uci.edu/~aj/cs.cnu.edu/user/*etten/www/download/java/LeainJava.pdf
- https://www.tutorialspoint.com/java/java_tutorial.pdf
- <https://www.youtube.com/watch?v=7soxDfdgfDw><http://www.mphindigranthacademy.org/>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment Continuous Comprehensive Evaluation	<ul style="list-style-type: none"> • Internal Viva: 20 Marks • Practical File: 20 Marks 	Total 40
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(CCE)		
External Assessment University Exam Section	<ul style="list-style-type: none">• Practical record file: 20 Marks• Viva voce practical: 10 Marks• Execution: 10 Marks• Answer Script: 20 Marks	Total 60

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: B.Sc.	Semester: IV
Subject: Computer Science (B.Sc.)			
1. Course Code			
2. Course Title		Object Oriented Programming with Java	
3. Course Type		Elective	
4. Pre-Requisite (if any)		To study this course, a student must have successfully completed the course on Programming Methodology at Certificate Level.	
5. Course learning outcome	<ul style="list-style-type: none"> • Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and functions for developing skills of logic building activity. • Identify classes, objects, members of a class and the relationships among them needed for finding the solution to a specific problem. • Demonstrates how to achieve re-usability using inheritance, interfaces and packages and describes faster application development can be achieved. • Demonstrate, understanding and use of different exception-handling mechanisms and concepts of multi-threading for robust faster and efficient application development. • Identify and describe a common abstract user interface. components to design GUI in Java using Applet & Graphics. • Identify, Design & Develop complex Graphical user interfaces using AWT. 		
6. Credit Value	Theory—3 Credits		
7. Total Marks	Max. Marks: 40+60		Min. Passing Marks: 35

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 60 Hrs.

Module	Topics	No. of Lectures
I	History, Java Features. How Java Differs from C and C++, Java and Internet, Java and World Wide Web, Java Supports Systems, Java Environment, Java Program Structure, Java Tokens. Constants, Variables, Scope of Variable, Data Types, Type Casting, Java Virtual Machine, Command Line, Arguments, Implementing a Java Program.	14
II	Operators - Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bitwise Operators, Special Operators, Arithmetic Expressions - Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions in Expressions. Operator Precedence and Associativity, Mathematical functions. Decision making with if Statement, Simple if Statement, if Else Statement. Nesting of if else Statement, if-else Ladder, the Switch statement, The ? Operator. Loops - While Statement, Do-while Statement, For Statement, Jump in Loops, Labeled Loops.	14
III	Class - Defining a Class, Adding Variables, Adding Methods, Creating Objects, Accessing Class Members, Static Members, Methods- Defining Methods, Nesting of Methods, Method Overloading, Constructors, definition and types, Constructor Overloading, Inheritance - Extending a Class, Overloading Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract Methods and Classes, Visibility Control, Arrays: One and two Dimensional Array, Strings, Vectors, Wrapper Class.	14
IV	Interface- Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables, Packages - Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, and hiding Classes, Multithreading, Creating Threads, Extending the Thread Class, Life Cycle of a Thread, Implement the Runnable interface, Exceptions Handling, try, catch, finally	14

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Text Books

- E Balguruswami, Programming with Java, Tata McGrnw-Hill Publication.

Reference Books

- Bruce Eckel, Thinking in Java.
- Herbert Schildt Java: The Complete Reference.
- Y. Daniel Liang, Introduction to Java Programming.
- Paul Deitel, Harvey Deitel, Java: How To Program.
- Cay S. Horstmann, Core Java Volume I - Fundamentals .
- Java Projects, BPB Publication.
- Dr. S.S. Kandare, Programming in Java, S Chand Publication.
- Books published by M.P. Hindi Granth Academy, Bhopal

Suggestive digital platform web links

- <https://www.cs.cmu.edu/afs/cs.cnu.edu/usei/gclien/www/download/java/LeainJava.pdf>
- <https://www.tutorialspoint.confjava/java/tutorial.pdf>
- <https://www.youtube.com/watch=7soxDfdgtDw>
- http://www.mphindigranthaca_gemy.org/

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: B.Sc. IV Semester	Semester: IV
Subject: Computer Science (B.Sc.)			
8. Course Code			
9. Course Title		Object Oriented Programming with Java	
10. Course Type		Elective	
11. Pre-Requisite (if any)		To study this course, a student must have successfully completed the course on Programming Methodology at Certificate Level.	
12. Course learning outcome	After the completion of this course, will be able to do the following: <ul style="list-style-type: none"> • Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and functions for developing skills of logical building activity. • Identify classes, objects, members of a class and the relationships among them needed for finding the solution to a specific problem. • Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved. • Demonstrate, understanding and use of different exception-handling mechanisms and concepts of multi-threading for robust faster and efficient application development. • Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with a response to events. • Identify, Design & Develop complex Graphical user Interfaces using principal Java. 		
13. Credit Value			Practical— 1 Credits
14. Total Marks	Max. Marks: 100	Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 30 Hrs.

Module	Topics	No. of Labs.
	<ul style="list-style-type: none"> • (Using any Text editor: Notepad/Eclipse/Netbeans/Sublime etc.) Find a greater number between two numbers -using a conditional operator. • Find the factorial of the number, the number is given by the user using the command line argument. • Write a program to check if a number is prime or not. • Write a program to display tables from 2 to 10. • Write a program to print the Fibonacci series. • Enter a no. and check whether it is even or odd. • Write a Program to find the sum & average of 10 no. using arrays. • Write a program to display the reverse of a digit no. using an array. • Write a program to demonstrate function overloading. • Write a program to display grades according to the marks obtained by the student. • Write a program to calculate the salary of an employee if salary is greater than or equal to 20000 and year of service is greater than or equal to 5 years then bonus will be 2000 otherwise 1000 and print 	20

	<p>grass salary of employee.</p> <ul style="list-style-type: none"> • Write a program to convert the given no. of days into months, days using classes, objects and Method. • Write a program to convert given string into Uppercase and lowercase and get the length of string using array. • Create a package called "Arithmetic" that contains methods to deal all arithmetic operations. Also write a program to use the package. • Write a program to demonstrate use of constructor and destructor. • Define an exception called "Marks out of Bound" exception that is thrown if the entered marks are greater than 100. • Write a program using the application of single inheritance. Find the area of the rectangle & volume of a cube. • Develop a simple real-life application to illustrate the use of multithreading. • Write a program using multiple inheritances to calculate the area and perimeter of a circle using the interface. • Write an applet program to draw a Rectangle (color= orange) and a right-aligned oval. • Develop an applet that receives 3 numeric values as inputs from the user and then displays the largest no. on the screen. • Write a Java Program to read data from the inputted text file name, and print its content on the console. • Write a Java Program to merge two files into a third file • Write a Java program to delete duplicate lines in a text file • Write a Java Program to implement FileInputStream class to read binary data from any image file. 	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- E Balguruswami, Programming with Java, Tata McGraw-Hill Publication, 2nd Edition
- Books published by M.P. Hindi Granth Academy, Bhopal
- Reference Books -
- Bruce Eckel, Thinking in Java (4e)
- Herbert Schildt, Java: The Complete Reference (9e)
- Y. Daniel Liang, Introduction to Java Programming (10e)
- Paul Deitel, Harvey Deitel, Java: How To Program (10e)
- Cay S. Horstmann, Core Java Volume 1 -Fundamentals (10e)
- Java Projects, BPB Publication.
- Dr. S.S. Kandare, Programming in Java, S Chand Publication

Suggestive digital platform web links

- https://www.cs.cit.tu.edu/aJs/cs.cniu.edu/user/*etten/www.cload/java/LeainJava.pdf
- https://www.tutorialspoint.com/java/java_tutorial.pdf
- <https://www.youtube.com/watch?v=7soxDfdgfDwhhttp://www.mphindigranthacademy.org/>

B.Sc. III YEAR
SESSION: 2023-2024
COURSE: DSC-I
Major Paper-I
Group A
SUBJECT: Computer Science
PAPER TITLE: Operating System

I	Introduction to Operating System: What is an Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems— Multiprogramming Systems, Batch Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real-time Systems.	4
II	Process Management: Process Concepts, Process states & Process Control Block Process Scheduling: Scheduling Criteria, Scheduling Algorithms (Preemptive & Non-preemptive) — FCFS, SJF, SRIN, RR, Priority, Multiple-Processor, Real-Time, Multilevel Queue and Multilevel Feedback Queue Scheduling. Deadlock - Definition, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock. Deadlock Bundling Approaches: Prevention, Avoidance, Detection and Recovery.	10
III	Memory Management: Introduction, Address Binding, Logical versus Physical Address Space, Swapping, Contiguous and non-contiguous Allocation, Fragmentation (Internal and external), Compaction, Paging segmentation, Virtual memory Demand Paging, Performance of Demand Paging and Page Replacement Algorithms. File Management: Concept of File System (File Attributes, Operations, Types), Functions of File System, Types of File System, Access Methods (Sequential, Direct & other methods), Directory Structure (Single-Level, Two-Level, Tree-Structured, Acyclic-Graph, GeneralGraph), Allocation Methods (Contiguous, Linked, Indexed).	10
IV	Disk Management: Structure, Disk Scheduling Algorithms (FCFS, SSTF, SCAN, C-SCAN, LOOK), Swap Space Management, Disk Reliability, Recovery. Security: Security Threats, Security policy mechanism, Protection, Trusted Systems, Attenuation and Internal Access Authorization, Windows Security. LINUX: Introduction, History and features of Linux, advantages, hardware requirements for installation, Linux architecture, file system of Linux - boot block, super block, inode table, data blocks, Linux standard dictionaries, Linux kernel, partitioning the hard drive, installing the Linux system, system - startup and shut-down process, init and run levels. Process, Swap, Partition, fdisk, checking disk free spaces. Difference between CLI OS & GUI OS, Windows v/s Linux, Importance of Linux Kernel, Files and Directories. Concept of Open Source Software.	10
V	Linux Administration: Types of user-Root and normal user, Multiple logins at same time (Ctrl + Alt + F1, F2, F6), who command help, what is, -help, man command. Basic Commands: For displaying current directory, files and directories of current/absolute/relative location(s), creating, removing, renaming, copying and moving files or directories. Searching file content. Group: Primary & Secondary Group, chgrp, chown, groupadd, groupdel. Permissions: adding and removing permissions. Package installation through GUI apt-get yum dnf. Shell Programming: Types of Shells, Shell Meta Characters - \$#, \$*, \$?, Shell Variables, Shell Scripts, Debugging scripts, echo, read, operators, keywords, Integer Arithmetic UO Redirection and Piping. Decision Making: if-else-elif-fi, case. Loop Control: while, for, until, break & continue. Automation and Exception handling: Creating shell programs for automating tasks, file handling, trapping signals etc.	14

Text-Books

Operating system Concepts , Galvin, PHI Publication

Programming in Linux , Submitabha Das, McGraw Hill

B.Sc. III YEAR
SESSION: 2023-2024
COURSE: DSC-II
Major Paper-II Group A
SUBJECT: Computer Science
PAPER TITLE: Programming With Python

CO1: Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.

CO2: Express proficiency in the handling of strings, functions and file handling.

CO3: Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.

CO4: Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python with class, modules and packages.

CO5: Identify the commonly used operations involving database connectivity and use of tkinter for GUI programming.

Unit-I: Python Basics Python interpreter, Python idle, dynamically typed and strongly typed features, basic data types, variables, expressions, statements, operators, flow of execution. Input and Output statements, Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else). Iteration: while, for, break, continue, pass, implementing 'for' through range(), 'in' and 'not in' operators for sequence traversal. Creating and executing .py scripts.

Keywords: interpreter, while, for, break, continue, scripts.

Unit-II Data Structures: Lists- append, extend, insert, index, remove, pop, count, sort, reverse, slicing, list comprehension, Copying a list: deep copy, shallow copy. Tuples- index, count, usage, use of tuples as a swap function. Dictionaries- keys, values, tuples, nested dictionaries, dictionary comprehension. Strings- Single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, istitle, isspace, title, lower, upper, strip, split, splitlines, join etc. Sets union, intersection, subset, superset, difference, symmetric difference, copy, add, remove, discard etc.

Keywords: index, sort, deep copy, tuples, dictionary, sets, strings.

Unit-III Functions & File Handling: Inbuilt Functions- id, len, chr, ord etc., defining and calling a function, arguments, global versus local variables, defining and using lambda functions, the map(), filter(), reduce() functions. Working with files: read, write and append modes: r, w, a, x, r+, w+, a+, x+, reading-read(), readline(), readlines(), writing-write(), writelines(), seek(), tell(). Word count, copy file scripts through file handling concepts.

Keywords: function, calling a function, arguments, global variables, read, write, copy, seek.

Unit-IV: Classes, modules and exceptional handling: Classes: Introduction, Member variables and defining methods, constructor, destructor, data encapsulation, inheritance, multiple inheritances, diamond problem solving technique of python. Modules: inbuilt modules- sys, random, time etc. import, from import, from import*. Constructing packages, role of __init__.py Exceptional Handling: The try-except-else-finally block, the raise statement, the hierarchy of exceptions, adding exceptions.

Keywords: class, constructor, destructor, encapsulation, inheritance, exception, modules.

Unit-V: Database & GUI Programming: Importing sqlite, connecting to database, creating table, insert, select, update, delete, drop tables, accessing and modifying tables through python. Graphical user interfaces; event-driven programming paradigm, tkinter module, creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colors layouts, nested frames.

Keywords: GUI, tables, database, insert, update, drop tables, event-driven programming, dialogs, frames.

Suggested Readings

Textbooks:

Taneja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson.

Liang Y. Daniel, "Introduction to Programming Using Python", Pearson.

Reference Books:

Zed A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series.

Charles Dierbach, "Introduction to Computer Science using Python", Wiley. Michael T.

Goodrich, "Data Structures and Algorithms in Python", Wiley.

Suggestive digital platform web links

<https://www.guru99.com/how-to-install-python.html>

<https://www.udemy.com/course/pythonforbeginnersintro/>

B.Sc. III YEAR
SESSION: 2023-2024
COURSE: DSC-I
Major Paper-I

Group B

SUBJECT: Computer Science
PAPER TITLE: PHP and MYSQL

PART B: Content of the Course

Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures (in hours): 70 Hrs.

Module	Topics	No. of Lectures
I	Overview of HTML, Working with Text, Links, Tables, Images, Forms, and Input. Introduction of cascading style sheet, selector, inline, internal, external CSS, CSS in text, image. Overview of JavaScript, Variables, Operators, \$, \$\$, comment, Echo() vs Print() Control flow statements, Pop up Boxes, Functions, Events, Windows and Document Objects, Array.	14
II	A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages. Strings: String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.	14
III	Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting. Functions: Calling a Function, defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions. Object Oriented Programming Concepts: Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism.	14
IV	Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, GET vs POST Method, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, and Image Maps. File Handling: Working with files and directories, File Open and Read, File Creating and Writing, Reading and Writing Characters in file, reading entire files, Rename and Delete Files, getting information from file, ownership and permissions.	14
V	Session, Cookie, Database Access: Using PHP to access a database. Introduction to MySQL, Connect and create a database, create tables, insert, update, delete, and select.	14

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
- Beginning PHP5 by Wrox Publication
- HTML 5, Black Book by DreamTech Press

Reference books:

- Mastering PHP: BPB Publication
- PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
- PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008..

B.Sc. III YEAR**SESSION: 2023-2024****COURSE: DSC-II****Major Paper-II****Group B****SUBJECT: Computer Science****PAPER TITLE: Cloud Computing**

PART B: Content of the Course		
Lectures (in hours per week): 2 Hrs. per week		
Total No. of Lectures (in hours): 60 Hrs.		
Module	Topics	No. of Lectures
I	Cloud Computing - Introduction, Definition, characteristics, components, Cloud service provider, the role of networks in Cloud computing. Cloud Deployment Models- private, public & hybrid, Cloud service models, multitenancy, Cloud economics and benefits. Cloud computing platforms - IaaS: Amazon EC2, S3 Bucket, PaaS: Google App Engine, Microsoft Azure, SaaS. AWS IAM (Identity and Access Management). Keywords: cloud computing, models, IaaS, PaaS, Google app engine, Azure, SaaS, AWS.	12
II	Virtualization - Virtualization concepts, Server virtualization, Storage, virtualization, Storage services, Network virtualization, Service virtualization, Virtualization management, Virtualization technologies and architectures, virtual machine, Measurement and profiling of virtualized applications. Hypervisors: KVM, Xen, VMware hypervisors and their features. Introduction to Containerization Technology, Virtualization vs Containerization Container Engine Tools: Docker/Podman Keywords: Virtualization, hypervisors, Docker, Podman	12
III	Data in Cloud Computing - Relational databases, Cloud file systems: GFS and HDFS, BigTable, HBase and Dynamo. MapReduce and extensions: Parallel computing, the map-Reduce model, Parallel efficiency of MapReduce, Relational operations using Map-Reduce, Enterprise batch processing using MapReduce. Keywords: - Cloud Computing, GFS, HDFS, Bigtable, MapReduce, Batch Processing	12

IV	<p>Cloud security - Cloud security fundamentals, Vulnerability assessment tool for cloud, Privacy and Security in cloud.</p> <p>Cloud computing security architecture - General Issues, Trusted Cloud computing, Secure Execution Environments and Communications, Micro - architectures; Identity Management and Access control, Autonomic security, Security challenges.</p> <p>Virtualization security management - virtual threats, VM Security Recommendations, VM - Specific Security techniques, Secure Execution Environments and Communications in cloud.</p> <p>Keywords: cloud security , cloud security architecture</p>	12
V	<p>Issues in cloud computing - Implementing real time application over cloud platform, Issues in Inter -cloud environments, QOS Issues in Cloud, Dependability, data migration, streaming in Cloud.</p> <p>Quality of Service (QoS) monitoring in a Cloud computing environment, Cloud Middleware, Mobile Cloud Computing, InterCloud issue, A grid of clouds, Sky computing, load balancing, resource optimization, resource dynamic reconfiguration, and Monitoring in the Cloud</p> <p>Keywords: cloud environment, Quality of service (QoS), Sky computing resource optimization, resource dynamic reconfiguration.</p>	12

<p>Suggested Readings</p> <p>Textbooks:</p> <ul style="list-style-type: none"> • Shoff Gautam, Enterprise Cloud Computing, Cambridge Publication. • Ronald Krutz and Russell Dean Vines, Cloud Security, Wiley-India • Dr. Kumar Sarabh, "Cloud Computing", Wiley Publication <p>Reference books:</p> <ul style="list-style-type: none"> • Bloor R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for Dummies", Wiley India Edition. • John Rittinghouse & James Ransome, "Cloud Computing Implementation Management and Strategy". CRC Press. • Anthony T Velte, "Cloud Computing: A Practical Approach", McGraw Hill • Michael Miller, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online". • James E Smith, Ravi Nair, "Virtual Machines", Morgan Kaufmann Publishers. <p>• Suggestive digital platform web links. https://www.cse.iitb.ac.in/~cse022 https://www.cse.iitb.ac.in/~convergence/workshops/Intro_to_Virtualization.pdf</p>

Part A Introduction

Program: Degree			Class : B.Sc.			Year: III			Session: 2023-24		
Subject: Computer Science											
1	Course Code	S3-COSC2T									
2	Course Title	Data Analysis and Visualization with Python (Theory)									
3	Course Type	Minor / Elective									
4	Pre-requisite (if any)	To study this course, a student must have successfully completed the course on Programming and Certificate/Diploma levels.									
5	Course Learning outcomes (CLO)	<p>On successful completion of this course, the students will be able to:</p> <ul style="list-style-type: none"> • Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statement. • Express proficiency in the handling of strings, function and file handling. • Determine the methods to create and manipulate Python programs by utilizing the data structures like list, dictionaries, tuples and sets. • Develop proficiency in using NumPy for data manipulation. • Create a variety of data visualization using Matplotlib. 									
6	Credit Value	4									
7	Total Marks	Max. Marks: 30 + 70 Min. Passing Marks: 35									

Part B- Content of the Course

Lectures: 60 Hrs.

Module	Topics	No. of Lectures
Unit-I	<p>Python Basics: Python interpreter, Python idle, dynamically typed and strongly typed features, basic data types, variables, expressions, statements, operators, flow of execution. Input and Output statements, Conditionals: Boolean values and operators, conditional (if), alternative (else), chained conditional (if-elif-else). Iteration: while, for, break, continue, pass, implementing 'for' through range (), 'in' and 'not in' operators for sequence traversal. Creating and executing .py scripts.</p> <p>Keywords: interpreter, while, for, break, continue scripts.</p>	12
Unit -II	<p>Data Structures: Lists- append, extend, insert, index, remove, pop, count, sort,reverse, slicing, list comprehension, Copying a list: deep copy, shallow copy. Tuples- index, count, usage, use of tuples as a swap function. Dictionaries-keys, values, tuples, nested dictionaries, dictionary comprehension. Strings- Single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, istitle, isspace, title, lower, upper, strip, split, splitlines, join etc. Sets - union, intersection, subset, superset, difference, symmetric difference, copy, add, remove, discard etc.</p>	14

	<p>Functions & File Handling: Inbuilt Functions- id, len, chr, ord etc., defining and calling a function, arguments, global versus local variables, defining and using lambda functions, the map(), filter(), reduce() functions.</p> <p>Keywords: Index, sort, deep copy, tuples, dictionary, sets, strings, function, calling a function, arguments, global variables.</p>	
Unit-III	<p>NumPy: Introduction to NumPy, NumPy array in Python, basics of NumPy Arrays, comparison of Python lists with NumPy Arrays.</p> <p>Array: Array creation, the arrange method, the zero method, NumPy array filled with all ones, the linspace method, the eye method, NumPy meshgrid function, empty and full NumPy array, NumPy array filled with all ones, 2-D Gaussian array, Creating vector in Python using NumPy.</p> <p>Array indexing, Array Slicing, Data Types, Copy vs View, Array Shape, Array Reshape, Array Iterating, Array Join, Array Split, Array Search, Array Sort, Array Filter, Concatenation of two arrays, Splitting and Comparison of Arrays, Binary Operations, Mathematical Function, String Operations.</p> <p>Keyword: NumPy Arrays, Array reshape, NumPy Functions, Array Search, Gaussian Array.</p>	14
Unit -IV	<p>Matrix in NumPy: Matrix manipulation in Python, empty() function, zeros() function, ones() function, eye() function, identity() function, adding and subtracting Matrices in Python. Vector multiplication, Dot product of two arrays.</p> <p>Operations of NumPy Array: Broadcasting with NumPy arrays, sorting, searching and counting of NumPy array. Variations in different sorting techniques in Python.</p> <p>Universal Functions: Creating of ufunc, simple arithmetic, rounding, Trigonometric, Hyperbolic, Set functions</p> <p>Keywords: NumPy Matrix, Broadcasting with NumPy Array, NumPy ufunc.</p>	12
Unit -V	<p>Data Visualization with Matplotlib: Overview of Matplotlib and its capabilities, creating line plot and scatter plots, Customizing: labels, titles, colors, legends, creating bar plot and histograms, Adding annotation and text to plots, creating subplots and multiple plots, saving and exporting plots.</p> <p>Advanced Data Visualization: Creating pie charts and box plots, visualization 3D data with Matplotlib, Interactive visualization using widgets</p> <p>Keywords: Matplotlib charts, Interactive visualization, 3D plot with Matplotlib, subplots, multiplots.</p>	08

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

- Taneja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson.
- Liang Y. Daniel, "Introduction to Programming Using Python", Pearson.
- Andreas C. Müller and Sarah Guido, "Introduction to Machine Learning with Python: A Guide for Data Scientists"

Reference Book:

- Zed A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series.
- Charles Dierbach, "Introduction to computer Science using Python", Wiley.
- Michael T. Goodrich, "Data Structures and Algorithms in Python", Wiley.
- Mark Lutz and David Ascher, "Learning Python".
- Phuong Vo.T.H, Martin Czygan, Ashish Kumar, Kirthi Raman, "Python: Data Analytics and visualization"
- William McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Edition"

PART B: Content of the Course		
Lectures (in hours per week): 2 Hrs. per week		
Total No. of Lectures (in hours): 70 Hrs.		
Module	Topics	No. of Lectures
I	Overview of HTML, Working with Text, Links, Tables, Images, Forms, and Input. Introduction of cascading style sheet, selector, inline, internal, external CSS, CSS in text, image. Overview of JavaScript, Variables, Operators, \$, \$\$, comment, Echo() vs Print() Control flow statements, Popup Boxes, Functions, Events, Windows and Document Objects, Array.	14
II	A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages. Strings: String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.	14
III	Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting. Functions: Calling a Function, defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions. Object Oriented Programming Concepts: Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism.	14
IV	Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, GET vs POST Method, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, and Image Maps. File Handling: Working with files and directories, File Open and Read, File Creating and Writing, Reading and Writing Characters in file, reading entire files, Rename and Delete Files, getting Information from file, ownership and permissions.	14
V	Session, Cookie, Database Access: Using PHP to access a database. Introduction to MySql, Connect and create a database, create tables, insert, update, delete, and select.	14
PART C: Learning Resources		
Textbooks, Reference Books, Other Resources		
Suggested Readings		
Textbooks: <ul style="list-style-type: none"> • Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications • Beginning PHP5 by Wrox Publication • HTML 5, Black Book by DreamTech Press 		
Reference books: <ul style="list-style-type: none"> • Mastering PHP: BPB Publication • PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications • PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008.. 		

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE)	Class Test/ Assignment/Presentation	Total 30
External Assessment University Exam Section	Section (A): Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 70

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR**PART A: Introduction**

Program: Diploma	Session: 2023-24	Class: B.Sc.	Year: III Year
Subject: Computer Science (B.Sc.)			
8. Course Code			
9. Course Title		PHP WITH MYSQL PRACTICAL	
10. Course Type		LAB	
11. Pre-Requisite (if any)		Students must have basic Computer Knowledge	
12. Course learning outcome	<ul style="list-style-type: none"> • CLO1: To implement PHP script using Decisions and Loops • CLO2: To develop PHP applications using Strings, Arrays and Functions. • CLO3: To design object-oriented programming (OOP) principles for PHP and use HTML form elements that work with any server-side language. • CLO4: To display and insert data using PHP and MySQL. 		
13. Credit Value	Practical— 2 Credits		
14. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 30 Hrs.

Module	Topics	No. of Labs.
	<ul style="list-style-type: none"> • Write HTML code for displaying image and demonstrate hyperlinking. • Create a Feedback Form Using Form Handling. • Write a code for the design menu system using a list tag. • Apply CSS formatting to create a page. • Write a PHP script to display a Welcome message. • Write a PHP script to demonstrate the use of arithmetic operators, comparison operators, and logical operators. • Write a PHP script to set the type of variable using type casting. • Write a PHP Script to print the Fibonacci series. • Write PHP Script to generate results and display grades. • Write a PHP Script to find the maximum number out of three given numbers. • Write PHP Script using two-dimensional arrays such as the addition of two 2×2 matrices. • Write PHP Script for "FOR EACH" loop execution. • Write PHP script Using the user-defined function. • Write a PHP script to demonstrate the use of string function. • Write PHP script to demonstrate the use of date/time functions and Math functions. • Write a program to read input data, from the table and display all this information in tabular form on the output screen. • Write a program to manipulate data and display all this information using a table format. • Create a form to search data. • Develop small PHP application(s) using forms and database with update and delete options. • Open and Read a file 	30

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings**Textbooks:**

- Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
- Beginning PHP5 by Wrox Publication
- HTML 5, Black Book by DreamTech Press

Reference books:

- Mastering PHP: BPB Publication
- PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
- PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008..

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE)	<ul style="list-style-type: none"> • Hands-on Lab Practice: 5 Marks • Viva: 5 Marks • Lab Test from the practical list: 10 Marks • Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training: 10 Marks 	Total 30
External Assessment University Exam Section	<ul style="list-style-type: none"> • Practical record file: 10 Marks • Viva voce practical: 10 Marks • Table works/ Exercise Assigned in the practical exam: 40 Marks • Reports of excursions Lab visits/ Industrial training/ Survey/ Collection/ Models: 10 Marks 	Total 70

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BSc	Year: III Year
Subject: BSC			
1. Course Code	S3-COSC4D		
2. Course Title	Cloud Computing (GROUP B)		
3. Course Type	Discipline Specific Elective		
4. Pre-Requisite (if any)	This course can be opted as an elective by the students of Computer Science.		
5. Course learning outcome	<p>After studying this subject, students will be able to do the following—</p> <ul style="list-style-type: none"> Analyze the trade-offs between deploying applications in the cloud and over the local infrastructure. Compare the advantages and disadvantages of various cloud computing platforms. Deploy applications over commercial cloud computing infrastructures such as Amazon Web Services, Windows Azure, and Google App Engine Program data-intensive parallel applications in the cloud. Analyze the performance, scalability, and availability of the underlying cloud technologies and software. Identify security and privacy issues in cloud computing. Explain recent research results in cloud computing and identify their pros and cons. Solve a real-world problem using cloud computing through group collaboration. 		
6. Credit Value	Theory—4 Credits		
7. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35	

PART B: Content of the Course		
Lectures (in hours per week): 2 Hrs. per week		
Total No. of Lectures (in hours): 60 Hrs.		
Module	Topics	No. of Lectures
I	<p>Cloud Computing - Introduction, Definition, characteristics, components, Cloud service provider, the role of networks in Cloud computing. Cloud Deployment Models- private, public & hybrid, Cloud service models, multitenancy, Cloud economics and benefits. Cloud computing platforms - IaaS: Amazon EC2, S3 Bucket, PaaS: Google App Engine, Microsoft Azure, SaaS. AWS IAM (Identity and Access Management).</p> <p>Keywords: cloud computing, models, IaaS, PaaS, Google app engine, Azure, SaaS, AWS.</p>	12
II	<p>Virtualization - Virtualization concepts, Server virtualization, Storage, virtualization, Storage services, Network virtualization, Service virtualization, Virtualization management, Virtualization technologies and architectures, virtual machine, Measurement and profiling of virtualized applications. Hypervisors: KVM, Xen, VMware hypervisors and their features. Introduction to Containerization Technology, Virtualization vs Containerization Container Engine Tools: Docker/Podman</p> <p>Keywords: Virtualization, hypervisors, Docker, Podman</p>	12
III	<p>Data in Cloud Computing - Relational databases, Cloud file systems: GFS and HDFS, BigTable, HBase and Dynamo. MapReduce and extensions: Parallel computing, the map-Reduce model, Parallel efficiency of MapReduce, Relational operations using Map-Reduce, Enterprise batch processing using MapReduce.</p> <p>Keywords:- Cloud Computing, GFS, HDFS, Bigtable, MapReduce, Batch Processing</p>	12
IV	<p>Cloud security - Cloud security fundamentals, Vulnerability assessment tool for cloud, Privacy and Security in cloud. Cloud computing security architecture - General Issues, Trusted Cloud computing, Secure Execution Environments and Communications, Micro - architectures; Identity Management and Access control, Autonomic security. Security challenges: Virtualization security management - virtual threats, VM Security Recommendations, VM - Specific Security techniques, Secure Execution Environments and Communications in cloud.</p> <p>Keywords: cloud security , cloud security architecture</p>	12
V	<p>Issues in cloud computing - Implementing real time application over cloud platform, Issues in Inter -cloud environments, QoS Issues in Cloud, Dependability, data migration, streaming in Cloud. Quality of Service (QoS) monitoring in a Cloud computing environment, Cloud Middleware, Mobile Cloud Computing, Inter Cloud issue, A grid of clouds, Sky computing, load balancing, resource optimization, resource dynamic reconfiguration, and Monitoring in the Cloud.</p> <p>Keywords: cloud environment, Quality of service (QoS), Sky computing resource optimization, resource dynamic reconfiguration.</p>	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings**Textbooks:**

- Shroff Gautam, Enterprise Cloud Computing, Cambridge Publication.
- Ronald Krutz and Russell Dean Vines, Cloud Security, Wiley-India
- Dr. Kumar Saurabh, "Cloud Computing", Wiley Publication

Reference books:

- Bloor R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for Dummies", Wiley India Edition.
- John Rittinghouse & James Ransome, "Cloud Computing Implementation Management and Strategy", CRC Press.
- Anthony T Velte, "Cloud Computing : A Practical Approach", McGraw Hill
- Michael Miller, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online".
- James E Smith, Ravi Nair, "Virtual Machines", Morgan Kaufmann Publishers.

- Suggestive digital platform web links.

<https://www.cse.iitb.ac.in/~cso2/>

https://www.cse.iitb.ac.in/~convergence/workshops/Intro_to_Virtualization.pdf

PART D: Assessment and Evaluation**Suggested Evaluation Methods:****Maximum Marks: 100****Continuous Comprehensive Evaluation (CCE): 30 Marks University Exam (UE): 70 Marks**

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Tests/ Presentation / Assignment	30 Marks
External Assessment: University Exam (UE):	Section (A) Very Short Questions Section (B) Short Questions Section (C) Long Questions	70 Marks

Time :- 3:00 hours

Any remarks/suggestions

PART A: Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Computer Science			
1.	Course Code	S3-COSC4Q	
2.	Course Title	LAB	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Discipline Specific Elective	
4.	Pre-Requisite (if any)	This course can be opted as an elective by the students of Computer Science.	
5.	Course Learning Outcomes (CLO)	<p>After studying this subject, students will be able to —</p> <ul style="list-style-type: none"> • Manage different Cloud services and deployment models. • Describe the importance of virtualization along with their technologies. • Controlling Virtual Machines. • Design & and develop backup strategies for cloud data. • Use and Examine different cloud computing services. • Creating and managing Docker containers. 	
6.	Credit Value	Practical - 2 Credits	
7.	Totat Marks	Max. Marks : 100	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab. Practicals (in hours per week): 1 Lab. per week			
Total No. of Lab.: 30 Hrs.			
Suggestive List of Practical			No. of Labs
<p>Note - The students shall explore the development of web applications in the cloud. They must practically design and develop processes involved in creating a cloud-based application and programming using Hadoop.</p> <ul style="list-style-type: none"> • Download and Install Virtual Machine (Virtual Box, VMware and KVM) • Installing Virtual Machine • Controlling Virtual Machine (Start, restart, power off) • Editing Virtual Machine Hardware • Creating and Using Image snapshot • Importing and Exporting Virtual Machine images • Accessing Linux Command Line/Managing Files from the Command Line • Creating, Viewing, and Editing Text Files Installing and updating Software packages. • Controlling Services • Create AWS free tier account • Introduction to IAM • Creating a User and Group • Authorization via Policies • Creating and Attaching Policies • Launching an EC2 running Linux • How to ssh into EC2 using Linux/Windows • Launching an EC2 running Windows • Connect Windows Instance using RDP • Hosting Website on EC2 Instance • Create AWS Custom AMI • Copy AMI from one region to another • Share AMI with AWS account 			30

<ul style="list-style-type: none"> • Create S3 Bucket • Upload/Download files from S3 Bucket • Containerized Application Using Docker container • Install docker on EC2 Instance • Creating and managing Docker containers • Pull and push docker images from docker hub • Creating Docker custom Images 	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks

- Shroff Gautam, Enterprise Cloud Computing, Cambridge Publication.
- Ronald Knitz and Russell Dean Vines, Cloud Security, Wiley -India.
- Dr. Kumar Saurabh, "Cloud Computing", Wiley Publication.
- Reference Books
- Bloor R., Kanfman M., Halper F. Judith Hurwitz, "Cloud Computing for Dummies", Wiley India Edition.
- John Rittinghouse & James Ransome, "Cloud Computing Implementation Management and Strategy", CRC Press.
- Anthoy T Velte, "Cloud Computing: A Practical Approach", McGraw Hill.
- Michael Miller, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online".
- James E smith, Ravi Nair, "virtual machine".

Suggestive digital platform web links

https://www.tutorialspoint.com/cloud_computing/cloud_computing_tutorial.pdf

<https://www.cse.iitb.ac.in/~cs695/>

https://www.cse.iitb.ac.in/~convergence/workshops/Intro_to_Virtualization.pdf

Suggested equivalent online courses

PART D: Assessment and Evaluation

Internal Assessment		External Assessment	
Class Interaction/Quiz	30	Viva voce practical	70
Attendance		Practical record file	
Assignments (Charts/ Model)/ Technology Dissemination/ Exclusion/ Lab visit/ Industrial Training		Table work / Experiments	
Total Marks: 100			

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH

Part A Introduction		
Program: Degree	Class : B.Sc.	Year: III Session: 2023-24
Subject: Computer Science		
1	Course Code	S3-COSC2T
2	Course Title	Data Analysis and Visualization with Python (Theory)
3	Course Type (Specific Elective/ Generic Elective /Vocational/)	(Minor / Elective G
4	Pre-requisite (if any)	To study this course, a student must have successfully completed the course on Programming and Certificate/Diploma levels.
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: <ol style="list-style-type: none"> 1. Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statement. 2. Express proficiency in the handling of strings, function and file handling. 3. Determine the methods to create and manipulate Python programs by utilizing the data structures like list, dictionaries, tuples and sets. 4. Develop proficiency in using NumPy for data manipulation. 5. Create a variety of data visualization using Matplotlib.
6	Credit Value	4
7	Total Marks	Max.Marks: 30+70 Min. Passing Marks: 35

Part B- Content of the Course

Lectures: 60 Hrs.

Module	Topics	No. of Lectures
Unit-I	<p>Python Basics: Python interpreter, Python idle, dynamically typed and strongly typed features, basic data types, variables, expressions, statements, operators, flow of execution. Input and Output statements, Conditionals: Boolean values and operators, conditional (if), alternative (else), chained conditional (if-elif-else). Iteration: while, for, break, continue, pass, implementing 'for' through range (), 'in' and 'not in' operators for sequence traversal. Creating and executing, py scripts.</p> <p>Keywords: interpreter, while, for, break, continue scripts.</p>	12

Unit -II	<p>Data Structures: Lists- append, extend, insert, index, remove, pop, count, sort, reverse, slicing, list comprehension, Copying a list: deep copy, shallow copy. Tuples- index, count, usage, use of tuples as a swap function. Dictionaries- keys, values, tuples, nested dictionaries, dictionary comprehension. Strings- Single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, istitle, isspace, title, lower, upper, strip, split, splitlines, join etc. Sets - union, intersection, subset, superset, difference, symmetric difference, copy, add, remove, discard etc.</p>	14
	<p>Functions & File Handling: Inbuilt Functions- id, len, chr, ord etc., defining and calling a function, arguments, global versus local variables, defining and using lambda functions, the map(), filter(), reduce() functions.</p> <p>Keywords: Index, sort, deep copy, tuples, dictionary, sets, strings, function, calling a function, arguments, global variables.</p>	
Unit-III	<p>NumPy: Introduction to NumPy, NumPy array in Python, basics of NumPy Arrays, comparison of Python lists with NumPy Arrays.</p> <p>Array: Array creation, the arrange method, the zero method, NumPy array filled with all ones, the linspace method, the eye method, NumPy meshgrid function, empty and full NumPy array, NumPy array filled with all ones, 2-D Gaussian array, Creating vector in Python using NumPy.</p> <p>Array Indexing, Array Slicing, Data Types, Copy vs View, Array Shape, Array Reshape, Array Iterating, Array Join, Array Split, Array Search, Array Sort, Array Filter, Concatenation of two arrays, Splitting and Comparison of Arrays. Binary Operations, Mathematical Function, String Operations.</p> <p>Keyword: NumPy Arrays, Array reshape, NumPy Functions, Array Search, Gaussian Array.</p>	14
Unit-IV	<p>Matrix in NumPy: Matrix manipulation in Python, empty() function, zeros() function, ones() function, eye() function, identity() function, adding and subtracting Matrices in Python. Vector multiplication, Dot product of two arrays.</p> <p>Operations of NumPy Array: Broadcasting with NumPy arrays, sorting, searching and counting of NumPy array. Variations in different sorting techniques in Python.</p> <p>Universal Functions: Creating of ufunc, simple arithmetic, rounding, Trigonometric, Hyperbolic, Set functions.</p> <p>Keywords: NumPy Matrix, Broadcasting with NumPy Array, NumPy ufunc.</p>	12
Unit -V	<p>Data Visualization with Matplotlib: Overview of Matplotlib and its capabilities, creating line plot and scatter plots, Customizing: labels, titles, colors, legends, creating bar plot and histograms, Adding annotation and text to plots, creating subplots and multiple plots, saving and exporting plots.</p> <p>Advanced Data Visualization: Creating pie charts and box plots, visualization 3D data with Matplotlib, Interactive visualization using widgets.</p> <p>Keywords: Matplotlib charts, Interactive visualization, 3D plot with Matplotlib, subplots, multiplots.</p>	08

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

- Taneja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson.
- Liang Y. Daniel, "Introduction to Programming Using Python", Pearson.
- Andreas C. Müller and Sarah Guido, "Introduction to Machine Learning with Python: A Guide for Data Scientists

Reference Book:

- Zed A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series.
- Charles Dierbach, "Introduction to computer Science using Python", Wiley.
- Michael T. Goodrich, "Data Structures and Algorithms in Python", Wiley.
- Mark Lutz and David Ascher, "Learning Python".
- Phuong Vo.T.H, Martin Czygan, Ashish Kumar, Kirthi Raman, "Python: Data Analytics and visualization"
- William McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Edition"

Suggested Digital Platforms Web links:

- [https://www.guru99.com /how-to-install-python.html](https://www.guru99.com/how-to-install-python.html)
- [https://www.python.org/about /gettingstarted/](https://www.python.org/about/gettingstarted/)
- <https://spoken-tutorial.org/media/videos/89/Python-3.4.3-Instruction-Sheet-English.pdf>
- <https://www.learnpython.org/>

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks External exam: 70 Marks

Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

Practical

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH		
Program: Degree Class :B.Sc. Year: III Year Session: 2023-24		
Subject: Computer Science		
1	Course Code	S3-COSC2P
2	Course Title	Data Analysis and Visualization with Python (Practical)
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/)	Minor / Elective
4	Pre-requisite (if any)	To study this course, a student must have successfully completed the course on Programming and Certificate/Diploma levels.
5	Course Learning outcomes(CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the Python environment and its text editor. 2. Code and Run the program 3. Debug the Program 4. Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements. 5. Determine the methods to create and manipulate Python program. 6. Develop proficiency in data manipulation
6	Credit Value	2
7	Total Marks	Max. Marks: 100 Min. Passing Marks:35

Total No. of Practical (in hours per week): 1 hour		
	Suggestive List of Practical	No. of Lab
	<ol style="list-style-type: none"> 1. Find all numbers which are multiple of 17, but not the multiple of 5, between 2000 and 2500. 2. Print the first 2 and last 3 characters in a given string. Use the string slicing. 3. Write a program that eliminates duplicates in a list. 4. Implement shallow copy and deep copy of a list. 5. Find the largest of n numbers, using a user defined function largest(). 6. Write a function that capitalizes all vowels in a string. 7. Read a line containing digits and letters. Write a program to give the count of digits and letters. 8. Write a function myReverse() which receives a string as an input and returns the reverse of the string. 9. Use the list comprehension methodology in python, to generate the squares of all odd numbers in a given list. 10. Create a NumPy array with values from 1 to 20. 11. Create a 3x3 identity matrix using NumPy. 12. Generate an array of 10 random integers between 0 and 100. 13. Calculate the mean, median and standard deviation of an array. 14. Reshape a 1D array into a 2D array. 15. Filter even number from an array using Boolean indexing. 16. Calculate the dot product of two matrices. 17. Normalize an array to have values between 0 and 1. 	

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

- Taneja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson.
- Liang Y. Daniel, "Introduction to Programming Using Python", Pearson.
- Andreas C. Müller and Sarah Guido, "Introduction to Machine Learning with Python: A Guide for Data Scientists

Reference Book:

- Zed A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series.
- Charles Dierbach, "Introduction to computer Science using Python", Wiley.
- Michael T. Goodrich, "Data Structures and Algorithms in Python", Wiley.
- Mark Lutz and David Ascher, "Learning Python".
- Phuong Vo.T.H, Martin Czygan, Ashish Kumar, Kirthi Raman, "Python: Data Analytics and visualization"
- William McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Edition"

Suggested Digital Platforms Web links:

- <https://www.guru99.com/how-to-install-python.html>
- <https://www.python.org/about/gettingstarted/>
- <https://spoken-tutorial.org/media/videos/89/Python-3.4.3-Instruction-Sheet-English.pdf>
- <https://www.learnpython.org/>

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks External exam: 70 Marks

Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

PART A: Introduction			
Program: Degree		Class: B.Sc.	Year: III Year
Session: 2023-24			
Subject: Computer Science			
1.	Course Code	S3-COSCID	
2.	Course Title	Operating System (Group A – Paper I) (Theory)	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Discipline Specific Elective	
4.	Pre-Requisite (if any)	This course can be opted as an elective by the students of Computer Science.	
5.	Course Learning Outcomes (CLO)	<p>After the completion of this course, a student shall be able to do the following:</p> <ul style="list-style-type: none"> • Describe the importance of computer system resources and the role of operating system in their management policies and algorithms. • Specify objectives of modern operating systems and describe how operating systems have evolved over time. • Understand various process management concepts and can compare various scheduling techniques, synchronization, and deadlocks. • Describe the concepts of multithreading and memory management techniques. • Identify the best suited memory management technique for any process. • Describe various file operations, file allocation methods and disk space management. • To understand and identify potential threats to operating systems and the security features design to guard against them. • Learn to operate the Linux system, along with its administration and Shell programming • Getting to know the Android OS and its application framework. 	
6.	Credit Value	Theory - 4 Credits	
7.	Total Marks	Max. Marks : 30+70	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lectures (in hours per week): 2 Lectures per week			
Total No. of Lectures: 60 Hrs.			
Module	Topics		No. of Lectures
I	Introduction to Operating System: What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Multiprogramming Systems, Batch Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real time Systems.		4

Abhilasha

	Keywords: <i>Functions of OS, resource abstractions, multiprogramming, time sharing, workstation.</i>	
II	<p>Process Management: Process Concepts, Process states & Process Control Block.</p> <p>Process Scheduling: Scheduling Criteria, Scheduling Algorithms (Preemptive & Non-Preemptive) – FCFS, SJF, SRTN, RR, Priority, Multiple-Processor, Real-Time, Multilevel Queue and Multilevel Feedback Queue Scheduling.</p> <p>Deadlock - Definition, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock.</p> <p>Deadlock Handling Approaches: Prevention, Avoidance, Detection and Recovery.</p> <p>Keywords: <i>process states, preemptive and non-preemptive scheduling, FCFS, SJF, RR, deadlock.</i></p>	10
III	<p>Memory Management: Introduction, Address Binding, Logical versus Physical Address Space, Swapping, Contiguous & Non-Contiguous Allocation, Fragmentation (Internal & External), Compaction, Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement Algorithms.</p> <p>File Management: Concept of File System (File Attributes, Operations, Types), Functions of File System, Types of File System, Access Methods (Sequential, Direct & other methods), Directory Structure (Single-Level, Two-Level, Tree-Structured, Acyclic-Graph, General Graph), Allocation Methods (Contiguous, Linked, Indexed).</p> <p>Keywords: <i>swapping, fragmentation, paging, virtual memory, file management, directory structure.</i></p>	10
IV	<p>Disk Management: Structure, Disk Scheduling Algorithms (FCFS, SSTF, SCAN, C-SCAN, LOOK), Swap Space Management, Disk Reliability, Recovery.</p> <p>Security: Security Threats, Security policy mechanism, Protection, Trusted Systems, Authentication and Internal Access Authorization, Windows Security.</p> <p>LINUX: Introduction, History and features of Linux, advantages, hardware requirements for installation, Linux architecture, file system of Linux - boot block, super block, inode table, data blocks.</p> <p>Linux standard directories, Linux kernel, Partitioning the hard drive for Linux, installing the Linux system, system - startup and shut-down process, init and run levels. Process, Swap, Partition, fdisk, checking disk free spaces.</p> <p>Difference between CLI OS & GUI OS, Windows v/s Linux, Importance of Linux Kernel, Files and Directories. Concept of Open Source Software.</p> <p>Keywords: <i>disk scheduling, recovery, authorization, boot block, kernel, partitioning, open source.</i></p>	10
V	<p>Linux Administration:</p> <p>Types of user-Root and normal user, Multiple logins at same time (Ctrl + Alt + F1, F2..F6), who command.</p> <p>Help: whatis, --help, man command.</p> <p>Basic Commands:</p> <p>For displaying current directory, files and directories of current/absolute/relative location(s), creating, removing, renaming, copying and moving files or directories.</p> <p>For comparing, and editing file content, displaying file content(s) with tr, head, tail, last, grep, sort, piping.</p>	14



	<p>Searching file content or searching file within different directories based on particular search criteria.</p> <p>For implementing general purpose utilities – calendar, date, calculator, basic arithmetic expressions, compression and extraction of file/directory.</p> <p>Text editors: vi, joe, vim, gedit, atom, nano etc. Command mode & Insert mode, cut, yank, undo.</p> <p>Managing multiple processes: connecting processes with pipes, tee, redirecting input output, changing process priority with nice, cron commands, kill, ps.</p> <p>Managing user accounts- Sudo, users: useradd, usermod, userdel, passwd.</p> <p>Group: Primary & Secondary Group, chgrp, chown, groupadd, groupdel.</p> <p>Permissions: adding and removing permissions.</p> <p>Package installation through GUI/ apt-get/yum/dnf.</p> <p>Keywords: <i>head, tail, grep, sort, piping, yank, kill, chgrp, chown, groupadd.</i></p>	
VI	<p>Shell Programming: Types of Shells, Shell Meta Characters - \$#, \$*, \$?, Shell Variables, Shell Scripts, Debugging scripts, echo, read, operators, keywords, Integer Arithmetic and String Manipulation, Functions, I/O Redirection and Piping.</p> <p>Decision Making: if-else-elif-fi, case-esac.</p> <p>Loop Control: while, for, until, break & continue.</p> <p>Automation and Exception Handling: Creating shell programs for automating tasks, file handling, trapping signals etc.</p> <p>Android Operating System: Introduction, Development Framework, Application Architecture, Process Management and File System, Small Application Development using Android Development Framework.</p> <p>Indian contribution to the field – the BOSS operating system, open source softwares, growth of LINUX, Aryabhata Linux, contributions of innovators – Rajen Sheth, Sunder Pichai etc.</p> <p>Keywords: <i>shell programming, exception handling, Android development framework. BOSS OS, Linux, Arya Bhatt, Rajen Sheth, Sunder Pichai.</i></p>	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- A Silberschatz, P.B. Galvin, G. Gagne, Operating Systems Concepts, John Wiley Publications.
- A.S. Tanenbaum, Modern Operating Systems, Pearson Education.
- J.L.Peterson, Operating System Concepts.
- Sumitabh Das, Linux, TMH.

Reference Books:

- G. Nutt, Operating Systems: A Modern Perspective, Pearson Education.
- W. Stallings, Operating Systems, Internals & Design Principles, Pearson Education.
- M. Milenkovic, Operating Systems- Concepts and Design, Tata McGraw Hill.

Suggestive digital platform web links

- <https://web.iitd.ac.in/~minati/MTL458.html>
- <https://www.cse.iitb.ac.in/~mythili/os/>
- <https://www.youtube.com/watch?v=aCJ3YgoolHQ>

Suggested equivalent online courses

- <https://nptel.ac.in/courses/106/102/106102132/>

Abhilasha

PART D: Assessment and Evaluation

Suggested Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 30 Marks University Exam (UE): 70 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Tests/ Presentation / Assignment	30 Marks
External Assessment: University Exam (UE): Time : 03.00 Hours	Section (A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions	70 Marks
Any remarks/suggestions:		



PART A: Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Computer Science			
1.	Course Code	S3-COSCIQ	
2.	Course Title	Operating System Lab (Group A – Paper I) (Practical)	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Discipline Specific Elective	
4.	Pre-Requisite (if any)	This course can be opted as an elective by the students of Computer Science.	
5.	Course Learning Outcomes (CLO)	<p>After the completion of this course, a student shall be able to do the following:</p> <ul style="list-style-type: none"> • Operate the Linux system, along with its administration and Shell programming. • Understand and be familiar with the Linux environment. • Learn and run the various Linux commands. • Use vi editor for programming. • Learn and run the shell scripting programs. 	
6.	Credit Value	Practical – 2 Credits	
7.	Total Marks	Max. Marks : 100	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab. Practicals (in hours per week): 1 Lab. per week			
Total No. of Lab.: 30 Hrs.			
Suggestive List of Practicals			No. of Labs.
<p>I. Linux:</p> <p>a) Linux Directory Commands: pwd, mkdir, rm -rf, ls, cd, cd /, cd ~</p> <p>b) Linux File Commands: touch, cat, cat >, cat >>, rm, cp, mv, rename</p> <p>c) Linux Permission Commands: su, id, useradd, passwd, groupadd, chmod, groupdel, chown, chgrp</p> <p>d) Linux File Content & Filter Commands: head, tail, tac, more, less, grep, cat, cut, grep, comm, sed, tee, tr, uniq, wc, od, sort, diff.</p> <p>e) Linux Utility Commands: find, bc, locate, date, cal, sleep, time, df, mount, exit, clear, gzip, gunzip.</p> <p>f) Linux Networking Commands: ip, ssh, mail, ping, host</p> <p>g) Edit Crontab file: to wall message on system on particular time automatically.</p> <p>h) Vi editor: Create file, edit, save and quit. Highlighting the searched term within a file, cut, yank, undo.</p> <p>II. Shell Scripting:</p> <p>a) Write a shell script to print a message.</p>			30



	<p>b) Write a shell script to access arguments passed on command line.</p> <p>c) Write a shell script to create files with the names passed on command line.</p> <p>d) Write a shell script to input number from user and display its factorial.</p> <p>e) Write a shell script to input file name and create multiple directories individually for the name in the file given.</p> <p>f) Write a shell script to input number from user and display whether it is prime number or not.</p> <p>g) Write a shell script to list all the files in any directory given by the user</p> <p>h) Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file or a directory.</p>	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

- Richard Peterson, Linux: The Complete Reference, TMH
- Sumitabh Das, Linux, McGraw Hill
- Jason Cannon, Linux for Beginners, Createspace Independent Publishing Platform
- William E. Shotts Jr., The Linux Command Line: A Complete Introduction, O'Reilly Media, Inc.

Suggestive digital platform web links

- <https://web.iitd.ac.in/~minati/MTL458.html>
<https://www.cse.iitb.ac.in/~mythili/os/>
<https://www.youtube.com/watch?v=aCJ3YgoolHQ>

Suggested equivalent online courses

- <https://nptel.ac.in/courses/106/102/106102132/>
<https://www.youtube.com/watch?v=OHCMfsNpgCc>

PART D: Assessment and Evaluation

Internal Assessment :

Class Interaction/Quiz
Attendance

Assignments (Charts/
Model)/ Technology
Dissemination/ Excursion/
Lab visit/ Industrial Training

30

External Assessment :

Viva voce practical
Practical record file

Table work / Experiments

70

Total Marks: 100

Any remarks/ suggestions:



St. Aloysius College
(Autonomous), Jabalpur

PART A: Introduction			
Program: Degree		Class: B.Sc.	Year: III Year
Session: 2023-24			
Subject: Computer Science			
1.	Course Code	S3-COSC2T	
2.	Course Title	Programming with Python (Theory)	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	MAJOR PAPER II GROUP A	
4.	Pre-Requisite (if any)	To study this course, a student must have successfully completed the course on Programming at Certificate/Diploma Levels.	
5.	Course Learning Outcomes(CLO)	<p>After studying this subject, students shall be able to do the following –</p> <ul style="list-style-type: none"> • Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements. • Express proficiency in the handling of strings, functions and file handling • Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets. • Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python with class, modules and packages. • Identify the commonly used operations involving database connectivity and use of tkinter for GUI programming. 	
6.	Credit Value	Theory - 4 Credits	
7.	Total Marks	Max. Marks : 30+70	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lectures (in hours per week): 2 Lectures per week			
Total No. of Lectures: 60 Hrs.			
Module	Topics		No. of Lectures
I	<p>Python Basics : Python interpreter, Python idle, dynamically typed and strongly typed features, basic data types: variables, expressions, statements, operators, flow of execution. Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else). Iteration: while, for, break, continue, pass, implementing 'for' through range(), 'in' and 'not in' operators for sequence traversal. Creating and executing .py scripts.</p> <p>Keywords: <i>interpreter, while, for, break, continue, scripts.</i></p>		12

II	<p>Data Structures: Lists- append, extend, insert, index, remove, pop, count, sort, reverse, slicing, list comprehension, Copying a list: deep copy, shallow copy. Tuples- index, count, usage, use of tuples as a swap function. Dictionaries-keys, values, tuples, nested dictionaries, dictionary comprehension. Strings- Single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, istitle, isspace, title, lower, upper, strip, split, splitlines, join etc. Sets – union, intersection, subset, superset, difference, symmetric difference, copy, add, remove, discard etc.</p> <p>Keywords: <i>index, sort, deep copy, tuples, dictionary, sets, strings.</i></p>	12
III	<p>Functions & File Handling: Inbuilt Functions- id, len, chr, ord etc., defining and calling a function, arguments, global versus local variables, defining and using lambda functions, the map(), filter(), reduce() functions. Working with files : read, write and append modes: r, w, a, x, r+, w+, a+, x+, reading-read(), readline(), readlines(), writing-write(), writelines(), seek(), tell(). Word count, copy file scripts through file handling concepts.</p> <p>Keywords: <i>function, calling a function, arguments, global variables, read, write, copy, seek.</i></p>	12
IV	<p>Classes, modules and exceptional handling: Classes: Introduction, Member variables and defining methods, constructor, destructor, data encapsulation, inheritance, multiple inheritance, diamond problem solving technique of python. Modules: inbuilt modules- sys, random, time etc. import, from..import, from..import *. Constructing packages, role of __init__.py Exceptional Handling: The try-except-else-finally block, the raise statement, the hierarchy of exceptions, adding exceptions</p> <p>Keywords: <i>class, constructor, destructor, encapsulation, inheritance, exception, modules.</i></p>	12
V	<p>Database & GUI Programming: Importing sqlite, connecting to database, creating table, insert, select, update, delete, drop tables, accessing and modifying tables through python. Graphical user interfaces, event-driven programming paradigm, tkinter module, creating simple GUI, buttons, labels, entry fields, dialogs, widget attributes - sizes, fonts, colors layouts, nested frames.</p> <p>Keywords: <i>GUI, tables, database, insert, update, drop tables, event- driven programming, dialogs, frames.</i></p>	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Taneja Sheetal & Kumar Naveen, “Python Programming: A modular approach”, Pearson.
- Liang Y. Daniel, “Introduction to Programming Using Python”, Pearson.

Reference Books:

- Zed A. Shaw, “Learn Python the Hard Way”, Zed Shaw's Hard Way Series.
- Charles Dierbach, “Introduction to Computer Science using Python”, Wiley.

- Michael T. Goodrich, "Data Structures and Algorithms in Python", Wiley.

Suggestive digital platform web links

<https://www.guru99.com/how-to-install-python.html>

<https://www.python.org/about/gettingstarted/>

<https://spoken-tutorial.org/media/videos/89/Python-3.4.3-Instruction-Sheet-English.pdf>

Suggested equivalent online courses

<https://nptel.ac.in/courses/106/106/106106145/>

<https://www.youtube.com/watch?v=rfscVS0vtbw>

https://onlinecourses.swayam2.ac.in/aic20_sp33/preview

PART D: Assessment and Evaluation

Suggested Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks University Exam (UE): 70 Marks

Internal Assessment : Continuous Comprehensive Evaluation (CCE)	Class Tests/ Presentation / Assignment	30 Marks
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External Assessment: University Exam (UE): Time : 03.00 Hours	Section (A) : Very Short Questions Section (B) : Short Questions Section (C) : Long Questions	70 Marks
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Any remarks/suggestions:

PART A: Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Computer Science			
1.	Course Code	S3-COSC2P	
2.	Course Title	Python Programming Lab (Practical)	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Minor / Elective	
4.	Pre-Requisite (if any)	To study this course, a student must have successfully completed the course on Programming at Certificate/Diploma Levels.	
5.	Course Learning Outcomes(CLO)	After studying this subject, students shall be able to – <ul style="list-style-type: none"> • Understand the python environment and its text editor. • Code and run the programs. • Debug the program. • Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements. • Use the common operations involving database connectivity and use tkinter for GUI programming. 	
6.	Credit Value	Practical - 2 Credits	
7.	Total Marks	Max. Marks : 100	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab. Practicals (in hours per week): 1 Lab. per week			
Total No. of Lab.: 30 Hrs.			
	Suggestive List of Practicals		No. of Labs.
	<ol style="list-style-type: none"> 1. Find all numbers which are multiple of 17, but not the multiple of 5, between 2000 and 2500. 2. Print the first 2 and last 3 characters in a given string. Use the string slicing. 3. Write a program that eliminates duplicates in a list. 4. Implement shallow copy and deep copy of a list. 5. Find the largest of n numbers, using a user defined function largest() 6. Write a function that capitalizes all vowels in a string. 7. Read a line containing digits and letters. Write a program to give the count of digits and letters. 8. Write a function myReverse() which receives a string as an input and returns the reverse of the string. 9. Use the list comprehension methodology in python, to generate the squares of all odd numbers in a given list. 10. Generate a dictionary and print the same. The keys of the dictionary should be integers between 1 and 10 (both inclusive). The values should be the cubes of the corresponding keys. 		30

<p>11. Create a nested dictionary. The roll number of a student maps to a dictionary. This inner dictionary will have name, age, and place as keys. Read details of at least three students.</p> <p>12. Enter a word. Create a dictionary with the letters of this word as keys, and the corresponding ASCII values as values.</p> <p>13. Define a class with three methods: readString(), printString(), writeString(). The first method should read the contents of a file. The second method should print the contents to the console. The third method should write the contents to a new file.</p> <p>14. Create a class account which has constructor to input account_no, name, balance from user, print_account() to display the account details, and deposit(), withdraw() which inputs amount and add/subtract them from the total amount of individual object.</p> <p>15. Create a database table in sqlite and show the table data in python.</p> <p>16. Implement DML commands in SQLite from python interface.</p> <p>17. Implement tkinter methods in a python script.</p>	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- Taneja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson.
- Liang Y. Daniel, "Introduction to Programming Using Python", Pearson.

Reference Books:

- Zed A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series.
- Charles Dierbach, "Introduction to Computer Science using Python", Wiley.
- Michael T. Goodrich, "Data Structures and Algorithms in Python", Wiley.

Suggestive digital platform web links

<https://www.guru99.com/how-to-install-python.html>

<https://www.python.org/about/gettingstarted/>

<https://spoken-tutorial.org/media/videos/89/Python-3.4.3-Instruction-Sheet-English.pdf>

Suggested equivalent online courses

<https://nptel.ac.in/courses/106/106/106106145/>

<https://www.youtube.com/watch?v=rfscVS0vtbw>

https://onlinecourses.swayam2.ac.in/aic20_sp33/preview

PART D: Assessment and Evaluation

Internal Assessment :

Class Interaction/Quiz

Attendance

Assignments (Charts/ Model)/
Technology Dissemination/
Excursion/ Lab visit/ Industrial
Training

30

External Assessment :

Viva voce practical

Practical record file

Table work / Experiments

70

Total Marks: 100

Any remarks/ suggestions:

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR**PART A: Introduction**

Program: Diploma	Session: 2023-24	Class: B.Sc.	Year: III Year
Subject: Computer Science (B.Sc.)			
1. Course Code			
2. Course Title	PHP WITH MYSQL (GROUP B)		
3. Course Type	Discipline Specific Elective		
4. Pre-Requisite (if any)	Students must have basic Computer Knowledge		
5. Course learning outcome	<ul style="list-style-type: none"> • CO1: To implement PHP script using Decisions and Loops • CO2: To develop PHP applications using Strings, Arrays and Functions. • CO3: To design object-oriented programming (OOP) principles for PHP and use HTML form elements that work with any server-side language. • CO4: To display and insert data using PHP and MySQL. 		
6. Credit Value	Theory—4Credits		
7. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35	

PART B: Content of the Course		
Lectures (in hours per week): 2 Hrs. per week		
Total No. of Lectures (in hours): 70 Hrs.		
Module	Topics	No. of Lectures
I	Overview of HTML, Working with Text, Links, Tables, Images, Forms, and Input. Introduction of cascading style sheet, selector, inline, internal, external CSS, CSS in text, image. Overview of JavaScript, Variables, Operators, \$, \$\$, comment, Echo() vs Print() Control flow statements, Popup Boxes, Functions, Events, Windows and Document Objects, Array.	14
II	A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages. Strings: String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.	14
III	Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting. Functions: Calling a Function, defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions. Object Oriented Programming Concepts: Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism.	14
IV	Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, GET vs POST Method, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, and Image Maps. File Handling: Working with files and directories, File Open and Read, File Creating and Writing, Reading and Writing Characters in file, reading entire files, Rename and Delete Files, getting Information from file, ownership and permissions.	14
V	Session, Cookie, Database Access: Using PHP to access a database. Introduction to MySql, Connect and create a database, create tables, insert, update, delete, and select.	14
PART C: Learning Resources		
Textbooks, Reference Books, Other Resources		
Suggested Readings		
Textbooks: <ul style="list-style-type: none"> • Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications • Beginning PHP5 by Wrox Publication • HTML 5, Black Book by DreamTech Press Reference books: <ul style="list-style-type: none"> • Mastering PHP: BPB Publication • PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications • PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008.. 		

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE)	Class Test/ Assignment/Presentation	Total 30
External Assessment University Exam Section	Section (A): Objective Questions Section (B): Short Questions Section (C): Long Questions	Total 70

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR**PART A: Introduction**

Program: Diploma	Session: 2023-24	Class: B.Sc.	Year: III Year
Subject: Computer Science (B.Sc.)			
8. Course Code			
9. Course Title		PHP WITH MYSQL PRACTICAL	
10. Course Type		LAB	
11. Pre-Requisite (if any)		Students must have basic Computer Knowledge	
12. Course learning outcome	<ul style="list-style-type: none"> • CLO1: To implement PHP script using Decisions and Loops • CLO2: To develop PHP applications using Strings, Arrays and Functions. • CLO3: To design object-oriented programming (OOP) principles for PHP and use HTML form elements that work with any server-side language. • CLO4: To display and insert data using PHP and MySQL. 		
13. Credit Value	Practical— 2 Credits		
14. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35	

PART B: Content of the Course

Lectures (in hours per week): 1 Hrs. per week

Total No. of Lectures (in hours): 30 Hrs.

Module	Topics	No. of Labs.
	<ul style="list-style-type: none"> • Write HTML code for displaying image and demonstrate hyperlinking. • Create a Feedback Form Using Form Handling. • Write a code for the design menu system using a list tag. • Apply CSS formatting to create a page. • Write a PHP script to display a Welcome message. • Write a PHP script to demonstrate the use of arithmetic operators, comparison operators, and logical operators. • Write a PHP script to set the type of variable using type casting. • Write a PHP Script to print the Fibonacci series. • Write PHP Script to generate results and display grades. • Write a PHP Script to find the maximum number out of three given numbers. • Write PHP Script using two-dimensional arrays such as the addition of two 2×2 matrices. • Write PHP Script for "FOR EACH" loop execution. • Write PHP script Using the user-defined function. • Write a PHP script to demonstrate the use of string function. • Write PHP script to demonstrate the use of date/time functions and Math functions. • Write a program to read input data, from the table and display all this information in tabular form on the output screen. • Write a program to manipulate data and display all this information using a table format. • Create a form to search data. • Develop small PHP application(s) using forms and database with update and delete options. • Open and Read a file 	30

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings**Textbooks:**

- Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
- Beginning PHP5 by Wrox Publication
- HTML 5, Black Book by DreamTech Press

Reference books:

- Mastering PHP: BPB Publication
- PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
- PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008..

- <https://www.w3schools.com/php/>
- <https://www.learn-php.org/>
- <https://www.javatpoint.com/php-tutorial>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods: Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks

Internal Assessment Continuous Comprehensive Evaluation (CCE)	<ul style="list-style-type: none"> • Hands-on Lab Practice: 5 Marks • Viva: 5 Marks • Lab Test from the practical list: 10 Marks • Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training: 10 Marks 	Total 30
External Assessment University Exam Section	<ul style="list-style-type: none"> • Practical record file: 10 Marks • Viva voce practical: 10 Marks • Table works/ Exercise Assigned in the practical exam: 40 Marks • Reports of excursions Lab visits/ Industrial training/ Survey/ Collection/ Models: 10 Marks 	Total 70

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: Diploma	Session: 2023-24	Class: BSc	Year: III Year
Subject: Computer Application (BCA)			
1. Course Code	S3-COSC4D		
2. Course Title	Cloud Computing (GROUP B)		
3. Course Type	Discipline Specific Elective		
4. Pre-Requisite (if any)	This course can be opted as an elective by the students of Computer Science.		
5. Course learning outcome	<p>After studying this subject, students will be able to do the following—</p> <ul style="list-style-type: none"> • Analyze the trade-offs between deploying applications in the cloud and over the local infrastructure. • Compare the advantages and disadvantages of various cloud computing platforms. • Deploy applications over commercial cloud computing infrastructures such as Amazon Web Services, Windows Azure, and Google AppEngine • Program data intensive parallel applications in the cloud. • Analyze the performance, scalability, and availability of the underlying cloud technologies and software. • Identify security and privacy issues in cloud computing. • Explain recent research results in cloud computing and identify their pros and cons. • Solve a real-world problem using cloud computing through group collaboration. 		
6. Credit Value	Theory—4Credits		
7. Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35	

PART B: Content of the Course		
Lectures (in hours per week): 2 Hrs. per week		
Total No. of Lectures (in hours): 60 Hrs.		
Module	Topics	No. of Lectures
I	<p>Cloud Computing - Introduction, Definition, characteristics, components, Cloud service provider, the role of networks in Cloud computing. Cloud Deployment Models- private, public & hybrid, Cloud service models, multitenancy, Cloud economics and benefits. Cloud computing platforms - IaaS: Amazon EC2, S3 Bucket, PaaS: Google App Engine, Microsoft Azure, SaaS. AWS IAM (Identity and Access Management).</p> <p>Keywords: cloud computing, models, IaaS, PaaS, Google app engine, Azure, SaaS, AWS.</p>	12
II	<p>Virtualization - Virtualization concepts, Server virtualization, Storage, virtualization, Storage services, Network virtualization, Service virtualization, Virtualization management, Virtualization technologies and architectures, virtual machine, Measurement and profiling of virtualized applications. Hypervisors: KVM, Xen, VMware hypervisors and their features. Introduction to Containerization Technology, Virtualization vs Containerization</p> <p>Container Engine Tools: Docker/Podman</p> <p>Keywords: Virtualization, hypervisors, Docker, Podman</p>	12
III	<p>Data in Cloud Computing - Relational databases, Cloud file systems: GFS and HDFS, BigTable, HBase and Dynamo. MapReduce and extensions: Parallel computing, the map-Reduce model, Parallel efficiency of MapReduce, Relational operations using Map-Reduce, Enterprise batch processing using MapReduce.</p> <p>Keywords:- Cloud Computing, GFS, HDFS, Bigtable, MapReduce, Batch Processing</p>	12
IV	<p>Cloud security - Cloud security fundamentals, Vulnerability assessment tool for cloud, Privacy and Security in cloud.</p> <p>Cloud computing security architecture - General Issues, Trusted Cloud computing, Secure Execution Environments and Communications, Micro - architectures; Identity Management and Access control, Autonomic security. Security challenges: Virtualization security management - virtual threats, VM Security Recommendations, VM - Specific Security techniques, Secure Execution Environments and Communications in cloud.</p> <p>Keywords: cloud security , cloud security architecture</p>	12
V	<p>Issues in cloud computing - Implementing real time application over cloud platform, Issues in Inter -cloud environments, QoS Issues in Cloud, Dependability, data migration, streaming in Cloud. Quality of Service (QoS) monitoring in a Cloud computing environment, Cloud Middleware, Mobile Cloud Computing, Inter Cloud issue, A grid of clouds, Sky computing, load balancing, resource optimization, resource dynamic reconfiguration, and Monitoring in the Cloud.</p> <p>Keywords: cloud environment, Quality of service (QoS), Sky computing resource optimization, resource dynamic reconfiguration.</p>	12

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings**Textbooks:**

- Shroff Gautam, Enterprise Cloud Computing, Cambridge Publication.
- Ronald Krutz and Russell Dean Vines, Cloud Security, Wiley - India
- Dr. Kumar Saurabh, "Cloud Computing", Wiley Publicaaoon

Reference books:

- Bloor R., Kaufman M., Halper F. Judith Hurwitz "Cloud Computing for Dummies", Wiley India Edition.
- John Rittinghouse & James Ransome, "Cloud Computing Implementation Management and SStrategy", CRC Press.
- Antohy T Velte , "Cloud Computing : A Practical Approach", McGraw Hill
- Michael Miller, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online".
- James E Smith, Ravi Nair, "Virtual Machines", Morgan Kaufmann Publishers.

- Suggestive digital platform web links.

<https://www.cse.iitb.ac.in/~cs092/>

https://www.cse.iitb.ac.in/~convergence/workshops/Intro_to_Virtualization.pdf

PART D: Assessment and Evaluation**Suggested Evaluation Methods:****Maximum Marks: 100****Continuous Comprehensive Evaluation (CCE): 30 Marks****University Exam (UE): 70****Marks**

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Tests/ Presentation / Assignment	30 Marks
External Assessment: University Exam (UE):	Section (A) Very Short Questions Section (B) Short Questions Section (C) Long Questions	70 Marks

Time :- 3:00 hours

Any remarks/suggestions

PART A: Introduction			
Program: Degree	Class: B.Sc.	Year: III Year	Session: 2023-24
Subject: Computer Science			
1.	Course Code	S3-COSC4Q	
2.	Course Title	LAB	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Discipline Specific Elective	
4.	Pre-Requisite (if any)	This course can be opted as an elective by the students of Computer Science.	
5.	Course Learning Outcomes (CLO)	<p>After studying this subject, students will be able to —</p> <ul style="list-style-type: none"> • Manage different Cloud services and deployment models. • Describe the importance of virtualization along with their technologies. • Controlling Virtual Machines. • Design & and develop backup strategies for cloud data. • Use and Examine different cloud computing services. • Creating and managing Docker containers. 	
6.	Credit Vaieu	Practical - 2 Credits	
7.	Totat Marks	Max. Marks : 100	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab. Practicals (in hours per week): 1 Lab. per week			
Total No. of Lab.: 30 Hrs.			
	Suggestive List of Practical		No. of Labs
	<p>Note - The students shall explore the development of web applications in the cloud. They must practically design and develop processes involved in creating a cloud-based application and programming using Hadoop.</p> <ul style="list-style-type: none"> • Download and Install Virtual Machine (Virtual Box, VMware and KVM) • Installing Virtual Machine • Controlling Virtual Machine (Start, restart, power off) • Editing Virtual Machine Hardware • Creating and Using Image snapshot • Importing and Exporting Virtual Machine images • Accessing Linux Command Line/Managing Files from the Command Line • Creating, Viewing, and Editing Text Files Installing and updating Software packages. • Controlling Services • Create AWS free tier account • Introduction to IAM • Creating a User and Group • Authorization via Policies • Creating and Attaching Policies • Launching an EC2 running Linux • How to ssh into EC2 using Linux/Windows • Launching an EC2 running Windows • Connect Windows Instance using RDP • Hosting Website on EC2 Instance • Create AWS Custom AMI • Copy AMI from one region to another • Share AMI with AWS account 		30

<ul style="list-style-type: none"> • Create S3 Bucket • Upload/Download files from S3 Bucket • Containerized Application Using Docker container • Install docker on EC2 Instance • Creating and managing Docker containers • Pull and push docker images from docker hub • Creating Docker custom Images 	
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PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks

- Shroff Gautam, Enterprise Cloud Computing, Cambridge Publication.
- Ronald Knitz and Russell Dean Vines, Cloud Security, Wiley -India.
- Dr. Kumar Saurabh, "Cloud Computing", Wiley Publication.
- Reference Books
- Bloor R., Kanfman M., Halper F. Judith Hurwitz, "Cloud Computing for Dummies", Wiley India Edition.
- John Rittinghouse & James Ransome, "Cloud Computing Implementation Management and Strategy", CRC Press.
- Antohy T Velte, "Cloud Computing: A Practical Approach", McGraw Hill.
- Michael Miller, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online".
- James E smith, Ravi Nair, "virtual machine".

Suggestive digital platform web linkshttps://www.tutorialspoint.com/cloud_computing/cloud_computing_tutorial.pdf<https://www.cse.iitb.ac.in/~cs695/>https://www.cse.iitb.ac.in/~convergence/workshops/Intro_to_Virtualization.pdf

Suggested equivalent online courses

PART D: Assessment and Evaluation

Internal Assessment		External Assessment	
Class Interaction/Quiz	30	Viva voce practical	70
Attendance		Practical record file	
Assignments (Charts/ Model)/ Technology Dissemination/ Exclusion/ Lab visit/ Industrial Training		Table work / Experiments	
Total Marks: 100			

Part A Introduction

Program: Degree		Class : B.Sc.	Year: III	Session: 2023-24
Subject: Computer Science				
1	Course Code	S3-COSC2T		
2	Course Title	Data Analysis and Visualization with Python (Theory)		
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/)	Minor / Elective		
4	Pre-requisite (if any)	To study this course, a student must have completed the course on Programming and Certificate/Diploma levels.		
5	Course Learning Outcomes (CLO)	<p>On successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements. 2. Express proficiency in the handling of strings, functions, and file handling. 3. Determine the methods to create and manipulate Python programs by utilizing data structures like lists, dictionaries, tuples, and sets. 4. Develop proficiency in using NumPy for data manipulation. 5. Create a variety of data visualizations using Matplotlib. 		
6	Credit Value	4		
7	Total Marks	Max Marks: 30+70	Min. Passing Marks: 35	

Part B- Content of the Course

Lectures: 60 Hrs.

Module	Topics	No. of Lectures
Unit-I	<p>Python Basics: Python interpreter, Python idle, dynamically typed and strongly typed features, basic data types, variables, expressions, statements, operators, flow of execution. Input and Output statements, Conditionals: Boolean values and operators, conditional (if), alternative (else), chained conditional (if-elif-else). Iteration: while, for, break, continue, pass, implementing 'for' through range (), 'in' and 'not in' operators for sequence traversal. Creating and executing, py scripts.</p> <p>Keywords: interpreter, while, for, break, continue scripts.</p>	12
Unit -II	<p>Data Structures: Lists- append, extend, insert, index, remove, pop, count, sort,reverse, slicing, list comprehension, Copying a list: deep copy, shallow copy. Tuples- index, count, usage, use of tuples as a swap function. Dictionaries-keys, values, tuples, nested dictionaries, dictionary comprehension. Strings- Single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, istitle, isspace, title, lower, upper, strip, split, splitlines, join etc. Sets - union, intersection, subset, superset, difference, symmetric difference, copy, add, remove, discard etc.</p> <p>Functions & File Handling: Inbuilt Functions- id, len, chr, ord etc., defining and calling a function, arguments, global versus local variables, defining and using lambda functions, the map(), filter(), reduce() functions.</p> <p>Keywords: Index, sort, deep copy, tuples, dictionary, sets, strings, function, calling a function, arguments, global variables.</p>	14

Unit-III	<p>NumPy: Introduction to NumPy, NumPy array in Python, basics of NumPy Arrays, comparison of Python lists with NumPy Arrays.</p> <p>Array: Array creation, the arrange method, the zero method, NumPy array filled with all ones, the linspace method, the eye method, NumPy meshgrid function, empty and full NumPy array, NumPy array filled with all ones, 2-D Gaussian array, Creating vector in Python using NumPy.</p> <p>Array Indexing, Array Slicing, Data Types, Copy vs View, Array Shape, Array Reshape, Array Iterating, Array Join, Array Split, Array Search, Array Sort, Array Filter, Concatenation of two arrays, Splitting and Comparison of Arrays. Binary Operations, Mathematical Function, String Operations.</p> <p>Keyword: NumPy Arrays, Array reshape, NumPy Functions, Array Search, Gaussian Array.</p>	14
Unit -IV	<p>Matrix in NumPy: Matrix manipulation in Python, empty() function, zeros() function, ones() function, eye() function, identity() function, adding and subtracting Matrices in Python. Vector multiplication, Dot product of two arrays.</p> <p>Operations of NumPy Array: Broadcasting with NumPy arrays, sorting, searching and counting of NumPy array. Variations in different sorting techniques in Python.</p> <p>Universal Functions: Creating of ufunc, simple arithmetic, rounding, Trigonometric, Hyperbolic, Set functions.</p> <p>Keywords: NumPy Matrix, Broadcasting with NumPy Array, NumPy ufunc.</p>	12
Unit -V	<p>Data Visualization with Matplotlib: Overview of Matplotlib and its capabilities, creating line plot and scatter plots, Customizing: labels, titles, colors, legends, creating bar plot and histograms, Adding annotation and text to plots, creating subplots and multiple plots, saving and exporting plots.</p> <p>Advanced Data Visualization: Creating pie charts and box plots, visualization 3D data with Matplotlib, Interactive visualization using widgets.</p> <p>Keywords: Matplotlib charts, Interactive visualization, 3D plot with Matplotlib, subplots, multiplots.</p>	08

US), JABALPUR, MADHYA PRADESH

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

- Taneja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson.
- Liang Y. Daniel, "Introduction to Programming Using Python", Pearson.
- Andreas C. Müller and Sarah Guido, "Introduction to Machine Learning with Python: A Guide for Data Scientists

Reference Book:

- Zed A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series.
- Charles Dierbach, "Introduction to computer Science using Python", Wiley.
- Michael T. Goodrich, "Data Structures and Algorithms in Python", Wiley.
- Mark Lutz and David Ascher, "Learning Python".
- Phuong Vo.T.H, Martin Czygan, Ashish Kumar, Kirthi Raman, "Python: Data Analytics and visualization"
- William McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Edition"

Suggested Digital Platforms Web links:

- <https://www.guru99.com/how-to-install-python.html>

- <https://www.python.org/about/gettingstarted/>
- <https://spoken-tutorial.org/media/videos/89/Python-3.4.3-Instruction-Sheet-English.pdf>
- <https://www.learnpython.org/>

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks External exam: 70 Marks

Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	

ST. ALOYSIUS COLLEGE (AUTONOMOUS), JABALPUR, MADHYA PRADESH		
Program: Degree Class :B.Sc. Year: III Year Session: 2023-24		
Subject: Computer Science		
	Course Code	S3-COSC2P
2	Course Title	Data Analysis and Visualization with Python (Practical)
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective /Vocational/)	Minor / Elective
4	Pre-requisite (if any)	To study this course, a student must have successfully completed the course on Programming and Certificate/Diploma levels.
	Course Learning outcomes(CLO)	On successful completion of this course, the students will be able to: 1. Understand the Python environment and its text editor. 2. Code and Run the program 3. Debug the Program 4. Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements. 5. Determine the methods to create and manipulate Python program. 6. Develop proficiency in data manipulation
6	Credit Value	2
7	Total Marks	Max. Marks: 100 Min. Passing Marks:35

Total No. of Practical (in hours per week): 1 hour		
	Suggestive List of Practical	No. of Lab
	<ol style="list-style-type: none"> 1. Find all numbers which are multiple of 17, but not the multiple of 5, between 2000 and 2500. 2. Print the first 2 and last 3 characters in a given string. Use the string slicing. 3. Write a program that eliminates duplicates in a list. 4. Implement shallow copy and deep copy of a list. 5. Find the largest of n numbers, using a user defined function largest(). 6. Write a function that capitalizes all vowels in a string. 7. Read a line containing digits and letters. Write a program to give the count of digits and letters. 8. Write a function myReverse() which receives a string as an input and returns the reverse of the string. 9. Use the list comprehension methodology in python, to generate the squares of all odd numbers in a given list. 10. Create a NumPy array with values from 1 to 20. 11. Create a 3x3 identity matrix using NumPy. 12. Generate an array of 10 random integers between 0 and 100. 13. Calculate the mean, median and standard deviation of an array. 14. Reshape a 1D array into a 2D array. 15. Filter even number from an array using Boolean indexing. 16. Calculate the dot product of two matrices. 17. Normalize an array to have values between 0 and 1. 	

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

Textbooks:

- Taneja Sheetal & Kumar Naveen, "Python Programming: A modular approach", Pearson.
- Liang Y. Daniel, "Introduction to Programming Using Python", Pearson.
- Andreas C. Müller and Sarah Guido, "Introduction to Machine Learning with Python: A Guide for Data Scientists"

Reference Book:

- Zed A. Shaw, "Learn Python the Hard Way", Zed Shaw's Hard Way Series.
- Charles Dierbach, "Introduction to computer Science using Python", Wiley.
- Michael T. Goodrich, "Data Structures and Algorithms in Python", Wiley.
- Mark Lutz and David Ascher, "Learning Python".
- Phuong Vo.T.H, Martin Czygan, Ashish Kumar, Kirthi Raman, "Python: Data Analytics and visualization"
- William McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Edition"

Suggested Digital Platforms Web links:

- <https://www.guru99.com/how-to-install-python.html>
- <https://www.python.org/about/gettingstarted/>
- <https://spoken-tutorial.org/media/videos/89/Python-3.4.3-Instruction-Sheet-English.pdf>
- <https://www.learnpython.org/>

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks External exam: 70 Marks

Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
		Total Marks : 100	



ST. ALOYSIUS' COLLEGE

(AUTONOMOUS), JABALPUR(M.P.)

Reaccredited 'A+' Grade by NAAC (CGPA 3.68/4.00)

College with Potential for Excellence (CPE) by UGC

DST-FIST Supported & Star College Scheme by DBT.

SYLLABUS

UG

BOTANY

St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. I Semester Botany
 Applied Botany
 Paper—1/ Major /Minor
 Session 2023-24

Program: Certificate		Class: B.Sc. I Semester	Year: B.Sc. I Semester	Session: 2023-24
Subject: Botany				
1	Course Code	S1-BOTA1T		
2	Course Title	Applied Botany (Paper I)		
3	Course Type (Core Course/Elective/Generic Elective/Vocational/.)	Core Course		
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology/ Life Sciences/ Agriculture in class/12 th		
5	Course Learning outcomes (CLO)	<p>On completion of this course, the learners will</p> <p>CO 1- to apply fundamental knowledge of various agricultural practices and the scientific methods to solve problems at national and local level in agriculture</p> <p>CO 2 - be able to understand the significance and role of botany.</p> <p>CO3 - be able to learn the basic aspects of applied botany.</p> <p>CO4 - be able to explore about employment opportunities in field of botany.</p> <p>CO 5 - be able to understand the opportunities of social services.</p> <p>CO 6 - be able to gain knowledge about best health practices.</p> <p>CO 7 - be able to explore startup opportunities in field of botany.</p>		
6	Credit Value	4 Credits		
7	Total Marks	Max. Marks: 40+60	Minimum marks: 35	

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. I Semester Botany
 Applied Botany
 Paper—1/ Major /Minor
 Session 2023-24

Program: Certificate		Class: B.Sc. I Semester	Year: B.Sc. I Semester	Session: 2023-24
Subject: Botany				
1	Course Code	SI-BOTA1T		
2	Course Title	Applied Botany (Paper I)		
3	Course Type (Core Course/Elective/Generic Elective/Vocational/.)	Core Course		
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology/ Life Sciences/ Agriculture in class/12 th		
5	Course Learning outcomes (CLO)	On completion of this course, the learners will CO 1- to apply fundamental knowledge of various agricultural practices and the scientific methods to solve problems at national and local level in agriculture CO 2 - be able to understand the significance and role of botany. CO3 - be able to learn the basic aspects of applied botany. CO4 - be able to explore about employment opportunities in field of botany. CO 5 - be able to understand the opportunities of social services. CO 6 - be able to gain knowledge about best health practices. CO 7 - be able to explore startup opportunities in field of botany.		
6	Credit Value	4 Credits		
7	Total Marks	Max. Marks: 40+60	Minimum marks: 35	

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Part B- Content of the Course

Total No. of Lectures- 60 Hours Tutorials-00 Practical-00 (04 hours per week):

L-T-P:

Unit	Topic	No. of Lectures
I	1.1 Introduction, objective and importance of applied botany 1.2 History and evolution of botany. 1.3 Relation of plants to man and relation with other services. 1.4 Various disciplines of botany and their applications to human welfare.	12
II	1.1 Definition and types of pollution and pollutants 1.2 Phytoremediation: Air, water, soil, noise and thermal pollutants (any 5 plants with botanical name, family) and their role in pollution control. 1.3 Bioremediation: definition and types.	12
III	1.1 Ancient agricultural practices. 1.2 Modern agriculture practices: polyhouse, drip irrigation, hydroponics, computer-based agriculture, terrace farming. 1.3 Organic farming: introduction, objective and brief technique 1.4 Horticulture: definition and role in human welfare 1.5 Forestry: definition, branches and role in human welfare 1.6 Silviculture: definition and management practices	12
IV	1.1 Role of Botany in Rural development 1.2 Ethnobotany: Introduction and importance 1.3 Ethnomedicine: Definition and examples. (Local name, botanical name, family and importance of Neem, Aloe, Clove, Ginger, Tulsi, Turmeric, Giloy, Emblica, Ashwagandha, Arandi) 1.4 Ethno-fibres: Definition and examples (Local name, botanical name, family and importance of Jute, Coconut, Elephant Grass, Cotton) 1.5 Ethno-food crops: Definition and examples (local name, botanical name, family and importance of Garadu, Singada, Kutaki, Sama, Kodo, Bathua, Sehjan, Jowar, Makka, Bajra, Jau)	12
V	1.1 Plant tissue culture: Definition, types and importance. 1.2 DNA recombination technique: Introduction, tools and importance	12

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1.3 Role of recombination in present era	
1.4 Bioinformatics : Definition, concept and tools	
1.5 Introduction of bioinformatics software: Basic idea of BLAST and FASTA Importance of bioinformatics.	

Keywords/Tags: Applied Botany, History of Botany, Evolution of Botany, Botany in Human Welfare, : Pollution, Pollutants, Phytoremediation, Bioremediation, Hydroponics, Polyhouse, Terrace Farming, Organic Farming, Horticulture, Silviculture, Ethnobotany, Ethnomedicine, Ethno-Fibers, Ethno-Food Crops, Bioinformatics, BLAST, FASTA, Recombinant DNA, Plant Tissue Culture

Part C – Learning Resources

Text Books, References Books, Other Resources.

Suggested Reading:

1. Levetin E. And McMahon K. "Plants and Society" Mc Graw Hill Education. 2007
2. Maiti R., Rodrigues H.G. and Thakur A.S. "Applied Botany" American Academic Press.2017
3. Negi S.S. "Forest Botany " M/S Bishen Singh Mahendra Pal Singh 2012
4. Agrahari R.P. "Environment Ecology, Biodiversity, Climate Change and Disaster Management" Mc Graw Hill Education. 2020
5. Sharma D. K. "Biodiversity Conservation: Current Status and Future Strategies" Write and Print Publication. 2017
6. Singh J. "Biodiversity Environment and Sustainability" MD Publications Pvt Ltd/2008
7. Gupta P. K. "Molecular Biology and Genetic Engineering " Rastogi Publications. 2005
8. Sharma V., Munjal S. and Shankar A. "Bioinformatics" Rastogi Publications. 2008

Part – D – Assessment and evaluation

Suggested Continuous evaluation methods :

Max. Marks: 100

Continuous comprehensive evaluation (CCE) marks : 40 University examination (UE) marks : 60

Internal assessment	Class test	15
Continuous comprehensive evaluation (CCE)	Assignment/ presentation	25
		Total marks : 40
External assessment: University examination section: 60 Time - 2:00 Hours	section A: Three very short questions (50 words each) section B: Three short questions (200 words each) section C: Three long questions (500 words each)	Total marks : 60

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. I Semester Botany
 Applied Botany
 Paper— Practical I/ Major/Minor
 Session 2023-24

Part A Introduction			
Program: Certificate	Class: B.Sc. I Semester	Year: B.Sc. I Semester	Session: 2023-24
Subject: Botany			
1.	Course Code	SI-BOTA1 P	
2.	Course Title	Applied Botany Practical (Paper I)	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational/.)	Core Course	
4.	Pre-Requisite (If Any)	To study the course, A student must have had the subject Botany/ Biology/ Life Sciences in Class/12 th	
5.	Course Learning Outcomes (CLO)	<p>On completion of this course, learners will be able to:</p> <p>By the end of this course the student should have knowledge of practical skill related with ethnobotany, tissue culture, application of bioinformatics software and tools of recombinant DNA technology.</p>	
6.	Credit Value	02 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
Part B- Content Of The Course			
Total No. of Lectures-Tutorials-Practical- (In hours per week):			
L/T/P:			
Unit	Topics	No. Of Lectures	
I-V	<ol style="list-style-type: none"> 1. Identification of ethnomedicinal plants 2. Preparation of soil health card of any agricultural field 3. Study of vermicompost and composting of kitchen waste 4. Use of BLAST and FASTA 5. Prepare the list of important air, water and soil pollutants of local areas. 6. Plant tissue culture technique: sterilization, inoculation, culture media, acclimatization and hardening 	30	

7. Preparation of list of ethnomedicinal, food, fibre, plant locally available
8. Tools and recombinant DNA technology: Restriction, enzymes, plasmid vectors, other enzymes
9. Study of global warming, acid rain and water quality (pH and conductivity)
10. Study of local plants grown around agricultural field
11. Practical can be decided on theory basis according to availability
12. Case and field study can be designed accordingly

* Studies on turbidity, pH and microbial presence in water

Part C- Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Levetin E. And McMahon K. "Plants and Society" Mc Graw Hill Education. 2007
2. Maiti R., Rodrigues H.G. and Thakur A.S. "Applied Botany" American Academic Press. 2017
3. Negi S.S. "Forest Botany" M/S Bishen Singh Mahendra Pal Singh 2012
4. Agrahari R.P. "Environment Ecology, Biodiversity, Climate Change and Disaster Management" Mc Graw Hill Education. 2020
5. Sharma D. K. "Biodiversity Conservation: Current Status and Future Strategies" Write and Print Publication. 2017
6. Singh J. "Biodiversity Environment and Sustainability" Md Publications Pvt Ltd/2008
7. Gupta P. K. "Molecular Biology and Genetic Engineering" Rastogi Publications. 2005
8. Sharma V., Munjal S. and Shankar A. "Bioinformatics" Rastogi Publications. 2008

Part D- Assessment and Evaluation

Suggested Continuous Valuation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/ Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignment (chart/ model/ seminar/ rural service/ technology dissemination/ report of excursion/ lab visits/ survey/ industrial visit)	20	Table work/ experiments	50
Total	40		60

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. I Semester Botany
 Applied Botany
 Paper—1
 Session 2023-24

सैद्धांतिक प्रश्न पत्र के पाठ्यक्रम			
भाग अ- परिचय			
कार्यक्रम: प्रमाण पत्र	कक्षा: बी. एससी प्रथम सेमेस्टर	वर्ष: B.Sc. I Semester	सत्र: २०२३-२०२४
विषय: वनस्पति शास्त्र			
1.	पाठ्यक्रम का कोड-	SIBOTAIT	
2.	पाठ्यक्रम का शीर्षक	अनुप्रयुक्त वनस्पति शास्त्र (पेपर 1)	
3.	पाठ्यक्रम का प्रकार ; (कोर कोर्स/ इलेक्टिव/ जेनेरिक इलेक्टिव/ वोकेशनल /.....)-	कोर कोर्स (मूल पाठ्यक्रम)	
4.	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)-	इस कोर्स का अध्ययन करने के लिए छात्र वनस्पति विज्ञान/ जीव विज्ञान विषय से कक्षा 12वी का अध्ययन किया हो	
5.	पाठ्यक्रम अध्ययन की परिलब्धिया (कोर्स लर्निंग आउटकम) (CLO)-	इस पाठ्यक्रम के अंत तक छात्र: CO 1 - विभिन्न कृषी पद्धतियों की बुनियादी जानकारी एवं कृषी के क्षेत्र में राष्ट्रिय एवं स्थानीय समस्याओं को सुलझाने की वैज्ञानिक पद्धतियों का प्रयोग कर सकेगा। वनस्पति विज्ञान के महत्व और भूमिका को समझ सकेगा। CO 2 - अनुप्रयुक्त वनस्पति विज्ञान के बुनियादी पहलुओ को सीख सकेगा। CO 3- वनस्पति विज्ञान के क्षेत्र में रोजगार के अवसरो के बारे में जानकारी प्राप्त कर सकेगा। CO 4 - सामाजिक सेवाओ के अवसरो के बारे में जानकारी प्राप्त कर सकेगा। CO 5 - सर्वोत्तम स्वास्थ्य प्रथाओ के बारे में ज्ञान प्राप्त कर सकेगा। CO 6 - वनस्पति विज्ञान के क्षेत्र में स्टार्टअप के अवसरो के बारे में जानकारी प्राप्त कर सकेगा।	
6.	क्रेडिट मान	4 क्रेडिट	
7.	कुल अंक	अधिकतम अंक 40+60	न्यूनतम उत्तीर्ण अंक 35

भाग ब- पाठ्यक्रम की विषयवस्तु

व्याख्यानो की कुल संख्या- 60 घंटे ट्यूटोरियल-00 प्रैक्टिकल- 00 (प्रति साप्ताह- 4 घंटे)

एल/टी पी:

इकाई	विषय	व्याख्यान की संख्या
I	1.1 परिचय, उद्देश्य और महत्व अनुप्रयुक्त वनस्पति विज्ञान 1.2 वनस्पति विज्ञान का इतिहास और विकास 1.3 पादप का मनुष्य और अन्य सेवाएँ के साथ संबंध 1.4 वनस्पति विज्ञान के विभिन्न विषय ओर उनके मानव कल्याण के लिए आवेदन	12
II	1.1 प्रदूषण और प्रदूषको- परिभाषा और प्रकार 1.2 फाइटोरिमेडीएशन : वायु, जल, मिट्टी, शोर और थर्मल प्रदूषक (कोई भी 5पौधे वानस्पतिक नाम, और कुल) और प्रदूषण नियंत्रण में उनकी भूमिका 1.3 बायोरिमेडीएशन : परिभाषा और प्रकार	12
III	1.1 प्राचीन कृषि पद्धतियाँ 1.2 आधुनिक कृषि पद्धतियाँ- पॉलीहाउस, ड्रिप सिंचाई, हाइड्रोपोनिक्स, कंप्यूटर आधारित कृषि, ट्रेस गाईडें 1.3 जैविक खेती: परिचय, उद्देश्य और संक्षिप्त तकनीक 1.4 बागवानी: परिभाषा और भूमिका 1.5 वानिकी: परिभाषा, शाखाएँ और मानव कल्याण में भूमिका 1.6 सिलविकल्चर: परिभाषा और प्रबंधनकार्य प्रणाली	12
IV	1.1 ग्रामीण विकास में वनस्पति विज्ञान की भूमिका 1.2 मानव वनस्पति विज्ञान (एथनोबोटनी): परिचय और महत्व 1.3 एथनोमेडिसिन: परिभाषा और उदाहरण (नीम, अलेओ, लॉग, अदरक, तुलसी, हल्दी, गिलोय, आवला, अश्वगंधा, अरंडी) स्थानीय नाम, वानस्पतिक नाम, कुल और महत्व 1.4 एथनो- फाइबर: परिभाषा और उदाहरण (जूट, नारियल, हाथी घास, कपास) स्थानीय नाम, वानस्पतिक नाम, कुल और महत्व 1.5 एथनो- खाद्य फसल: परिभाषा और उदाहरण (गराडू, सिंगडा, कुटकी, समा, कोदो, बथुआ, सहजन, ज्वार, मक्का, बाजरा, जौ) स्थानीय नाम, वानस्पतिक नाम, कुल और महत्व	12
V	1.1 पादप उत्तक संवर्धन: परिभाषा, प्रकार और महत्व 1.2 डीएनए पुनः संयोजक तकनीक: परिचय, औजार और महत्व वर्तमान युग में तकनीक की भूमिका 1.3 जैव प्रौद्योगिकी विज्ञान: परिभाषा, अवधारणा और औजार 1.4 जैव सूचना प्रौद्योगिकी विज्ञान सॉफ्ट वेयर का परिचय : ब्लास्ट और फास्टा	12

1.5 जैव सूचना विज्ञान का महत्व

मुख्य शब्द: पादप उत्तक संवर्धन, जैव प्रौद्योगिकी विज्ञान, BLAST, FASTA

सार बिंदु (कीवर्ड)/ टैग: अनुप्रयुक्त वनस्पति विज्ञान, वनस्पति विज्ञान का इतिहास, वनस्पति विज्ञान का विकास, मानव कल्याण में वनस्पति विज्ञान, प्रदूषण, प्रदूषक, पादप उपचार, जैव उपचार, हाइड्रोपोनिक्स, पाली हाउस, टेरेस गार्डन, जैविक खेती, बागवानी, सिल्वीकल्चर, मानव वनस्पति विज्ञान (एथ्नोबोटानी, एथनोफाइबर, जातीय खाद्य फसले, जैव सूचना प्रौद्योगिकी, BLAST, FASTA, पुनः संयोजक डीएनए, पादप उत्तक संवर्धन

भाग स- अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तके, सन्दर्भ पुस्तके, अन्य संसाधन

अनुशंसित सहायक पुस्तके/ ग्रन्थ/ अन्य पाठ्य संसाधन/ पाठ्य सामग्री:

- 1 लेविटिन ई. और मैकमोहन के. "प्लांट्स एंड सोसाइटी" मैक ग्री हिल एजुकेशन/ २००७
- 2 मैती आर रोड्रीग्ज एच. जी. और ठाकुर ए. एस. "एप्लाइड बॉटनी" अमेरिकन अकादमी प्रेस. २०१७
- 3 नेगी एस. एस. "वन वनस्पति विज्ञान" मेसर्स बिशन सिंह माफेनद्र पाल सिंह २०१२
- 4 अग्रहारी आर. पी. "पर्यावरण पारिस्थितिकी, जैव विविधता, जलवायु परिवर्तन और आपदा प्रबंधन" मैक ग्री हिल एजुकेशन/ २०२०
- 5 शर्मा डी. के. "जैव विविधता संरक्षण: वर्तमान स्थिति और भविष्य की रणनीतिया" प्रकाशन लिखे और प्रिंट करे २०१७
- 6 सिंह जे. "जैव विविधता पर्यावरण और स्थिरता" एमडी प्रकाशन प्राइवेट लिमिटेड २००८
- 7 गुप्ता पी. के. "आणविक जीव विज्ञान और अनुवांशिक इंजीनियरिंग" रस्तोगी प्रकाशन २००५
- 8 शर्मा वी, मुंजाल ए. और शंकर ए. "बायोइंफॉर्मेटिक्स" रस्तोगी प्रकाशन २००८

भाग द- अनुशंसित मूल्यांकन विधिया:

अनुशंसित सतत मूल्यांकन विधिया:

अधिकतम अंक: 100

सतत व्यापक मूल्यांकन (CCE) अंक : 40 विश्वविद्यालयीन परीक्षा (UE) अंक : 60

आंतरिक मूल्यांकन	क्लास टेस्ट	15
सतत व्यापक मूल्यांकन (CCE)	असाइनमेंट/ प्रस्तुतीकरण (प्रेजेंटेशन)	25
		कुल अंक : 40
आकलन:	अनुभाग (अ): तीन अति लघु प्रश्न	कुल अंक : 60
विश्वविद्यालयीन परीक्षा:	अनुभाग (ब): तीन लघु प्रश्न	
समय- २.०० घंटे	अनुभाग (स): तीन दीर्घ उत्तरीय प्रश्न	









St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. I Semester Botany
 Applied Botany
 Paper — Practical I
 Session 2023-24

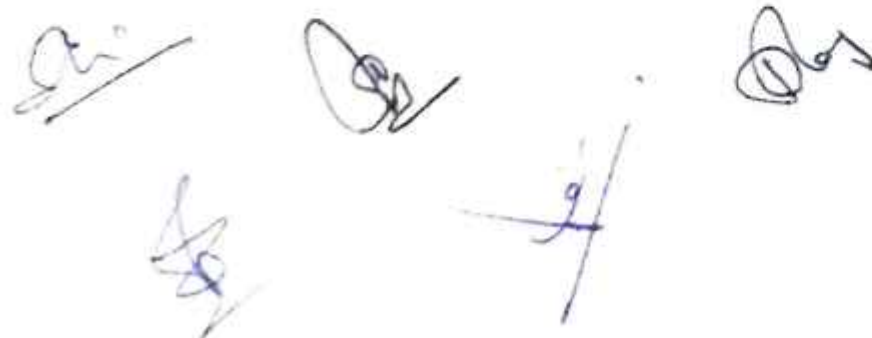
प्रायोगिक प्रश्न पत्र के पाठ्यक्रम हेतु

भाग अ - परिचय

कार्यक्रम: प्रमाण पत्र कक्षा: प्रथम सेमेस्टर वर्ष : B.Sc. I Semester सत्र : 2023-24

विषय: वनस्पति शास्त्र

1.	पाठ्यक्रम का कोड	SI BOTAIP
2.	पाठ्यक्रम का शीर्षक	अनुप्रयुक्त वनस्पति शास्त्र प्रायोगिक (प्रश्न पत्र I)
3.	पाठ्यक्रम का प्रकार : (कोर कोर्स/ इलेक्टिव/ जेनेरिक इलेक्टिव/ वोकेशनल/.....)-	कोर कोर्स
4.	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)-	इस कोर्स का अध्ययन करने के लिए छात्र ने वनस्पति विज्ञान/ जीव विज्ञान/ जीवन विज्ञान का अध्ययन कक्षा 12 वीं में किया हो
5.	पाठ्यक्रम अध्ययन की परिलब्धिया (कोर्स लर्निंग आउटकम) (CLO)-	इस पाठ्यक्रम के अंत में छात्र एथनो वनस्पति शास्त्र, उनके संवर्धन, जैव सूचना प्रौद्योगिकी सॉफ्टवेयर का उपयोग, एवं रेकॉम्बिनेंट डीएनए तकनीकी की प्रायोगिक जानकारी प्राप्त कर लेंगे
6.	क्रेडिट मान	02
7.	कुल अंक	अधिकतम अंक : 40+60 न्यूनतम उत्तीर्ण अंक: 35



भाग ब - पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- 00 टूटोरिअल-00 प्रायोगिक-30 (प्रति सप्ताह 02 घंटे में): L-T-P :

इकाई	विषय	व्याख्यान की संख्या
I-V	<ol style="list-style-type: none"> 1. एथनो वानस्पतिक पादप की पहचान - 2. स्थानीय कृषि क्षेत्र की मृदा स्वास्थ्य कार्ड तैयार करना 3. वर्मीकम्पोस्ट व रसोईघर से निकले उत्सर्जी पदार्थों की कम्पोस्टिंग का अध्ययन 4. BLAST व FASTA का उपयोग 5. स्थानीय क्षेत्र के महत्वपूर्ण वायु, जल व मृदा प्रदूषकों की सूची तैयार करना 6. पादप ऊतक संवर्धन की विसंक्रमण, इनाकुलेशन, संवर्धन माध्यम, अनुकूलन व कठोरता का अध्ययन 7. स्थानीय उपलब्ध एथनो औषधीय खाद्य व तंतु प्रदान करने वाले पादपों की सूची तैयार करना 8. डीएनए रेकॉम्बिनेंट तकनीकी के औजारों का अध्ययन : रेस्ट्रिक्शन एंजाइम, प्लाज्मिड वेक्टर व अन्य एंजाइम 9. वैश्विक तपन, अम्ल वर्षा व जल गुणवत्ता (pH व Conductivity) का अध्ययन 10. स्थानीय स्तर पर कृषि क्षेत्रों के चारों ओर उगने वाले पौधों का अध्ययन 11. उपलब्धता व सैद्धांतिक आधार पर प्रयोगों की सूची बनायी जा सकती है 12. स्थानीय प्रकृति के आधार पर मैदानीय क्षेत्रों का अध्ययन किया जा सकता है 	30

भाग स: अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तके सन्दर्भ पुस्तके अन्य संसाधन

अनुशंसित सहायक पुस्तके/ ग्रन्थ/ अन्य पाठ्य संसाधन/ पाठ्य सामग्री:

1. लेविटिन ई. और मैकमोहन के. "प्लांट्स एंड सोसाइटी" मैक ग्रो हिल एजुकेशन/ २००७
2. मैती आर., रोड्रीगज एच. जी. और ठाकुर ए. एस. "एप्लाइड बॉटनी" अमेरिकन अकादमी प्रेस. २०१७
3. नेगी एस. एस. "वन वनस्पति विज्ञान" मेसर्स बिशन सिंह माफेनद्र पाल सिंह २०१२
4. अग्रहारी आर. पी. "पर्यावरण पारिस्थितिकी, जैव विविधता, जलवायु परिवर्तन और आपदा प्रबंधन" मैक ग्रो हिल एजुकेशन/ २०२०
5. शर्मा डी. के. "जैव विविधता संरक्षण: वर्तमान स्थिति और भविष्य की रणनीतियां" प्रकाशन लिखे और प्रिंट करे २०१७

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- 6 सिंह जे. "जैव विविधता पर्यावरण और स्थिरता" एमडी प्रकाशन प्राइवेट लिमिटेड २००८
 7 गुप्ता पी. के. "आणविक जीव विज्ञान और अनुवांशिक इंजीनियरिंग" रस्तोगी प्रकाशन २००५
 8 शर्मा वी. मुजाल ए. और शंकर ए. "बायोइंफॉर्मेटिक्स" रस्तोगी प्रकाशन २००८

भाग द- अनुशंसित मूल्यांकन विधियाः

अनुशंसित सतत मूल्यांकन विधियाः			
आंतरिक मूल्यांकन	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद / प्रश्नोत्तरी	10	प्रायोगिक मौखिकी (वायवा)	05
उपस्थिति	10	प्रायोगिक रिकॉर्ड फाइल	05
असाइनमेंट (चार्ट/ मॉडल/ सेमिनार/ ग्रामीण सेवा/ प्रौद्योगिकी प्रसार/ भ्रमण (कसकरशन) कीरी पोर्ट / सर्वेक्षण/ प्रयोगशाला भ्रमण (lab visit)/ औद्योगिक यात्रा	20	टेबल वर्क/ प्रयोग	50
कुल अंक	40		60

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St. Aloysius' College (Autonomous) Jabalpur, M. P.
 Department of Botany and Microbiology
 B.Sc. I Semester Botany
 Applied Botany
 Paper—1/ Elective
 Session 2023-24
 Part A - Introduction

Program: Certificate		Class: B.Sc. I Semester	Year: B.Sc. I Semester	Session: 2023-24
Subject: Botany				
1	Course Code	SI-BOTA1T		
2	Course Title	Applied Botany (Paper I)		
3	Course Type (Core Course/Elective/Generic Elective/Vocational/.)	Elective Course		
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology/ Life Sciences/ Agriculture in class/12 th		
5	Course Learning outcomes (CLO)	On completion of this course, the learners will CO 1- to apply fundamental knowledge of various agricultural practices and the scientific methods to solve problems at national and local level in agriculture CO 2 - be able to understand the significance and role of botany. CO3 - be able to learn the basic aspects of applied botany. CO4 - be able to explore about employment opportunities in field of botany. CO 5 - be able to understand the opportunities of social services. CO 6 - be able to gain knowledge about best health practices. CO 7 - be able to explore startup opportunities in field of botany.		
6	Credit Value	3 Credits		
7	Total Marks	Max. Marks: 40+60	Minimum marks: 35	

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Theory

Part B: Content of the Course

Total No. of Lectures- 60 Hours Tutorials-00 Practical-00 (04 hours per week):
L-T-P:

Unit	Topic	No. of Lectures
I	1.1 Introduction, objective and importance of applied botany 1.2 History and evolution of botany. 1.3 Relation of plants to man and relation with other services. 1.4 Various disciplines of botany and their applications to human welfare.	10
II	1.1 Definition and types of pollution and pollutants 1.2 Phytoremediation: Air, water, soil, noise and thermal pollutants (any 5 plants with botanical name, family) and their role in pollution control. 1.3 Bioremediation: definition and types.	11
III	1.1 Ancient agricultural practices. 1.2 Modern agriculture practices: polyhouse, drip irrigation, hydroponics, computer-based agriculture, terrace farming. 1.3 Organic farming: introduction, objective and brief technique 1.4 Horticulture: definition and role in human welfare 1.5 Forestry: definition, branches and role in human welfare 1.6 Silviculture: definition and management practices	12
IV	1.1 Role of Botany in Rural development 1.2 Ethnobotany: Introduction and importance 1.3 Ethnomedicine: Definition and examples. (Local name, botanical name, family and importance of Neem, Aloe, Clove, Ginger, Tulsi, Turmeric, Giloy , Emblica, Ashwagandha, Arandi) 1.4 Ethno-fibres: Definition and examples (Local name, botanical name, family and importance of Jut, Coconut, Elephant Grass, Cotton) 1.5 Ethno-food crops: Definition and examples (local name, botanical name, family and importance of Garadu, Singada, Kutaki, Sama, Kodo, Bathua, Schjan , Jowar, Makka, Bajra, Jau)	12

Keywords/Tags: Applied Botany, History of Botany, Evolution of Botany, Botany in Human Welfare, : Pollution, Pollutants, Phytoremediation, Bioremediation, Hydroponics, Polyhouse, Terrace Farming, Organic Farming, Horticulture, Silviculture, Ethnobotany, Ethnomedicine, Ethno-Fibers, Ethno-Food Crops

Part C – Learning Resources

Text Books, References Books, Other Resources.

Suggested Reading:

1. Levetin E. And Mcmahon K. "Plants and Society" Mc Graw Hill Education. 2007
2. Maiti R., Rodrigues H.G. and Thakur A.S. "Applied Botany" American Academic Press. 2017
3. Negi S.S. "Forest Botany " M/S Bishen Singh Mahendra Pal Singh 2012
4. Agrahari R.P. "Environment Ecology, Biodiversity, Climate Change and Disaster Management" Mc Graw Hill Education. 2020
5. Sharma D. K. "Biodiversity Conservation: Current Status and Future Strategies" Write and Print Publication. 2017
6. Singh J. "Biodiversity Environment and Sustainability" MD Publications Pvt Ltd/2008

Part – D – Assessment and evaluation

Suggested Continuous evaluation methods :

Max. Marks: 100

Continuous comprehensive evaluation (CCE) marks : 40 University examination (UE) marks : 60

Internal assessment	Class test	15
Continuous comprehensive evaluation (CCE)	Assignment/ presentation	25
		Total marks : 40
External assessment: University examination section: 60 Time – 2:00 Hours	section A: Three very short questions (50 words each) section B: Three short questions (200 words each) section C: Three long questions (500 words each)	Total marks : 60

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. I Semester Botany
 Applied Botany
 Paper—1/ Elective
 Session 2022-23
 Practical

Part A Introduction,

Program: Certificate		Class: B.Sc. I Semester		Year: B.Sc. I Semester		Session: 2023-24	
Subject: Botany							
1.	Course Code			SI-BOTA1 P			
2.	Course Title			Applied Botany Practical (Paper 1)			
3.	Course Type (Core Course/Elective/Generic Elective/Vocational/.)			Elective Course			
4.	Pre-Requisite (If Any)			To study the course, A student must have had the subject Botany/ Biology/ Life Sciences in Class/12 th			
5.	Course Learning Outcomes (CLO)			On completion of this course, learners will be able to: By the end of this course the student should have knowledge of practical skill related with ethnobotany			
6.	Credit Value			01 Credits			
7.	Total Marks			Max. Marks: 100		Min. Passing Marks: 35	

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Part B- Content Of The Course

Total No. of Lectures- Tutorials- Practical- (In hours per week):

L/T/P:

Unit	Topics	No. Of Lectures
I-IV	<ol style="list-style-type: none"> 1. Identification of ethnomedicinal plants 2. Preparation of soil health card of any agricultural field 3. Study of vermicompost and composting of kitchen waste 4. Prepare the list of important air, water and soil pollutants of local areas. 5. Preparation of list of ethnomedicinal, food, fibre, plant locally available 6. Study of global warming, acid rain and water quality (pH and conductivity) 7. Study of local plants grown around agricultural field. 8. Practical can be decided on theory basis according to availability 9. Case and field study can be designed accordingly 	15

Keywords/Tags:

Part C- Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Levetin E. And Memahon K. "Plants and Society" Mc Graw Hill Education. 2007
2. Maiti R., Rodrigues H.G. and Thakur A.S. "Applied Botany" American Academic Press.2017
3. Negi S.S. "Forest Botany " M/S Bishen Singh Mahendra Pal Singh 2012
4. Agrahari R.P. "Environment Ecology, Biodiversity, Climate Change and Disaster Management" Mc Graw Hill Education. 2020
5. Sharma D. K. "Biodiversity Conservation: Current Status and Future Strategies" Write and Print Publication. 2017
6. Singh J. "Biodiversity Environment and Sustainability" Md Publications Pvt Ltd/2008

Part D- Assessment and Evaluation

External Assessment	Marks
Table work/ experiments	80
Practical Record File	10
Viva Voce on Practical	10
Total Marks	100

"To determine the quality of pH and microbial presence in water"

St. Aloysius' College (Autonomous) Jabalpur, M.P.
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 Paper—ELECTIVE
 Session 2023-24

सैद्धांतिक प्रश्न पत्र के पाठ्यक्रम

भाग अ- परिचय

कार्यक्रम: प्रमाण पत्र	कक्षा: बी. एस.सी प्रथम सेमेस्टर	वर्ष: B.Sc. I Semester	सत्र: २०२३-२०२४
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विषय: वनस्पति शास्त्र

1.	पाठ्यक्रम का कोड-	SIBOTAIT
2.	पाठ्यक्रम का शीर्षक	अनुप्रयुक्त वनस्पति शास्त्र (पेपर 1)
3.	पाठ्यक्रम का प्रकार ; (कोर कोर्स/ इलेक्टिव/ जेनेरिक इलेक्टिव/ वोकेशनल /.....)-	जेनेरिक इलेक्टिव
4.	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)-	इस कोर्स का अध्ययन करने के लिए छात्र वनस्पति विज्ञान/ जीव विज्ञान विषय से कक्षा 12वी का अध्ययन किया हो
5.	पाठ्यक्रम अध्ययन की परिलब्धिया (कोर्स लर्निंग आउटकम) (CLO)-	<p>इस पाठ्यक्रम के अंत तक छात्र:</p> <p>CO 1 - विभिन्न कृषी पद्धतियों की बुनियादी जानकारी एवं कृषी के क्षेत्र में राष्ट्रिय एवं स्थानीय समस्याओं को सुलझाने की वैज्ञानिक पद्धतियों का प्रयोग कर सकेगा। वनस्पति विज्ञान के महत्व और भूमिका को समझ सकेगा।</p> <p>CO 2 - अनुप्रयुक्त वनस्पति विज्ञान के बुनियादी पहलुओं को सीख सकेगा।</p> <p>CO 3- वनस्पति विज्ञान के क्षेत्र में रोजगार के अवसरों के बारे में जानकारी प्राप्त कर सकेगा।</p> <p>CO 4 - सामाजिक सेवाओं के अवसरों के बारे में जानकारी प्राप्त कर सकेगा।</p> <p>CO 5 - सर्वोत्तम स्वास्थ्य प्रथाओं के बारे में जान प्राप्त कर सकेगा।</p> <p>CO 6 - वनस्पति विज्ञान के क्षेत्र में स्टार्टअप के अवसरों के बारे में</p>



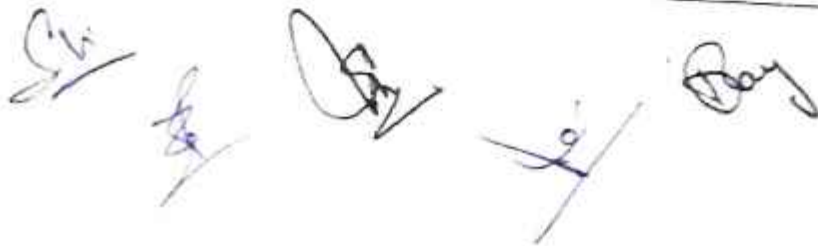
		जनकारी प्रदान कर सकेगासर्वोत्तम स्वाम्भय प्रथाओं के बारे में जान प्राप्त करेगा
6.	क्रेडिट मान	3 क्रेडिट
7.	कुल अंक:	अधिकतम अंक 40+60 न्यूनतम उत्तीर्ण अंक 35

भाग ब- पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- 60 घंटे ट्यूटोरियल-00 प्रैक्टिकल- 00 (प्रति साप्ताह- 4 घंटे)

एल/ टी/ पी:

इकाई	विषय	व्याख्यान की संख्या
I	1.1 परिचय, उद्देश्य और महत्व अनुप्रयुक्त वनस्पति विज्ञान 1.2 वनस्पति विज्ञान का इतिहास और विकास 1.3 पादप का मनुष्य और अन्य सेवाएँ के साथ संबंध 1.4 वनस्पति विज्ञान के विभिन्न विषय और उनके मानव कल्याण के लिए आवेदन	10
II	1.1 प्रदूषण और प्रदूषको- परिभाषा और प्रकार 1.2 फाइटरएमेडीएशन : वायु, जल, मिट्टी, शोर और धर्मल प्रदूषक (कोई भी 5 पाँधे वानस्पतिक नाम , और कुल) और प्रदूषण नियंत्रण में उनकी भूमिका 1.3 बायोरिमेडीएशन : परिभाषा और प्रकार	11
III	1.1 प्राचीन कृषि पद्धतियाँ 1.2 आधुनिक कृषि पद्धतियाँ- पॉलीहाउस, ड्रिप सिंचाई, हाइड्रोपोनिक्स, कंप्यूटर आधारित कृषि, टेरेस गार्डन 1.3 जैविक खेती: परिचय, उद्देश्य और संक्षिप्त तकनीक 1.4 बागवानी: परिभाषा और भूमिका 1.5 वानिकी: परिभाषा, शाखाएँ और मानव कल्याण में भूमिका 1.6 सिलविकल्चर: परिभाषा और प्रबंधनकार्य प्रणाली	12
IV	1.1 ग्रामीण विकास में वनस्पति विज्ञान की भूमिका	12



		जानकारी प्राप्त कर सकेगा। सर्वोत्तम स्वास्थ्य प्रथाओं के बारे में जान प्राप्त करेगा	
6.	क्रेडिट मान	3 क्रेडिट	
7.	कुल अंक	अधिकतम अंक 40+60	न्यूनतम उत्तीर्ण अंक 35

भाग ब- पाठ्यक्रम की विषयवस्तु
 व्याख्यानो की कुल संख्या- 60 घंटे ट्यूटोरियल-00 प्रैक्टिकल- 00 (प्रति साप्ताह- 4 घंटे)
 एल/ टी/ पी:

इकाई	विषय	व्याख्यान की संख्या
I	1.1 परिचय, उद्देश्य और महत्व अनुप्रयुक्त वनस्पति विज्ञान 1.2 वनस्पति विज्ञान का इतिहास और विकास 1.3 पादप का मनुष्य और अन्य सेवाएँ के साथ संबंध 1.4 वनस्पति विज्ञान के विभिन्न विषय और उनके मानव कल्याण के लिए आवेदन	10
II	1.1 प्रदूषण और प्रदूषको- परिभाषा और प्रकार 1.2 फाइटोरिमेडीएशन : वायु, जल, मिट्टी, शोर और थर्मल प्रदूषक (कोई भी 5 पौधे वानस्पतिक नाम, और कुल) और प्रदूषण नियंत्रण में उनकी भूमिका 1.3 बायोरिमेडीएशन : परिभाषा और प्रकार	11
III	1.1 प्राचीन कृषि पद्धतियाँ 1.2 आधुनिक कृषि पद्धतियाँ- पॉलीहाउस, ड्रिप सिंचाई, हाइड्रोपोनिक्स, कंप्यूटर आधारित कृषि, टेरेस गार्डन 1.3 जैविक खेती: परिचय, उद्देश्य और संक्षिप्त तकनीक 1.4 बागवानी: परिभाषा और भूमिका 1.5 वानिकी: परिभाषा, शाखाएँ और मानव कल्याण में भूमिका 1.6 सिलविकल्चर: परिभाषा और प्रबंधनकार्य प्रणाली	12
V	1.1 ग्रामीण विकास में वनस्पति विज्ञान की भूमिका	12



भाग द- अनुशसित मूल्यांकन विधियाः

अनुशसित सतत मूल्यांकन विधियाः

अधिकतम अंक: 100

सतत व्यापक मूल्यांकन (CCE) अंक : 40 विश्वविद्यालयीन परीक्षा (UE) अंक : 60

आंतरिक मूल्यांकन	क्लास टेस्ट	15
सतत व्यापक मूल्यांकन (CCE)	असाइनमेंट/ प्रस्तुतीकरण (प्रेजेंटेशन)	25
		कुल अंक : 40
आकलन: विश्वविद्यालयीन परीक्षा: समय- २.०० घंटे	अनुभाग (अ): तीन अति लघु प्रश्न (प्रत्येक 50 शब्द) अनुभाग (ब): तीन लघु प्रश्न (प्रत्येक 200 शब्द) अनुभाग (स): तीन दीर्घ उत्तरीय प्रश्न (प्रत्येक 500 शब्द)	कुल अंक : 60











St. Aloysius' College (Autonomous) Jabalpur, M.P.
Department of Botany and Microbiology
B.Sc. I Semester Botany
Applied Botany
Paper—ELECTIVE
Session 2023-24

प्रायोगिक प्रश्न पत्र के पाठ्यक्रम हेतु			
भाग अ - परिचय			
कार्यक्रम: प्रमाण पत्र	कक्षा: प्रथम सेमेस्टर	वर्ष : B.Sc. I Semester	सत्र : 2023-24
विषय: वनस्पति शास्त्र			
1.	पाठ्यक्रम का कोड	S1 BOTAIP	
2.	पाठ्यक्रम का शीर्षक	अनुप्रयुक्त वनस्पति शास्त्र प्रायोगिक (प्रश्न पत्र I)	
3.	पाठ्यक्रम का प्रकार : (कोर कोर्स/ इलेक्टिव/ जेनेरिक इलेक्टिव/ वोकेशनल/.....)-	जेनेरिक इलेक्टिव	
4.	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)-	इस कोर्स का अध्ययन करने के लिए छात्र ने वनस्पति विज्ञान/ जीव विज्ञान/ जीवन विज्ञान का अध्ययन कक्षा 12 वीं में किया हो	
5.	पाठ्यक्रम अध्ययन की परिलब्धिया (कोर्स लर्निंग आउटकम) (CLO)-	इस पाठ्यक्रम के अंत में छात्र एथनो वनस्पति शास्त्र, ऊतक संवर्धन, जैव सुचना प्रौद्योगिकी सॉफ्टवेयर का उपयोग, एवं रेकॉम्बीनेंट डीएनए तकनीकी की प्रायोगिक जानकारी प्राप्त कर लेंगे	
6.	क्रेडिट मान	01	
7.	कुल अंक	अधिकतम अंक : 100	न्यूनतम उत्तीर्ण अंक: 35
भाग ब - पाठ्यक्रम की विषयवस्तु			
व्याख्यान की कुल संख्या- 00 ट्यूटोरियल-00 प्रायोगिक-30 (प्रति सप्ताह 02 घंटे में): L -T -P :			
इकाई	विषय	व्याख्यान की संख्या	
I-IV	1. एथनो वानस्पतिक पादप की पहचान - 2. स्थानीय कृषि क्षेत्र की मृदा स्वास्थ्य कार्ड तैयार करना 3. वर्मीकम्पोस्ट व रसोईघर से निकले उत्सर्जी पदार्थों की कम्पोस्टिंग का	15	



अध्ययन	
4. स्थानीय क्षेत्र के महत्वपूर्ण वायु, जल व मृदा पदार्थों की सूची तैयार करना	
5. स्थानीय उपलब्ध एथनो औषधीय खाद्य व तंतु प्रदान करने वाले पादपों की सूची तैयार करना	
6. वैश्विक तपन, अम्ल वर्षा व जल गुणवत्ता (pH व Conductivity) का अध्ययन	
7. स्थानीय स्तर पर कृषि क्षेत्रों के चारों ओर उगने वाले पौधों का अध्ययन	
8. उपलब्धता व सैद्धांतिक आधार पर प्रयोगों की सूची बनायी जा सकती है	
9. स्थानीय प्रकृति के आधार पर मैदानीय क्षेत्रों का अध्ययन किया जा सकता है	

सार बिंदु (की वर्ड)/ टैग :

भाग स: अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें सन्दर्भ पुस्तकें अन्य संसाधन

अनुशंसित सहायक पुस्तकें/ ग्रन्थ/ अन्य पाठ्य संसाधन/ पाठ्य सामग्री:

- 1 लेविटिन ई. और मैकमोहन के. "प्लांट्स एंड सोसाइटी" मैक ग्री हिल एजुकेशन/ २००७
- 2 मैती आर., रोड्रीगज एच. जी. और ठाकुर ए. एस. "एप्लाइड बॉटनी" अमेरिकन अकादमी प्रेस. २०१७
- 3 नेगी एस. एस. "वन वनस्पति विज्ञान" मेसर्स बिशन सिंह माफेन्द्र पाल सिंह २०१२
- 4 अग्रहारी आर. पी. "पर्यावरण पारिस्थितिकी, जैव विविधता, जलवायु परिवर्तन और आपदा प्रबंधन" मैक ग्री हिल एजुकेशन/ २०२०
- 5 शर्मा डी. के. "जैव विविधता संरक्षण: वर्तमान स्थिति और भविष्य की रणनीतियाँ" प्रकाशन लिखे और प्रिंट करे २०१७
- 6 सिंह जे. "जैव विविधता पर्यावरण और स्थिरता" एमडी प्रकाशन प्राइवेट लिमिटेड २००८

भाग द- अनुशंसित मूल्यांकन विधियाँ:

अनुशंसित सतत मूल्यांकन विधियाँ:

बाह्य मूल्यांकन	अंक
टेबल वर्क/ प्रयोग	80
प्रायोगिक रिकॉर्ड फाइल	10
प्रायोगिक मौखिकी (वायवा)	10
कुल अंक	100

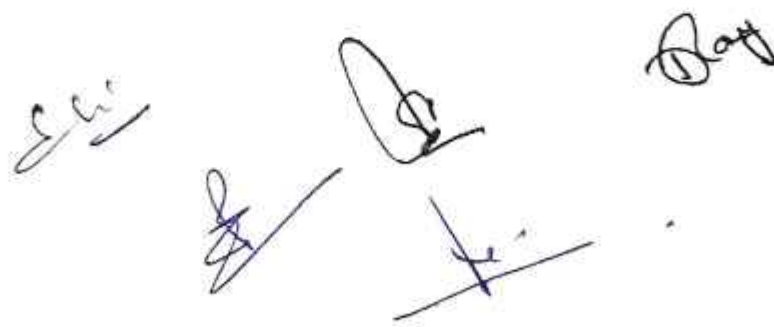
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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. II Semester Botany
 Basic Botany
 Paper—II MAJOR/MINOR
 Session 2023-24

Part A- INTRODUCTION			
Program: Certificate	Class: BSc II semester	Year: B.Sc. II Semester	Session: 2023-24
Subject: BOTANY			
1.	Course Code	S1-BOTA2T	
2.	Course Title	Basic Botany (Paper-2)	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)	Core Course	
4.	Pre-requisite (if any)	To study this course, a student must have had the subject botany in class 12th/certificate/diploma.	
5.	Course Learning Outcome (CLO)	On completion of this course the students will be able to: CO 1- understand the diversity of plants and evolutionary process in plant kingdoms. CO 2- understand an account of plant adaptations from aquatic condition to colonize terrestrial habitat. CO 3- investigate the changes in morphological, anatomical and reproductive structures that propel plant evolution. CO 4- understand the economic importance of plants in nature. CO 5- acquainted with locally prevalent microbial diseases of plants and humans.	
6.	Credit Value	4 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35



Theory

Part B- Content of the Course		
Total No. of Lectures- 60		Tutorials- 0 Practical =0 (theory 4 hours per week):
L-T-P:		
UNIT	TOPIC	No. of Lectures
I	1.1 History of Botany and Indian Contributions. 1.2 Morphological Characteristics of lower and higher plants(Angiosperms). 1.3 Types of leaves, Inflorescence, Flowers and Fruits. 1.4 Structure of Plant cell and cell organelles, Prokaryotic and Eukaryotic Cells, types of Cell division. 1.5 Microscope structure and function of light microscope (magnification and resolving power), 1.6 Various types of Microscopes: Bright field, Phase Contrast, SEM and TEM. <i>Fluorescent microscopy</i>	12
II	1. Algae 1.1 General characteristics 1.2 Range of thallus organization, reproduction. 1.3 Types of life-cycles in algae 1.4 Role of algae in nature and its economic importance. 2. Bryophytes : 2.1 General characteristics, Ecology. 2.2 Range of thallus organization, morphology, anatomy(internal and external features) and reproduction of any one Bryophyte. 2.3 Economic importance of Bryophytes	12
III	1. Pteridophytes 1.1 General characteristics and morphology. 1.2 Stellar organization and reproduction. 1.3 Heterospory and seed habit. 1.4 Economical importance 2. Gymnosperms 2.1 General description and their distribution. 2.2 Economical importance of Gymnosperms. 3. Paleobotany 3.1 Indian contribution in Paleobotany. 3.2 Brief knowledge of Fossils and Geological time scale.	12
IV	1. Fungi 1.1 General characteristics and cell wall composition. 1.2 Mode of nutrition 1.3 Types of reproduction 1.4 Economic importance	12



	1.5 Parasexuality and Mycorrhiza 2. Lichens: Brief knowledge and their significance.	
V	1. Microbes 1.1 Brief outline of various types of Microbes 1.2 Archaeobacteria, Eubacteria, Cyanobacteria, Mycoplasma, Actinomycetes and Virus. 1.3 Beneficial and harmful roles.	12

Keywords/Tags: History of Botany, Paleobotany, Prokaryotes, Eukaryotes, Algae, Bryophyta, Pteridophyta, Gymnosperms, Fungi, Mycorrhiza, Lichens, Bacteria, Virus

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Oladele Ogunseitan, Microbial Diversity: Form and Function in Prokaryotes, Wiley Blackwell, 2008.
2. Pelczar, M.J et al., Microbiology, Tata McGraw-Hill Co, New Delhi, 5th edition, 2001.
3. Presscott, L. Harley, J. and Klein, D., Microbiology, Tata McGraw-Hill Co. New Delhi, 6th edn., 2005.
4. Fritsch F.E., The Structure & Reproduction of Algae, Vol. I & Vol. II., Cambridge University Press, Cambridge, U.K. 1945.
5. Smith, G.M., Cryptogamic Botany, Vol. I: Algae, Fungi, & Lichens, McGraw-Hill Book Co., New York, 1955.
6. Tan Morris, An Introduction to the Algae, Hutchinson, London, 1967.
7. Alexopoulos, C.J., Mims, C.W. and Blackwell, M., Introductory Mycology, John Wiley and Sons, 1996.
8. Webster, J., Introduction to Fungi, Cambridge University Press 2nd edn., 1999.
9. Cavers F., The inter-relationships of the Bryophyta, The New Phytologist, Indian Reprint, Vol.10, issue 1-2, p. 1-21, 1911.
10. Parihar, N.S., An Introduction to Embryophyta: Bryophyte, Vol.I, Central Book Depot, Allahabad, 1965.
11. Watson, E.V., British Mosses and Liverworts, Cambridge University Press, U.K, 1968.
12. Eames, A.J., Morphology of Vascular Plants: Lower Groups, McGraw Hill, N.Y., 1936.
13. Parihar, N.S., An Introduction to Embryophyta: Pteridophyte, Vol.II, Central Book Depot, Allahabad, 1965.
14. Sporne, K.R., The Morphology of Pteridophytes: The Structure of Ferns and Allied Plants, Hutchinson University Library, London, 1970.
15. Bierhorst, D.W., Morphology of Vascular Plants, The MacMillan Co., N.Y. and Collier MacMillan Ltd., London, 1971.
16. Coulter, J.M. and C.J. Chamberlain, Morphology of Gymnosperms, Central Book Depot, Allahabad, 1964.
17. Sporne, K.R., The Morphology of Gymnosperms: The Structure and Evolution of Primitive seed Plants, Hutchinson University Library, London, 1971.
18. Dutta, S.C., An introduction to Gymnosperms, Kalyani Publishers, New Delhi, 1984.
19. Sharma, O.P and Shivani Dixit, Gymnosperms, Pragati Prakashan, Meerut, 2015.
20. Vasishtha, P.C., Botany for Degree students: Gymnosperms, revised edn., S. Chand and



Comp. Ltd., N. Delhi, 2018.

21. Bhatnagar, S.P. and Alok Moitra, Gymnosperms, New age International (P.) Ltd., New Delhi, 2000.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment : Continuous Comprehensive Evaluation (CCE):40	Class Test Assignment/Presentation Total	15 25 40
External Assessment : University Exam Section: 60 Time: 02:00 Hours	Section(A): Three very short Questions (50 Words Each) Section(B): Three short Questions (200 Words Each) Section(C): Three Long Questions (500 Words Each)	TOTAL= 60

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St. Aloysius' College (Autonomous) Jabalpur, M.P.

Department of Microbiology

B.Sc. II Semester Botany

Basic Botany

Paper— MINOR / MAJOR

Session 2023-24

PRACTICAL

Part A- INTRODUCTION			
Program: Certificate	Class: BSc II Semester	Year: B.Sc. II Semester	Session: 2023-24
Subject: BOTANY PRACTICAL			
1.	Course Code	S1-BOTA2P	
2.	Course Title	Basic Botany Practical (Paper-2)	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)	Core Course	
4.	Pre-requisite (if any)	To study this course, a student must have had the subject of Biology/Life Science/Agriculture in class 12th.	
5.	Course Learning Outcome (CLO)	<ul style="list-style-type: none"> Students will learn to carry out practical work in the laboratory. Interpreting plant morphology and anatomy of various groups of lower and higher plants. Students will be able to identify the major groups of microorganisms. 	
6.	Credit Value	2 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures- 30		Tutorials- 0 Practical (2 hours per week):	
L-T-P:			
UNIT	TOPIC	No. of Practical	
I to V	1. Study of various types of leaves , inflorescence, Flowers and fruits. 2. Understanding various parts of Microscope(simple and compound microscope) 3. Study of plant cells (e.g. Onion etc.) 4. Study of permanent slides of Mitosis and meiosis 5. Study of Electron Micrographs of Cell and organelles from Internet, You -Tube. 6. Identification of various algae from specimens, slides and temporary mounts of water from nearby areas like, <i>Nostoc</i> , <i>Oscillatoria</i> , <i>Volvox</i> , <i>Spirogyra</i> , <i>Oedogonium</i> , <i>Chara</i> , and specimens and pictographs of marine algae like <i>Ectocarpus</i> , <i>Sargassum</i> , <i>Polysiphonia</i> .	30	

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	<p>7. Study and identification of some Bryophytes like <i>Riccia</i>, <i>Marchantia</i>, <i>Anthoceros</i>, <i>Funaria</i> and Field visit. 8. Study of some fossils (specimens and slides)</p> <p>9. Study of some Pteridophytes like <i>Lycopodium</i>, <i>Sellaginella</i>, <i>Equisetum</i>, <i>Marselia</i> and study of any one fern.</p> <p>10. Section cutting of Pteridophytes and Gymnosperms: Stem, root and leaves.</p> <p>11. Specimen study of Pteridophytes and Gymnosperms Cones.</p> <p>12. Study of fungal structures and preparation of temporary mounts of <i>Mucor</i>, <i>Rhizopus</i>, <i>Asperigillus</i>, <i>Yeast</i>, <i>Pencillium</i>, <i>Alternaria</i>, <i>Albugo</i>, <i>Helimentosporium</i>.</p> <p>13. Permanent slides of <i>Puccinia</i> on host.</p> <p>14. Study of various fungal plant diseases.</p> <p>15. Observation of symptoms of virus and bacteria on plants.</p> <p>16. Gram staining techniques.</p>	
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Keywords/Tags: Microscope, Algae, Bryophyta, Pteridophyta, Gymnosperm, Fungi.

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Bendre Ashok and Ashok Kumar, A Textbook of Practical Botany, , vol. 1, Rastogi Pub., Meerut, 1984. 2. Pandey B.P Modern Practical Botany,, vol. 1, S. Chand and Co. Ltd., N. Delhi, 17th edn., 1999.
3. Singh M.P., Chaudhary S.B. and Sahu H. BA Textbook of Practical Botany, Daya Pub. House, N. Delhi, 2005.
4. Shahezad, Akil Mohd., Practical Botany, Shanti Prakashan, Gwalior, 2016.
5. Elizabeth Margaret and Angela G Practical manual of Botany, vol.I, New Age (Pub.) Ltd., Delhi, 2007.

Part D- Assessment and Evaluation

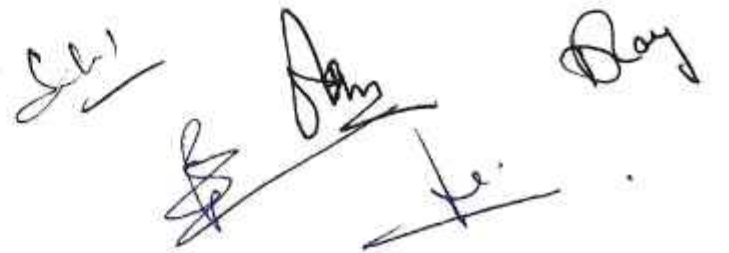
Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/ Quiz	10	Viva Voice on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit)	20	Table work/ Experiments	50
		Major Exercise 20 marks, Two minor exercise 10 marks each, spotting 10 marks	
TOTAL	40		60

St. Aloysius' College (Autonomous), Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. II Semester Botany
 Basic Botany
 Paper—MAJOR/MINOR
 Session 2023-24

वनस्पतिविज्ञान सैद्धांतिक प्रश्नपत्र के पाठ्यक्रम

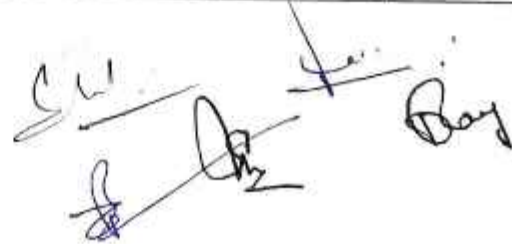
भागअ- परिचय			
कार्यक्रम: प्रमाणपत्र	कक्षा: द्वितीय सेमेस्टर	वर्ष: B.Sc. II Semester	सत्र: 2023-24
विषय: वनस्पतिशास्त्र			
1. पाठ्यक्रम का कोड	S1-BOTA2T		
2. पाठ्यक्रम का शीर्षक	आधारभूत वनस्पतिशास्त्र (प्रश्नपत्र 2)		
3. पाठ्यक्रम का प्रकार :(कोरकोर्स/इलेक्टिव/जेनेरिक इलेक्टिव/वोकेशनल/.....)	कोर कोर्स		
4. पूर्वापेक्षा (Pre-requisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने वनस्पतिविज्ञान/ जीवविज्ञान/ विषय से कक्षा 12वीं अध्ययन किया हो।		
5. पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<p>इस पाठ्यक्रम के अंत तक छात्र :</p> <p>CO 1 - पादपों की विविधता, पादप जगत में विकासवादी प्रक्रिया को समझ सकेगा।</p> <p>CO 2 - जलीय से सस्थलीय आवास की स्थापना के लिए पादप के अनुकूलन का विवरण समझ सकेगा।</p> <p>CO 3 - पादप के विकास को बढ़ावा देने वाले आकारिकी, अन्तरिक और बाहरी संरचना एवं प्रजनन संरचनाओं में परिवर्तन की जाँच लगा सकेगा।</p> <p>CO 4 - प्रकृति में पादप के आर्थिक महत्व को समझ सकेगा।</p> <p>CO 5 - पादपों और मानव में सूक्ष्मजीव जनित रोगों से परिचित हो सकेगा।</p>		
6. क्रेडिट मान	कुल क्रेडिट = 4		
7. कुल अंक	अधिकतम अंक: 40 + 60	न्यूनतम उत्तीर्ण अंक: 35	







भाग ब- पाठ्यक्रम की विषयवस्तु		
व्याख्यानो की कुल संख्या- 60		ट्यूटोरियल- 0 प्रैक्टिकल =0 (सिद्धांतिक प्रति सप्ताह 4 घंटे):
एल-टी-पी:		
इकाई	विषय	व्याख्यान की संख्या
I	<p>1.1 वनस्पति विज्ञान और भारतीय योगदान का इतिहास।</p> <p>1.2 निम्नपादप और उच्चपादप (आवृतबीजी) की आकारिकी।</p> <p>1.3 पत्तियों के प्रकार, पुष्पक्रम, पुष्प और फल।</p> <p>1.4 पादप कोशिका और कोशिकांग संरचना- प्रोकैरियोटिक और यूकेरियोटिक कोशिकाएं। कोशिका विभाजन के प्रकार।</p> <p>1.5 सूक्ष्मदर्शी संरचना और प्रकाश सूक्ष्मदर्शी का कार्य (आवर्धन और विभेदन क्षमता)</p> <p>1.6 विभिन्न प्रकार के सूक्ष्मदर्शी: ब्राइट क्षेत्र सूक्ष्मदर्शी, फेस कोन्ट्रास्ट, SEM और TEM.</p>	12
II	<p>1. शैवाल</p> <p>1.1 सामान्य विशेषताएं</p> <p>1.2 संगठन और प्रजनन</p> <p>1.3 जीवन-चक्र के प्रकार,</p> <p>1.4 प्रकृति में शैवाल की भूमिका और आर्थिक महत्व।</p> <p>2. ब्रायोफाइट्स</p> <p>2.1 सामान्य विशेषताएं</p> <p>2.2 पारिस्थितिकी, थैलस संगठन, आकारिकी, आंतरिक और बाहरी संरचना और किसी भी एक ब्रायोफाइट्स का प्रजनन।</p> <p>2.3 ब्रायोफाइट्स का आर्थिक महत्व</p>	12
III	<p>1. टेरिडोफाइट्स</p> <p>1.1 सामान्य विशेषताएं और आकारिकी।</p> <p>1.2 रम्भ-तन्त्र संगठन और प्रजनन।</p> <p>1.3 विषमबीजाणुता और बीज स्वभाव।</p> <p>1.4 आर्थिक महत्व।</p> <p>2. अनावृतबीजी</p> <p>2.1 सामान्य विवरण और वितरण।</p>	12



	2.2 आर्थिक महत्व। 3. जीवाण्वीय वनस्पति विज्ञान (पैलियोबोटनी) 3.1 भारतीय योगदान। 3.2 जीवाणुओं का संक्षिप्त ज्ञान और भू वैज्ञानिक समय सारणी।	
IV	1. कवक 1.1 सामान्य विशेषताएँ 1.2 कोशिका भित्ति की संरचना और पोषण का तरीका 1.3 प्रजनन के प्रकार 1.4 आर्थिक महत्व। 1.5 पैरासेक्सुअलिटी, कवकमूल 2. लाइकेन और उनके महत्व का संक्षिप्त ज्ञान।	12
V	1. सूक्ष्मजीव 1.1 संक्षिप्त रूपरेखा 1.2 सूक्ष्म जीवों के प्रकार, आर्किबैक्टीरिया, यूक्वैरिया, साइनोबैक्टीरिया, माइकोप्लाज्मा, एक्टिनोमाइसेटीस और विषाणु। 1.3 लाभकारी और हानिकारक भूमिकाएँ।	12
सार बिंदु (कीवर्ड)/टैग: वनस्पति विज्ञान का इतिहास, जीवाणु वनस्पति विज्ञान, प्रोकैरियोट्स, यूकेरियोट्स, शैवाल, बायोफाइट, टेरिडोफाइट, अनावृतबीजी, कवक, माइकोराइजा, लाइकेन, बैक्टीरिया, विषाणु।		
भाग स- अनुशंसित अध्ययन संसाधन		
पाठ्यपुस्तकें, संदर्भपुस्तकें, अन्य संसाधन		
अनुशंसित सहायक पुस्तकें/ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्यसामग्री:		
1. ओलाडेलओगनसेटन, Microbial Diversity: Form and Function in Prokaryotes, विलेब्लैकवेल, अमरीका, 2008.		
2. पेलजार, एम. जे. एटअल., माइक्रोबायोलॉजी, टाटामैकग्रॉ-हिलकंपनी, नईदिल्ली, 5th edn., 2001.		
3. प्रेसकॉट, एलहार्ले, जे औरक्लीन, डी, माइक्रोबायोलॉजी, टाटामैकग्रॉ-हिलकंपनी, नईदिल्ली, 6th edn., 2005.		
4. फ्रिट्सचएफ.ई., The Structure & Reproduction of Algae, Vol. I & Vol. II, केंब्रिजयूनिवर्सिटी प्रेस, केंब्रिज, यूके, 1945.		
5. स्मिथ, जी. एम., Cryptogamic Botany, Vol. I: Algae, Fungi, & Lichens, मैकग्रॉ-हिल बुककंपनी, न्यूयार्क,		



1956. 6. इयानगोरिस, An Introduction to the Algae, हचिनसनविश्वविद्यालयपुस्तकालय, लंदन, 1967.
7. एलेक्सोपोलोस, सी. जे., मीग्स, सी. डब्ल्यू. औरब्लैकवेल, एम., Introductory Mycology, जॉनविलेएंडडंस, अमरीका, 1996.
8. वेबस्टर, जे., Introduction to Fungi, केंब्रिजविश्वविद्यालयप्रेस, यू. के., 2nd edn., 1999.
9. कैवर्सएफ., The inter-relationships of the Bryophyte, न्यूफाइटोलॉजिस्ट, भारतीयपुनर्मुद्रण, Vol.10, issue 1-2, p. 1-21, 1911.
10. परिहार, एन.एस., An Introduction to Embryophyta: Bryophyte, Vol. I, सेंट्रलबुकडिपो, इलाहाबाद, 1965.
11. वाटसन, ई. वी., British Mosses and Liverworts, केंब्रिजविश्वविद्यालयप्रेस, यू. के., 1968.
12. ईम्स, ए. जे., Morphology of Vascular Plants: Lower Groups, मैकग्रॉ-हिलबुककंपनी, न्यूयार्क, 1936. 13. परिहार, एन.एस., An Introduction to Embryophyta: Pteridophyte, Vol. II, सेंट्रलबुकडिपो, इलाहाबाद, 1965.
14. स्पोर्न, के. आर., The Morphology of Pteridophytes: The Structure of Ferns and Allied Plants, हचिनसनविश्वविद्यालयपुस्तकालय, लंदन, 1970.
15. बिएरहोस्ट, डी. डब्ल्यू., Morphology of Vascular Plants, मैकमिलनकंपनी, न्यूयॉर्क और कोलियर मैकमिलन लिमिटेड, लंदन, 1971.
16. कोल्टर, जे. एम. और सी. जे. चेम्बरलिन, Morphology of Gymnosperms, सेंट्रलबुकडिपो, इलाहाबाद, 1964.
17. स्पोर्न, के. आर., The Morphology of Gymnosperms: The Structure and Evolution of Primitive seed Plants, हचिनसनविश्वविद्यालयपुस्तकालय, लंदन, 1971.
18. दत्ता, एस. सी., An introduction to Gymnosperms, कल्याणीप्रकाशक, नईदिल्ली, 1984.
19. शर्मा, ओ. पी. और शिवानी दीक्षित, Gymnosperms, प्रगतिप्रकाशन, मेरठ, 2015.
20. वशिष्ठ, पी. सी., Botany for Degree students: Gymnosperms, revised edn., एस. चांद एंड कॉ. लिमिटेड, नईदिल्ली, 2018.
21. भटनागर, एस. पी. और आलोक मोड़ना, Gymnosperms, न्यूएज इंटरनेशनल (पी.) लिमिटेड, नईदिल्ली, 2000.

Swi





भाग द -अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियां:

अधिकतमअंक: 100

सतत व्यापक मूल्यांकन (CCE) अंक : 40

विश्वविद्यालयीनपरीक्षा (UE) अंक: 60

आंतरिक मूल्यांकन: सततव्यापकमूल्यांकन (CCE): 40	कलासटेस्ट असाइनमेंट/प्रस्तुतीकरण (प्रेजेंटेशन)	15 25 कुलअंक = 40
आकलन : विश्वविद्यालयीनपरीक्षा: 60 समय- 02.00 घंटे	अनुभाग (अ): तीन अति लघु प्रश्न (प्रत्येक 50 शब्द) अनुभाग (ब): तीन लघु प्रश्न (प्रत्येक 200शब्द) अनुभाग (स): तीन दीर्घ उत्तरीय प्रश्न (प्रत्येक 500 शब्द)	कुल अंक =60

Signature
Signature
Signature

St. Aloysius' College (Autonomous), Jabalpur, M.P.

Department of Microbiology

B.Sc. II Semester Botany

Basic Botany

Paper— MAJOR/MINOR

Session 2023-24

प्रायोगिक प्रश्न पत्र

भागअ- परिचय			
कार्यक्रम: प्रमाणपत्र	कक्षा: द्वितीय वर्ष	वर्ष: B.Sc. II Semester	सत्र: 2023-24
विषय: वनस्पति शास्त्र			
1.	पाठ्यक्रम का कोड	S1-BOTA2P	
2.	पाठ्यक्रम का शीर्षक	आधारभूत वनस्पति शास्त्र (प्रश्नपत्र 2)	
3.	पाठ्यक्रम का प्रकार :(कोरकोर्स/इलेक्टिव/जेनेरिकइलेक्टिव/वोकेशनल/.....)	कोरकोर्स	
4.	पूर्वापेक्षा (Pre-requisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने वनस्पति विज्ञान/ जीवविज्ञान/ विषय से कक्षा 12 वीं अध्ययन किया हो।	
5.	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<ul style="list-style-type: none">• विद्यार्थी प्रयोगशाला में व्यावहारिक कार्य करना सीखेंगे।• निम्न पादप और उच्च पादप के विभिन्न समूहों के अन्तरिक और बाहरी संरचना की व्याख्या करना।• विद्यार्थी सूक्ष्म जीवों के प्रमुख समूहों की पहचान करने में सक्षम होंगे।	
6.	क्रेडिट मान	2 क्रेडिट (प्रायोगिक)	
7.	कुल अंक	अधिकतम अंक: 40+60	न्यूनतम उत्तीर्ण अंक: 35

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भाग ब- पाठ्यक्रम की विषयवस्तु

व्याख्यानोकी कुल संख्या- 30 घंटे ट्यूटोरियल- 0 प्रैक्टिकल (प्रति सप्ताह 02 घंटे):

एल-टी-पी:

इकाई	विषय	व्याख्यानकी संख्या
1-5	<p>1. विभिन्न प्रकार की पत्तियों, पुष्पक्रमों, पुष्प और फलों का अध्ययन।</p> <p>2. सूक्ष्मदर्शी के विभिन्न भागों को समझना (सरल और संयुक्त सूक्ष्मदर्शी)।</p> <p>3. पादप कोशिकाओं का अध्ययन (जैसे- प्याज की कोशिका आदि)।</p> <p>4. समसूत्री विभाजन और अर्ध सूत्री विभाजन की स्थायी स्लाइडों का अध्ययन।</p> <p>5. इंटरनेट, यू-ट्यूब से पादप कोशिका और कोशिकांग के इलेक्ट्रॉन माइक्रोग्राफ का अध्ययन।</p> <p>6. स्थाई स्लाइड और आस-पास के क्षेत्रों से पानी के अस्थायी माउंट से विभिन्न शैवाल की पहचान जैसे, नोस्टॉक, ओसीलेटोरिया, वॉलवॉक्स, स्पाइरोगाइरा, ऊडोगोनियम, कारा, और नमूने जैसे समुद्री शैवाल के पिक्टोग्राफ और एक्टोकार्पस, सरगासम, पॉलीसाईफोनिया का अध्ययन।</p> <p>7. कुछ ब्रायोफाइट्स का अध्ययन और पहचान जैसे रिक्सिया, मार्केन्शिया, ऐंथोसिरोस, फ्यूनेरिया और फील्ड अध्ययन।</p> <p>8. कुछ जीवाश्मों का अध्ययन (प्रदर्शों और स्लाइड)।</p> <p>9. कुछ टेरिडोफाइट का अध्ययन जैसे लाइकोपोडियम, सिलेजिनेला, इक्विसेटम, मार्सेलिया और किसी भी एक फर्न का अध्ययन।</p> <p>10. टेरिडोफाइट्स और जिम्नोस्पर्म: तना, जड़ और पत्तियों का अनुप्रस्थ काट का अध्ययन।</p> <p>11. टेरिडोफाइट्स और जिम्नोस्पर्म के शंकु का अध्ययन।</p>	30

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12. कवकीय संरचनाओं का अध्ययन और अस्थायी स्लाइड का अध्ययन: म्यूकर, राइजोपस, एस्परजिलस, यीस्ट, पेनिसिलियम, अल्टरनेरिया, अल्बूगो, हेलिमेंथोस्पोरियम।
13. पोषक पर पकसीनिया की स्थायी स्लाइड का अध्ययन।
14. विभिन्न कवकीय पौधों के रोगों का अध्ययन।
15. पौधों पर विषाणु, जीवाणु के लक्षणों का अवलोकन।
16. ग्राम अभिरंजन तकनीक।

सारबिंदु (कीवर्ड)/टैग: सूक्ष्मदर्शी, शैवाल, ब्रायोफाइटा, टेरिडोफाइटा, जिम्नोस्पर्म, कवक।

भाग स- अनुशंसित अध्ययन संसाधन

पाठ्यपुस्तकें, संदर्भपुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें/ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

1. बेंद्रे अशोक और अशोक कुमार, A Textbook of Practical Botany, vol. 1, रस्तोगी प्रकाशन, मेरठ, 1984.
2. पांडे बी. पी. Modern Practical Botany ,, vol. 1, एस. चांद एंड कंपनी लिमिटेड, नई दिल्ली, - 17वीं edn., 1999
3. सिंह म. प., चौधरी एस. बी और साहू एच. बी., A Textbook of Practical Botany, दया प्रकाशन हाउस, नई दिल्ली, 2005.
4. शहाजाद अकिल मोहम्मद, Practical Botany शांति प्रकाशन, ग्वालियर, 2016.
5. एलिजाबेथ मार्गरेट और एंजेला जी., Practical manual of Botany, vol.1, न्यूएज प्रकाशन लिमिटेड, दिल्ली, 2007.

अनुशंसित डिजिटल प्लेटफॉर्म वेबलिक--

अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम:-

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भाग द -अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियां:

आंतरिकमूल्यांकन	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद /प्रश्नोत्तरी	10	प्रायोगिक मौखिकी (वायवा)	05
उपस्थिति	10	प्रायोगिक रिकॉर्ड फाइल	05
असाइनमेंट (चार्ट/मॉडल/सेमिनार/ग्रामीणसेवा/प्रौद्योगिकीप्रसा र/भ्रमण (कस्कर्शन) कीरिपोर्ट/सर्वेक्षण/प्रयोगशालाभ्रमण (लैबविजिट)/औद्योगिक यात्रा	20	टेवल बर्क/प्रयोग	50
कुल अंक	40		60

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Department of Microbiology

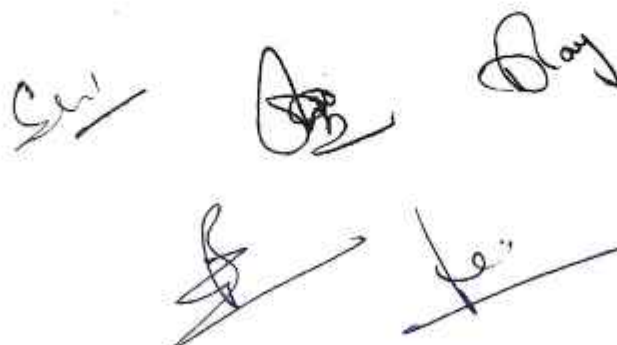
B.Sc. II Semester Botany

Basic Botany

Paper— Elective

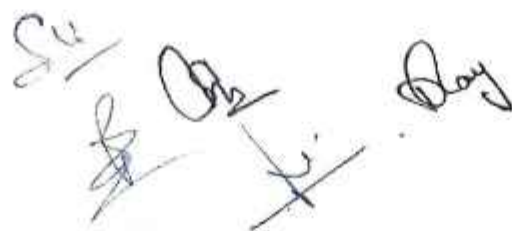
Session 2023-24

Part A- INTRODUCTION			
Program: Certificate		Class: BSc II semester	Year: B.Sc. II Semester
Session: 2023-24			
Subject: BOTANY			
1.	Course Code	S1-BOTA2T	
2.	Course Title	Basic Botany (Paper-2)	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)	Elective Course	
4.	Pre-requisite (if any)	To study this course, a student must have had the subject botany in class 12th/certificate/diploma.	
5.	Course Learning Outcome (CLO)	On completion of this course the students will be able to: CO 1- understand the diversity of plants and evolutionary process in plant kingdoms. CO 2- understand an account of plant adaptations from aquatic condition to colonize terrestrial habitat. CO 3- investigate the changes in morphological, anatomical and reproductive structures that propel plant evolution. CO 4- understand the economic importance of plants in nature.	
6.	Credit Value	3 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35



Theory

Part B- Content of the Course		
Total No. of Lectures- 60		Tutorials- 0 Practical =0 (theory 4 hours per week):
L-T-P:		
UNIT	TOPIC	No. of Lectures
I	1.1 History of Botany and Indian Contributions. 1.2 Morphological Characteristics of lower and higher plants(Angiosperms). 1.3 Types of leaves, Inflorescence, Flowers and Fruits. 1.4 Structure of Plant cell and cell organelles, Prokaryotic and Eukaryotic Cells, types of Cell division. 1.5 Microscope structure and function of light microscope (magnification and resolving power), 1.6 Various types of Microscopes: Bright field, Phase Contrast, SEM and TEM. <i>Fluorescent microscopy</i>	12
II	1. Algae 1.1 General characteristics 1.2 Range of thallus organization, reproduction. 1.3 Types of life-cycles in algae 1.4 Role of algae in nature and its economic importance. 2. Bryophytes : 2.1 General characteristics, Ecology. 2.2 Range of thallus organization, morphology, anatomy(internal and external features) and reproduction of any one Bryophyte. 2.3 Economic importance of Bryophytes	12
III	1. Pteridophytes 1.1 General characteristics and morphology. 1.2 Stellar organization and reproduction. 1.3 Heterospory and seed habit. 1.4 Economical importance 2. Gymnosperms 2.1 General description and their distribution. 2.2 Economical importance of Gymnosperms. 3. Paleobotany 3.1 Indian contribution in Paleobotany. 3.2 Brief knowledge of Fossils and Geological time scale.	12
IV	1. Fungi 1.1 General characteristics and cell wall composition. 1.2 Mode of nutrition 1.3 Types of reproduction 1.4 Economic importance 1.5 Parasexuality and Mycorrhiza 2. Lichens: Brief knowledge and their significance.	9
Keywords/Tags: History of Botany, Paleobotany, Prokaryotes, Eukaryotes, Algae, Bryophyta, Pteridophyta, Gymnosperms, Fungi , Mycorrhiza, Lichens		

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Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Oladele Ogunseitan, Microbial Diversity: Form and Function in Prokaryotes, Wiley Blackwell, 2008.
2. Pelczar, M.J et al., Microbiology, Tata McGraw-Hill Co. New Delhi, 5th edition, 2001.
3. Prescott, L. Harley, J. and Klein, D., Microbiology, Tata McGraw-Hill Co. New Delhi, 6th edn., 2005.
4. Fritsch F.E., The Structure & Reproduction of Algae, Vol. I & Vol. II., Cambridge University Press, Cambridge, U.K. 1945.
5. Smith, G.M., Cryptogamic Botany, Vol. I: Algae, Fungi, & Lichens, McGraw-Hill Book Co., New York, 1955.
6. Tan Morris, An Introduction to the Algae, Hutchinson, London, 1967.
7. Alexopoulos, C.J., Mims, C.W. and Blackwell, M., Introductory Mycology, John Wiley and Sons, 1996.
8. Webster, J., Introduction to Fungi, Cambridge University Press 2nd edn., 1999.
9. Cavers F., The inter-relationships of the Bryophyta, The New Phytologist, Indian Reprint, Vol.10, issue 1-2, p. 1-21, 1911.
10. Parihar, N.S., An Introduction to Embryophyta: Bryophyte, Vol.I, Central Book Depot, Allahabad, 1965.
11. Watson, E.V., British Mosses and Liverworts, Cambridge University Press, U.K., 1968.
12. Eames, A.J., Morphology of Vascular Plants: Lower Groups, McGraw Hill, N.Y., 1936.
13. Parihar, N.S., An Introduction to Embryophyta: Pteridophyte, Vol.II, Central Book Depot, Allahabad, 1965.
14. Sporne, K.R., The Morphology of Pteridophytes: The Structure of Ferns and Allied Plants, Hutchinson University Library, London, 1970.
15. Bierhorst, D.W., Morphology of Vascular Plants, The MacMillan Co., N.Y. and Collier MacMillan Ltd., London, 1971.
16. Coulter, J.M. and C.J. Chamberlain, Morphology of Gymnosperms, Central Book Depot, Allahabad, 1964.
17. Sporne, K.R., The Morphology of Gymnosperms: The Structure and Evolution of Primitive seed Plants, Hutchinson University Library, London, 1971.
18. Dutta, S.C., An introduction to Gymnosperms, Kalyani Publishers, New Delhi, 1984.
19. Sharma, O.P and Shivani Dixit, Gymnosperms, Pragati Prakashan, Meerut, 2015.
20. Vasishtha, P.C., Botany for Degree students: Gymnosperms, revised edn., S. Chand and Comp. Ltd., N. Delhi, 2018.
21. Bhatnagar, S.P. and Alok Moitra, Gymnosperms, New age International (P.) Ltd., New Delhi, 2000.

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

Internal Assessment : Continuous Comprehensive Evaluation (CCE):	Class Test Assignment/Presentation Total	40
External Assessment : University Exam Section:	Section(A): MCQ Section(B): Three short Questions Section(C): Three Long Questions	Total = 60
Time: 02:00 Hours		

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Department of Microbiology

B.Sc. II Semester Botany

Basic Botany

Paper—E/Elective

Session 2023-24

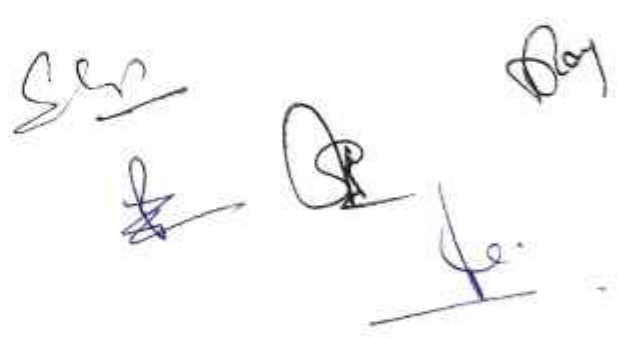
PRACTICAL

Part A- INTRODUCTION			
Program: Certificate	Class: BSc II Semester	Year: B.Sc. II Semester	Session: 2023-24
Subject: BOTANY PRACTICAL			
1.	Course Code	S1-BOTA2P	
2.	Course Title	Basic Botany Practical (Paper-2)	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)	Elective Course	
4.	Pre-requisite (if any)	To study this course, a student must have had the subject of Biology/Life Science/Agriculture in class 12th.	
5.	Course Learning Outcome (CLO)	<ul style="list-style-type: none"> Students will learn to carry out practical work in the laboratory. Interpreting plant morphology and anatomy of various groups of lower and higher plants. Students will be able to identify the major groups of microorganisms. 	
6.	Credit Value	1 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures- 30		Tutorials- 0 Practical (2 hours per week):	
L-T-P:			
UNIT	TOPIC		No. of Practical
I toIV	1. Study of various types of leaves , inflorescence, Flowers and fruits. 2. Understanding various parts of Microscope(simple and compound microscope) 3. Study of plant cells (e.g. Onion etc.) 4. Study of permanent slides of Mitosis and meiosis 5. Study of Electron Micrographs of Cell and organelles from Internet, You - Tube. 6. Identification of various algae from specimens, slides and temporary mounts of water from nearby areas like, <i>Nostoc</i> , <i>Oscillatoria</i> , <i>Volvox</i> , <i>Spirogyra</i> , <i>Oedogonium</i> , <i>Chara</i> , and specimens and pictographs of marine algae like <i>Ectocarpus</i> , <i>Sargassum</i> , <i>Polysiphonia</i> . 7. Study and identification of some Bryophytes like <i>Riccia</i> , <i>Marchantia</i> , <i>Anthoceros</i> , <i>Funaria</i> and Field visit. 8. Study of some fossils (specimens and slides) 9. Study of some Pteridophytes like <i>Lycopodium</i> , <i>Sellaginella</i> , <i>Equisetum</i> , <i>Marselia</i> and study of any one fern. 10. Section cutting of Pteridophytes and Gymnosperms: Stem, root and		15

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leaves. 11. Specimen study of Pteridophytes and Gymnosperms Cones. 12. Study of fungal structures and preparation of temporary mounts of <i>Mucor</i> , <i>Rhizopus</i> , <i>Asperigillus</i> , <i>Yeast</i> , <i>Pencillium</i> , <i>Alternaria</i> , <i>Albugo</i> , <i>Helimenthosporium</i> . 13. Permanent slides of <i>Puccinia</i> on host. 14. Study of various fungal plant diseases.	
Keywords/Tags: Microscope, Algae, Bryophyta, Pteridophyta, Gymnosperm, Fungi.	
Part C-Learning Resources	
Text Books, Reference Books, Other resources	
Suggested Readings:	
1. Bendre Ashok and Ashok Kumar, A Textbook of Practical Botany, , vol. 1, Rastogi Pub., Meerut, 1984. 2. Pandey B.P Modern Practical Botany,, vol. 1, S. Chand and Co. Ltd., N. Delhi, 17th edn., 1999.	
3. Singh M.P., Chaudhary S.B. and Sahu H. BA Textbook of Practical Botany, Daya Pub. House, N. Delhi, 2005.	
4. Shahezad, Akil Mohd., Practical Botany, Shanti Prakashan, Gwalior, 2016.	
5. Elizabeth Margaret and Angela G Practical manual of Botany, vol.I, New Age (Pub.) Ltd., Delhi, 2007.	

Part D- Assessment and Evaluation	
Suggested Continuous Evaluation Methods:	
External Assessment	Marks
Viva Voice on Practical	10
Practical Record File	10
Table work/ Experiments	80
Total	100



St. Aloysius' College (Autonomous), Jabalpur, M.P.

Department of Microbiology

B.Sc. II Semester Botany

Basic Botany

Paper—# / Elective

Session 2023-24

वनस्पतिविज्ञान सैद्धांतिक प्रश्नपत्र के पाठ्यक्रम

भागअ- परिचय

कार्यक्रम: प्रमाणपत्र	कक्षा: द्वितीय सेमेस्टर	वर्ष: B.Sc. II Semester	सत्र: 2023-24
विषय: वनस्पतिशास्त्र			
1. पाठ्यक्रम का कोड	S1-BOTA2T		
2. पाठ्यक्रम का शीर्षक	आधारभूत वनस्पतिशास्त्र (प्रश्नपत्र 2)		
3. पाठ्यक्रम का प्रकार :(कोरकोर्स/इलेक्टिव/जेनेरिकइलेक्टिव/वोकेशनल/.....)	इलेक्टिव कोर्स		
4. पूर्वापेक्षा (Pre-requisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने वनस्पतिविज्ञान/जीवविज्ञान/ विषय से कक्षा 12वीं अध्ययन किया हो।		
5. पाठ्यक्रम अध्ययन की परिभाषिकाएं (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के अंत तक छात्र : CO 1 - पादपों की विविधता, पादप जगत में विकासवादी प्रक्रिया को समझ सकेगा। CO 2 - जलीय से सस्थलीय आवास की स्थापना के लिए पादप के अनुकूलन का विवरण समझ सकेगा। CO 3 - पादप के विकास को बढ़ावा देने वाले आकारिकी, अन्तरिक और बाहरी संरचना एवं प्रजनन संरचनाओं में परिवर्तन की जाँच लगा सकेगा। CO 4 - प्रकृति में पादप के आर्थिक महत्व को समझ सकेगा।		
6. क्रेडिट मान	कुल क्रेडिट = 3		
7. कुल अंक	अधिकतम अंक: 40 + 60	न्यूनतम उत्तीर्ण अंक: 35	

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भाग ब पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या- 60

ट्यूटोरियल- 0 प्रैक्टिकल = 0 (शिद्धान्तिक प्रति सप्ताह 4 घंटे):

एल-टी-पी:

इकाई	विषय	व्याख्यान की संख्या
I	<p>1.1 वनस्पति विज्ञान और भारतीय योगदान का इतिहास।</p> <p>1.2 निम्नपादप और उच्चपादप (आवृतबीजी) की आकारिकी।</p> <p>1.3 पत्तियों के प्रकार, पुष्पक्रम, पुष्प और फल।</p> <p>1.4 पादप कोशिका और कोशिकांग संरचना- प्रोकैरियोटिक और यूकेरियोटिक कोशिकाएं। कोशिका विभाजन के प्रकार।</p> <p>1.5 सूक्ष्मदर्शी संरचना और प्रकाश सूक्ष्मदर्शी का कार्य (आवर्धन और विभेदन क्षमता)</p> <p>1.6 विभिन्न प्रकार के सूक्ष्मदर्शी: ब्राइट क्षेत्र सूक्ष्मदर्शी, फेस कोन ट्रास्ट, SEM और TEM.</p>	12
II	<p>1. शैवाल</p> <p>1.1 सामान्य विशेषताएं</p> <p>1.2 संगठन और प्रजनन</p> <p>1.3 जीवन-चक्र के प्रकार,</p> <p>1.4 प्रकृति में शैवाल की भूमिका और आर्थिक महत्व।</p> <p>2. ब्रायोफाइट्स</p> <p>2.1 सामान्य विशेषताएं</p> <p>2.2 पारिस्थितिकी, शैलस संगठन, आकारिकी, आंतरिक और बाहरी संरचना और किसी भी एक ब्रायोफाइट्स का प्रजनन।</p> <p>2.3 ब्रायोफाइट्स का आर्थिक महत्व</p>	12
III	<p>1. टेरिडोफाइट्स</p> <p>1.1 सामान्य विशेषताएं और आकारिकी।</p> <p>1.2 रन्ध्र-तन्त्र संगठन और प्रजनन।</p> <p>1.3 विषमबीजाणुता और बीज स्वभाव।</p> <p>1.4 आर्थिक महत्व।</p> <p>2. अनावृतबीजी</p> <p>2.1 सामान्य विवरण और वितरण।</p> <p>2.2 आर्थिक महत्व।</p> <p>3. जीवाण्मीय वनस्पति विज्ञान (पैलियोबोटनी)</p> <p>3.1 भारतीय योगदान।</p> <p>3.2 जीवाण्मीयों का संक्षिप्त ज्ञान और भू वैज्ञानिक समय सारणी।</p>	12

Handwritten signatures and initials in blue ink.

IV

1. कवक
- 1.1 सामान्य विशेषताएँ
- 1.2 कोशिका भित्ति की संरचना और पोषण का तरीका
- 1.3 प्रजनन के प्रकार
- 1.4 आर्थिक महत्व।
- 1.5 पैरासेक्सुअलिटी, कवकमूल
2. लाइकेन और उनके महत्व का संक्षिप्त ज्ञान।

सार बिंदु (कीवर्ड)/टैग: वनस्पति विज्ञान का इतिहास, जीवाश्म वनस्पति विज्ञान, प्रोकैरियोट्स, यूकेरियोट्स, शैवाल, ब्रायोफाइट, टेरिडोफाइट, अनावृतबीजी, कवक, माइकोराइजा, लाइकेन, बैक्टीरिया, विषाणु।

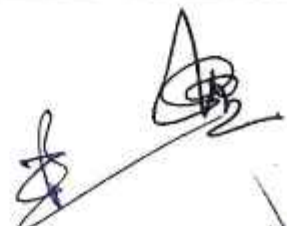
भाग स- अनुशासित अध्ययन संसाधन


पाठ्यपुस्तकें, संदर्भपुस्तकें, अन्य संसाधन


अनुशासित सहायक पुस्तकें/ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्यसामग्री:

1. ओलाडेल ओगनसेटन, Microbial Diversity: Form and Function in Prokaryotes, विलेब्लैकवेल, अमरीका, 2008.
2. पेल्जार, एम. जे. एटअल., माइक्रोबायोलॉजी, टाटामैकगॉ-हिलकंपनी, नईदिल्ली, 5th edn., 2001.
3. प्रेसकॉट, एलहार्ने, जे औरक्लीन, डी, माइक्रोबायोलॉजी, टाटामैकगॉ-हिलकंपनी, नईदिल्ली, 6th edn., 2005.
4. फ्रिट्सचएफ.ई., The Structure & Reproduction of Algae, Vol. I & Vol. II, केंब्रिजयूनिवर्सिटी प्रेस, केंब्रिज, यूके, 1945.
5. स्मिथ, जी. एम., Cryptogamic Botany, Vol. I: Algae, Fungi, & Lichens, मैकगॉ-हिल बुककंपनी, न्यूयार्क, 1955.
6. इयानमॉरिस, An Introduction to the Algae, हचिनसनविश्वविद्यालयपुस्तकालय, लंदन, 1967.
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8. वेबस्टर, जे., Introduction to Fungi, केंब्रिजविश्वविद्यालयप्रेस, यू.के., 2nd edn., 1999.
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10. परिहार, एन.एस., An Introduction to Embryophyta: Bryophyte, Vol. I, सेंट्रलबुकडिपो, इलाहाबाद, 1965.
11. वाटसन, ई.वी., British Mosses and Liverworts, केंब्रिजविश्वविद्यालयप्रेस, यू.के., 1968.
12. ईम्स, ए.जे., Morphology of Vascular Plants: Lower Groups, मैकगॉ-हिलबुककंपनी, न्यूयार्क, 1936.
13. परिहार, एन.एस., An Introduction to Embryophyta: Pteridophyte, Vol. II, सेंट्रलबुकडिपो, इलाहाबाद, 1965.
14. स्पॉर्न, के. आर., The Morphology of Pteridophytes: The Structure of Ferns and Allied Plants, हचिनसनविश्वविद्यालयपुस्तकालय, लंदन, 1970.
15. बिएरहोस्ट, डी. डब्ल्यू., Morphology of Vascular Plants, मैकमिलनकंपनी, न्यूयॉर्क और कोलियर मैकमिलन लिमिटेड, लंदन, 1971.
16. कोल्टर, जे.एम. और सी. जे. चेम्बरलिन, Morphology of Gymnosperms, सेंट्रलबुकडिपो, इलाहाबाद,

SW







1964.

17. स्पोर्न, के. आर., The Morphology of Gymnosperms: The Structure and Evolution of Primitive seed Plants. हचिनसनविश्वविद्यालयपुस्तकालय, लंदन, 1971.
18. दत्ता, एस. सी., An introduction to Gymnosperms, कल्याणीप्रकाशक, नईदिल्ली, 1984.
19. शर्मा, ओ. पी. और शिवानी दीक्षित, Gymnosperms, प्रगतिप्रकाशन, मेरठ, 2015.
20. वशिष्ठ, पी. सी., Botany for Degree students: Gymnosperms, revised edn., एस. चांद एंड कॉ. लिमिटेड, नईदिल्ली, 2018.
21. भटनागर, एस. पी. और आलोक मोड़वा, Gymnosperms, न्यू एज इंटरनेशनल (पी.) लिमिटेड, नईदिल्ली, 2000.

भाग द - अनुशंसित मूल्यांकन विधियां:

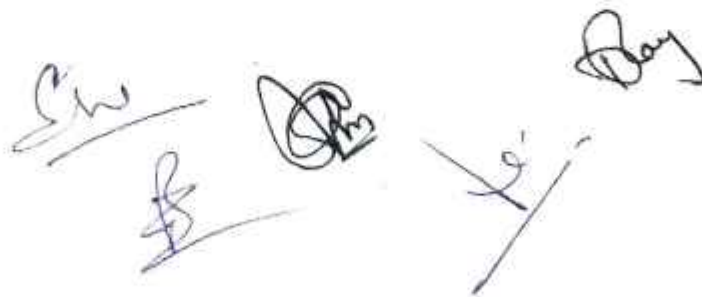
अनुशंसित सतत मूल्यांकन विधियां:

अधिकतम अंक: 100

सतत व्यापक मूल्यांकन (CCE) अंक: 40

विश्वविद्यालयीन परीक्षा (UE) अंक: 60

आंतरिक मूल्यांकन: सतत व्यापक मूल्यांकन (CCE): 40	क्लास टेस्ट असाइनमेंट/प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक = 40
आकलन: विश्वविद्यालयीन परीक्षा: 60 समय- 02.00 घंटे	अनुभाग (अ): एम सी क्यू अनुभाग (ब): तीन लघु प्रश्न अनुभाग (स): तीन दीर्घ उत्तरीय प्रश्न	कुल अंक = 60



St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Microbiology
 B.Sc. II Semester Botany
 Basic Botany
 Paper—M/ Elective
 Session 2022-23
 प्रायोगिक प्रश्न पत्र

भागअ- परिचय			
कार्यक्रम: प्रमाणपत्र	कक्षा: द्वितीय वर्ष	वर्ष: B.Sc. II Semester	सत्र: 2023-24
विषय: वनस्पति शास्त्र			
1.	पाठ्यक्रम का कोड	S1-BOTA2P	
2.	पाठ्यक्रम का शीर्षक	आधारभूत वनस्पति शास्त्र (प्रश्नपत्र 2)	
3.	पाठ्यक्रमकाप्रकार :(कोरकोर्स/इलेक्टिव/जेनेरिकइलेक्टिव/वोकेशनल/.....)	इलेक्टिव कोर्स	
4.	पूर्वापेक्षा (Pre-requisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने वनस्पति विज्ञान/जीवविज्ञान/ विषय से कक्षा 12 वीं अध्ययन किया हो।	
5.	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<ul style="list-style-type: none"> • विद्यार्थी प्रयोगशाला में व्यावहारिक कार्य करना सीखेंगे। • निम्न पादप और उच्च पादप के विभिन्न समूहों के अन्तरिक और बाहरी संरचना की व्याख्या करना। • विद्यार्थी सूक्ष्म जीवों के प्रमुख समूहों की पहचान करने में सक्षम होंगे। 	
6.	क्रेडिटमान	1 क्रेडिट (प्रायोगिक)	
7.	कुल अंक	अधिकतम अंक: 40+60	न्यूनतम उत्तीर्ण अंक: 35





भाग ब- पाठ्यक्रम की विषयवस्तु

व्याख्यानोकी कुल संख्या- 30 घंटे ट्यूटोरियल- 0 प्रैक्टिकल (प्रति सप्ताह 02 घंटे):

एल-टी-पी:

इकाई	विषय	व्याख्यान की संख्या
1-4	<ol style="list-style-type: none"> 1. विभिन्न प्रकार की पत्तियों, पुष्पक्रमों, पुष्प और फलों का अध्ययन। 2. सूक्ष्मदर्शी के विभिन्न भागों को समझना (सरल और संयुक्त सूक्ष्मदर्शी)। 3. पादप कोशिकाओं का अध्ययन (जैसे- प्याज की कोशिका आदि)। 4. समसूत्री विभाजन और अर्ध सूत्री विभाजन की स्थायी स्लाइडों का अध्ययन। 5. इंटरनेट, यू-ट्यूब से पादप कोशिका और कोशिकांग के इलेक्ट्रॉन माइक्रोग्राफ का अध्ययन। 6. स्थाई स्लाइड और आस-पास के क्षेत्रों से पानी के अस्थायी माउंट से विभिन्न शैवाल की पहचान जैसे, <i>नोस्टॉक</i>, <i>ओसीलेटोरिया</i>, <i>वॉलवाक्स</i>, <i>स्पाइरोगाइरा</i>, <i>उडोगोनियम</i>, <i>कारा</i>, और नमूने जैसे समुद्री शैवाल के पिक्टोग्राफ और <i>एक्टोकार्पस</i>, <i>सरगासम</i>, <i>पॉलीसाईफोनिया</i> का अध्ययन। 7. कुछ ब्रायोफाइट्स का अध्ययन और पहचान जैसे <i>रिक्सिया</i>, <i>मार्केन्शिया</i>, <i>एन्थोसिरोस</i>, <i>फ्यूनेरिया</i> और <i>फील्ड</i> अध्ययन। 8. कुछ जीवाश्मों का अध्ययन (प्रदर्श और स्लाइड)। 9. कुछ टेरिडोफाइट का अध्ययन जैसे <i>लाइकोपोडियम</i>, <i>सिलेजिनेला</i>, <i>इक्विसेटम</i>, <i>मार्सेलिया</i> और किसी भी एक फर्न का अध्ययन। 10. टेरिडोफाइट्स और जिम्नोस्पर्म: तना, जड़ और पत्तियों का अनुप्रस्थ काट का अध्ययन। 11. टेरिडोफाइट्स और जिम्नोस्पर्म के शंकु का अध्ययन। 12. कवकीय संरचनाओं का अध्ययन और अस्थायी स्लाइड का अध्ययन: <i>म्यूकर</i>, <i>राइजोपस</i>, <i>एस्परजिलस</i>, <i>यीस्ट</i>, <i>पेनिसिलियम</i>, <i>अल्टरनेरिया</i>, <i>अल्बूगो</i>, <i>हेलिमेंथोस्पोरियम</i>। 13. पोषक पर पकसीनिया की स्थायी स्लाइड का अध्ययन। 14. विभिन्न कवकीय पौधों के रोगों का अध्ययन। 	15

सारबिंदु (कीवर्ड)/टैग: सूक्ष्मदर्शी, शैवाल, ब्रायोफाइटा, टेरिडोफाइटा, जिम्नोस्पर्म, कवक।

(Handwritten signatures and marks)

भाग स- अनुशंसित अध्ययन संसाधन

पाठ्यपुस्तकें, संदर्भपुस्तकें, अन्यसंसाधन

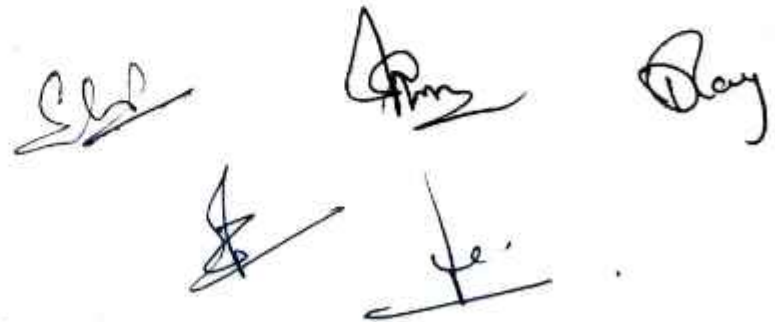
अनुशंसित सहायक पुस्तकें/ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:

1. बेंद्रे अशोक और अशोक कुमार, A Textbook of Practical Botany, vol. 1, रस्तोगी प्रकाशन, मेरठ, 1984.
2. पांडे बी. पी. Modern Practical Botany, vol. 1, एस. चांद एंड कंपनी लिमिटेड, नई दिल्ली, 17वीं edn., 1999
3. सिंह म. प., चौधरी एस. बी और साहू एच. बी., A Textbook of Practical Botany, दया प्रकाशन हाउस, नई दिल्ली, 2005.
4. शहाजाद अकिल मोहम्मद, Practical Botany शांति प्रकाशन, ग्वालियर, 2016.
5. एलिजाबेथ मार्गरेट और एंजेला जी., Practical manual of Botany, vol.1, न्यूएज प्रकाशन लिमिटेड, दिल्ली, 2007.

भाग द -अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियां:

बाह्य मूल्यांकन	अंक
प्रायोगिक मौखिकी (वायवा)	10
प्रायोगिक रिकॉर्ड फाइल	10
टेवल वर्क/प्रयोग	80
कुल अंक	100



DEPARTMENT OF BOTANY AND MICROBIOLOGY
ST. ALOYSIUS COLLEGE (AUTO) JABALPUR.

B.Sc III sem

Theory Paper

Part A Introduction			
Program: Diploma	Class: B.Sc.	Year: III Semester	2023-24
Subject: Botany			
1. Course Code	S2-BOTAIT		
2. Course Title	Plant Anatomy and Embryology		
3. Course Type (Core Course/ Discipline Specific Elective/Elective/ Generic Elective /Vocational/....)	MINOR		
4. Pre-requisite (if any)	To study this course, a student must have had subject botany in B.Sc. I year/ certificate course.		
5. Course Learning outcomes (CLO)	<p>On successful com their course, the students will be able to:</p> <p>Students will learn the internal structure of plants. It will enhance the basic understanding of organization of plant body by cells and tissues.</p> <p>Students will understand the dynamic mechanism of plant pollination, fertilization and development.</p> <p>They will have hands on training on section cutting, preparation of slides, study of pollen and ovules.</p>		
6. Credit Value	4 credits		
7. Total Marks	* Marks: 40+60 Passing Marks: 35		



Part B-Content of the Course

Total No. of Lectures- 60 Tutorials- 0 Practical-0 (theory 2 hours per week)

Unit	Topics	No. of Lectures
I	Topics Meristematic and permanent tissues 1.1 Types of meristems, 1.2 Organization of Root and shoot apex 1.3 Simple and complex tissues. 1.4 Special type of tissues. 1.5 Structure of dicot and monocot root, stem and leaf Kranz anatomy. 1.6 Pits and plasmodesmata; 1.7 Wall ingrowths and transfer cells. 1.8 Hydathodes, cavities, lithocysts and laticifers	12
II	Secondary Growth: 1.1 Vascular cambium-structure, function and seasonal activity. 1.2 Secondary growth in root and stem, 1.3 Wood (heartwood and sapwood). 1.4 Anomalous structures. 1.5 Adaptive and protective systems: Epidermis, cuticle, stomata; 1.6 General account of adaptations in xerophytes and hydrophytes. 1.7 Dendrochronology.	12
III	Embryology: 1.1 History and Importance of embryology, 1.2 Structure of flower, anther and pollen, 1.3 Micro-sporogenesis and Mega-sporogenesis; 1.4 Structure and types of ovules; 1.5 Types of embryo sacs, 1.6 organization and ultra structure of mature embryo sac.	12
IV	Pollination and fertilization 1.1 Types of Anthers and pollen, 1.2 Pollination mechanisms and adaptations; 1.3 Pollen pistil interaction, 1.4 Double fertilization; 1.5 Post fertilization changes, 1.6 Seed structure appendages and dispersal mechanisms. 1.7 Palynology and Scope (a brief account)	12
V	Endosperm & embryo 1.1 Endosperm types, structure and functions; 1.2 Dicot and monocot embryos; 1.3 Embryo- endosperm relationship, s 1.4 Nutrition of Embryo,	

1.5 Unusual features in Embryo and Endosperm, and polyembryony, Definition, types and	
1.6 Apomixis practical applications.	
1.7 In-vitro fertilization	
Keywords/Tags: Meristematic and permanent tissues, plasmodesmata, Hydathodes, cavities, lithocysts, laticifers, Secondary Growth, Vascular cambium Wood, Xerophytes hydrophytes, Dendrochronology, Embryology, Embryo-sac, Pollination, Fertilization, Embryo, Endosperm Apomixis, polyembryony	

Part C-Learning Resources

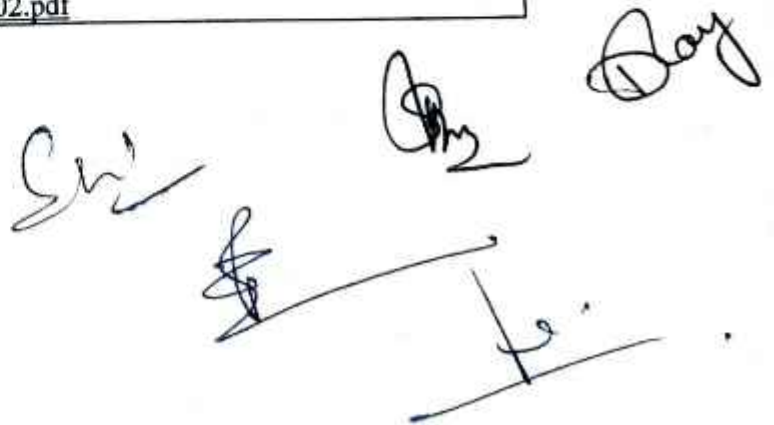
Text Books, Reference Books, Other resources

Suggested Readings:

1. Bhojwani, S.S. & Bhatnagar, S.P. (2011). Embryology of Angiosperms. Vikas Publication House Pvt. Ltd New Delhi. 5th edition.
2. Dickison, W.C. (2000). Integrative Plant Anatomy. Harcourt Academic Press, USA.
3. Fahn, A. (1974). Plant Anatomy. Pergmon Press, USA.
4. Mauseth, J.D. (1988). Plant Anatomy. The Benjamin/Cummings Publisher, USA.
5. Evert, R.F. (2006) Esau's Plant Anatomy: Meristems, Cells, and Tissues of the Plant Body: Their Structure, Function and Development. John Wiley and Sons, Inc.
6. Johri, B.M. (1984) Embryology of Angiosperms Springer-Verlag, Berlin Heidelberg.
7. Mahenshwari, P. Introduction of embryology of Angiosperm, Tata magrohill publication com. (1971)
8. Pandey, B.P. plant anatomy S. Chand & company (1986) 9. Pandey S.N. and Chaddha A., Plant anatomy and embryological development Publishing house Pvt.

Suggestive digital platforms/ web links:

1. <https://www.davuniversity.org/images/files/study-material/EDU246%20BOTANY%202.pdf>
2. <https://gache.ac.in/pdf/ematerial/18BB043C-U3.pdf>
3. <https://uou.ac.in/sites/default/files/sim/BSCBO-202.pdf>



Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE): 40	Class Test Assignment/Presentation	15+25 = 40
External Assessment: University Exam Section: 60 Time: 03.00 Hours	Section(A): Very Short Questions	60
	Section (B): Short Questions	
	Section (C): Long Questions	
	Total	

Handwritten signatures and initials are present below the table, including a large signature on the left and several smaller ones in the center and right.

PART A INTRODUCTION			
PROGRAM: Diploma	Class: B.Sc.	Year : III Semester	Session:2023-24
Subject: Botany			
1	Course Code	S2-BOTAIP	
2	Course Title	Plant Anatomy and Embryology, Practical	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/...)	MINOR	
4	Pre-requisite (if any)	To study this course, a student must have the subject Botany, Life Science in first year / certificate	
5	Corse Learning outcomes (CLO)	<ul style="list-style-type: none"> • Students will be able to recognize the different types of tissues system. • Students will be acquainted with the internal structure of plant root, stem and leaf. • Students will learn the techniques of section cutting and slide preparation 	
6	Credit Value	2 Credits	
7	Total Marks	Max. Marks: 40+60=100	Min. Passing Marks:35
Part B-Content of the Course			
Total No. of Lectures-00 Tutorials-00 Practical-30 (2 hours per week): L-T-P:			
Unit	Topics	No. of Lectures	
I-V	<ol style="list-style-type: none"> 1. Study of meristems through permanent slides and photographs. 2. Study of Tissues (Parenchyma, Collenchyma and Sclerenchyma): Macerated xylary elements, Phloem (Permanent slides, Photographs) 3. Study of Monocotstem : Maize (Zea Mays);Dicot Stem: Sunflower (Helianthus): Secondary Growth: (Helianthus) 4. Study of Monocot Root: Maize (Zea Mays): Dicot Stem: Sunflower (Helianthus): Secondary Growth: Helianthus 5. Study of Dicot and Monocot Leaf 6. Study of anomalous structure in <i>Achyranthes</i>, <i>Boerhaavia</i>, <i>Nyctanthes</i> through section cutting, 7. Study of Xerophytes (Nerium Leaf) and Hydrophytes (Hydrilla stem), plant 8. Study of anther (young and nature), tapetum (amoeboid and secretory) through Permanent slides/pictures. 9. Study of female gametophytes Polygonum 	30	

	<p>(monosporic) type of embryo sac development through permanent slides/photographs.</p> <p>10. Study of mature egg apparatus through slides/photographs</p> <p>11. Demonstration of different types of pollination and seed dispersal .</p> <p>12. Study of percentage germination of pollen grains in a given medium.</p> <p>13. Demonstration of pollen germination,</p> <p>14. Types of ovules in pollen and placentation through temporary slides/photographs/permanent slide.</p> <ul style="list-style-type: none"> Section cutting, study of pollen grains and stigma through locally available plants. 	
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Keywords/Tags: Meristems, tissues, Monocot and Dicot, Root, Stem, Leaf, Anther, Female Gametophytes, egg-Apparatus, Pollination, seed Dispersal, Ovules, Placentation

Part-C Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:1. Johri B. M Experimental Embryology of Vascular Plants, Springer-Verlag Berlin Heilderberg New York (1982)
Suggestive Digital platforms web links-----

Suggested equivalent online courses:-----

Part-D- Assessment and Evaluation

Suggested Continuous Evaluation methods: It is compulsory to get minimum passing marks in Internal and External Assessment separately.

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit)	20	Table Work/Experiments	50
TOTAL	40		60

Day


सैद्धान्तिक प्रश्नपत्र

भाग अ- परिचय			
कार्यक्रम: उपाधि	कक्षा : बी.एस.सी	वर्ष : III Semester	सत्र: 2023-24
विषय: वनस्पति शास्त्र			
1. पाठ्यक्रम का कोड	S2-BOTAIT		
2. पाठ्यक्रम का शीर्षक	पादप आंतरिकी एवं भ्रूणीक		
3. पाठ्यक्रम का प्रकार : (कोर कोर्स/ इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल	MINOR		
4. पूर्वापेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने विज्ञान विषय अध्ययन कक्षा प्रथम वर्ष / सर्टिफिकेट कोर्स में किया हो।		
5. पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<p>विद्यार्थी पादप की आंतरिक संरचना के बारे में जानेंगे वे पादप कोशिकाओं और ऊतकों के संगठन को समझेंगे</p> <p>विद्यार्थी पादप परागण, निषेचन और भ्रूणविकास को समझेंगे</p> <p>विद्यार्थी सेक्शन कटिंग, स्लाइड तैयार करने में दक्षता प्राप्त करेंगे तथा परागकण और अण्डाशय का अध्ययन करेंगे।</p>		
1. क्रेडिट मान	4		
2. कुल अंक	अधिकतम अंक: 40+60=100	न्यूनतम उत्तीर्ण अंक: 35	



सैद्धांतिक प्रश्नपत्र

भाग अ- परिचय

कार्यक्रम: उपाधि	कक्षा : बी.एस.सी	वर्ष : III Semester	सत्र: 2023-24
विषय: वनस्पति शास्त्र			
1. पाठ्यक्रम का कोड	S2-BOTAIT		
2. पाठ्यक्रम का शीर्षक	पाटप आंतरिकी एवं भ्रूणीक		
3. पाठ्यक्रम का प्रकार : (कोर कोर्स/ इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनाल)	मेजर / MINOR		
4. पूर्वापेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने विज्ञान विषय अध्ययन कक्षा प्रथम वर्ष / सर्टिफिकेट कोर्स में किया हो।		
5. पाठ्यक्रम अद्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	विद्यार्थी पाटप की आंतरिक संरचना के बारे में जानेंगे वे पाटप कोशिकाओं और ऊतकों के संगठन को समझेंगे विद्यार्थी पाटप परागण, निषेचन और भ्रूणविकास को समझेंगे विद्यार्थी सेक्शन कटिंग, स्लाइड तैयार करने में दक्षता प्राप्त करेंगे तथा परागकण और अण्डाणु का अध्ययन करेंगे।		
1. क्रेडिट मान	4		
2. कुल अंक	अधिकतम अंक: 40+60=100	न्यूनतम उत्तीर्ण अंक: 35	

भाग व पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या 60 ट्यूटोरियल- 0 प्रायोगिक 0 (प्रति सप्ताह 02 घंटे में): L-T-P

इकाई	विषय	व्याख्यान की संख्या
I	विभज्योतक और स्थायी ऊतक 1.1 विभज्योतक के प्रकार। 1.2 जड़ और प्ररोह शीर्ष का संगठन। 1.3 सरल, जटिल और विशेष प्रकार के ऊतक। 1.5 द्विबीजपत्री और एकबीजपत्री जड़, तना और पत्ती की संरचना। 1.6 पिट्स और प्लारमोडेसमाटा। 1.7 भित्ति अंतर्वृद्धि और स्थानान्तरण कोशिकाएं। 1.8 जलरंध्र, गुहिकावे, लिथोसाइट्स और स्वदक्षीर।	12
II	द्वितीयक वृद्धि, अनुकूलन और रक्षात्मक आवरण 1.1 संवहनी पुल के प्रकार। 1.2 एथा संरचना, कार्य और मौसमी गतिविधि। 1.3 जड़ और तने में द्वितीयक वृद्धि। 1.4 काष्ठ (अतः काष्ठ और रसदारु)। 1.5 अनुकूली और सुरक्षात्मक प्रणालियाँ: चर्म, उपचर्म, रेशा। 1.6 मरूदभिद और जलोदभिद अनुकूलन का सामान्य विवरण। 1.7 डेंड्रोकोनोलेजी।	12
III	भ्रूणविज्ञान 1.1 भ्रूणविज्ञान का इतिहास और महत्व। 1.2 पुष्प, पराग कोष और पराग की संरचना।	12

	1.3 ताम्र बीजाणुजनन और गुरुबीजाणुजनन। 1.4 बीजाणु की संरचना और प्रकृत्य 1.5 भ्रूणकोष के प्रकार। 1.6 परिपक्व भ्रूणकोष का संगठन और संरचना। 1.7 भ्रूणविज्ञान में भारतीय वैज्ञानिकों का योगदान	
IV	परगण और निषेचन 1.1 परगणकोश और परगण के प्रकार 1.2 परगण तंत्र और अनुकूलना 1.3 परगण स्त्रीकेसर परस्पर क्रिया। 1.4 द्विनिषेचन और त्रिसंयोजन। 1.5 निषेचनोपरान्त परिवर्तन 1.6 बीज संरचना उपांग और प्रकीर्णन। 1.7 परगणकण विज्ञान और संभावनाएं का एक संक्षिप्त विवरण	12
V	भ्रूणपोष और भ्रूण 1.1 भ्रूणपोष के प्रकार, संरचना और कार्य। 1.2 एकबीजपत्री और द्विबीजपत्री भ्रूणविकास। 1.3 भ्रूण- भ्रूणपोष संबंध। 1.5 भ्रूण और भ्रूणपोष में असामान्य विशेषताएं। 1.6 असंगजनन और बहुभ्रूणीता परिभाषा, प्रकार और व्यावहारिक अनुप्रयोग। 1.7 इन- विट्रो निषेचन	12
सार बिंदु (कीवर्ड)/टैग : विभज्योतक और स्थायी ऊतक, द्वितीयक वृद्धि, मरुद्धि, जलोद्भिद्, डेंड्रोकोनोलांजी, भ्रूणविज्ञान, भ्रूणकोष, परगण, निषेचन, भ्रूण, भ्रूणपोष, असंगजनन और बहुभ्रूणीता		

भाग स- अनुशंसित अध्ययन संसाधन	
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन	
अनुशंसित सहायक पुस्तकें /अन्य/अन्य पाठ्य संसाधन/पाठ्य सामग्री:-	
1. भोजवानी, एस.एस. और भटनागर, एस.पी. एंजियोस्पर्म का भ्रूणविज्ञाना विकास पब्लिकेशन हाउस प्रा. लिमिटेड नई दिल्ली। 5वां संस्करण (2011)।	
2. डिसिन, डब्ल्यू. सी. इंटीग्रेटर प्लांट एनाटॉमी हास्कोर्ट एकेडमिक प्रेस, यूएसए (2000)।	
3. फ्रहान, ए. प्लांट एनाटॉमी पेपन प्रेस, एनए (1974)।	
4. मौसेच, जे. डी. प्लांट एनाटॉमीट बेंजामिन/कमिंग्स पब्लिशर यूएसए (1988)....	
5. एवर्ट, आर. एफ. एसान्स प्लांट एनाटॉमी: मेरिस्टेमा, सेल एंड टिशूज ऑफ प्लांट बॉडी टेवर संरचना, कार्य और विकास जॉन विले एंड संस, इंक (2006)।	
6. जौहरी, बी. एम. एंजियोस्पर्म का विज्ञाना सिप्रंगर-वेरनाग, बर्निंग हीडलबर्ग (1984)।	
7. महेश्वरी, पी. एंजियोस्पर्म के भ्रूणविज्ञान का एक परिचय, टाटा मैकग्रा-हिल पब्लिशिंग कंपनी (1971)।	
8. पांडे, बी.पी. प्लांट एनाटॉमी एस. चंद एंड कंपनी (1986)।	
9. पांडे एस. एन. और चड्ढा ए, प्लांट एनाटॉमी एंड एम्ब्रियोलॉजी विकास पब्लिशिंग हाउस प्राइवेट लिमिटेड (2011)।	
2. अनुशंसित डिजिटल प्लेटफॉर्म /वेब लिंक	
अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक	
1. https://www.davuniversity.org/images/files/study-material/EDU246%20BOTANY%202.pdf	
2. https://gache.ac.in/pdf/ematerial/18BBO43C-U	
3. https://uou.ac.in/sites/default/files/slm/BSCBO-202.pdf	
अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रमः www.eshiksha.mp.gov.in	

Day 4: 5/2/20

भाग द - अनुशासित मूल्यांकन विधियां:		
अनुशासितसतत मूल्यांकन विधियां: अधिकतम अंक : 100 सतत व्यापक मूल्यांकन (CCE) अंक : 30 विश्वविद्यालयीनपरीक्षा (UE) अंक: 70 आंतरिक और बाह्य मूल्यांकन में उत्तीर्ण होने हेतु पृथक पृथक न्यूनतम प्राप्तांक आना अनिवार्य है।		
आंतरिक मूल्यांकन: सतत व्यापक मूल्यांकन (CCE): 40	वलास टेस्ट असाइनमेंट / प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक : 40
आकलन : विश्वविद्यालयीन परीक्षा: 60 समय- 03.00 घंटे	अनुभाग (अ): अति लघु प्रश्न अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न कुल	कुल अंक : 60






प्रायोगिक प्रमाणपत्र के पाठ्यक्रम हेतु

भाग अ- परिचय			
कार्यक्रम: डिप्लोमा	कक्षा : बी.एस.सी	वर्ष: III Semester	सत्र: 2023-24
विषय -वनस्पति विज्ञान			
1. पाठ्यक्रम का कोड	S2-BOTA1P		
2. पाठ्यक्रम का शीर्षक	पादप आंतरिकी एवं भूणीके		
3. पाठ्यक्रम का प्रकार : (कोर कोर्स/ डिप्लोमा स्पेशल/ इलेक्टिव / इलेक्टिव/जेनेरिक इलेक्टिव/ चोकेशनल)	MINOR		
4. पूर्वापेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, विद्यार्थी ने विषय वनस्पति शास्त्र/जीव विज्ञान / विज्ञान का अध्ययन कक्षा प्रथम वर्ष / प्रमाणपत्र में किया हो।		
5. पाठ्यक्रम अध्ययन की परिस्थितियां (कोर्स लर्निंग आउटकम) (CLO)	विद्यार्थी विभिन्न प्रकार के ऊतकों को पहचानने में सक्षम होंगे विद्यार्थी पादप जड़, तना और पत्ती की आंतरिक संरचना को समझे वे अनुप्रस्थ काट और स्लाइड तैयार करने का कौशल सीखेंगे		
1. क्रेडिट मान	02		
2. कुल अंक	अधिकतम अंक: 40+60=100	न्यूनतम उत्तीर्ण अंक: 35	

भाग व पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-00- ट्यूटोरियल-00- प्रायोगिक -30- (प्रति सप्ताह 02 घंटे में): L-T-P		
इकाई	विषय	व्याख्यान की संख्या (2 घंटे/व्याख्यान)
I-V	1. स्थायी स्लाइड और प्रादर्श के माध्यम से विभाज्योतक 'ऊतकों का अध्ययन 2. ऊतक पैरेन्काइमा, कोलेन्काइमा और स्वलेरेन्काइमा नैसरेटेड जाइन्सी तत्व, फ्लोएम का स्थायी स्लाइड और प्रादर्श द्वारा अध्ययन 3. एकबीजपत्री तना मक्का (जिया मेस); द्विबीजपत्री तना: सूरजमुखी (हेलिअन्थस); द्वितीयक वृद्धि हेलिअन्थस का अध्ययन। 4. एकबीजपत्री जड़ मक्का (जिया मेस), द्विबीजपत्री जड़ सूरजमुखी (हेलिअन्थस); द्वितीयक वृद्धि हेलिअन्थस का अध्ययन। 5. एकबीजपत्री और द्विबीजपत्री पत्ती का अध्ययन 6. अनुप्रस्थ काटके माध्यम से (निवटेन्थस. बोरहाविया, एकाइरेन्स) में असामान्य संरचना का अध्ययन: 7. मरुद्धिदों (नेरियम पत्ती), जलोद्धिदों (हाइड्रिला तना) में अनुकूलन का अध्ययन 8. परागकोष की संरचना (तरुण और परिपक्व), टेपेटम (अमीबाइड और स्थायी स्थायी स्लाइड द्वारा अध्ययन। 9. मादा युग्मकोद्धिद: पॉलीगोनम (मोनोस्पोरिक) प्रकार का भ्रूणपोष विकास स्थायी स्लाइड / प्रादर्श द्वारा अध्ययन। 10 स्लाइड/फोटो के माध्यम से परिपक्वअंड समुच्चय का अध्ययन।	30

Day X SW & Jm

11. विभिन्न प्रकार के परागण और बीज वितरण का प्रदर्शन 12. किसी दिए गए माध्यम में परागकणों के अंकुरण प्रतिशत का अध्ययन। 13. पराग अंकुरण का प्रदर्शन 14. अस्थायी स्लाइड/फोटो/स्थायी स्लाइड के माध्यम से पादप में बीजाण्ड के प्रकार और बीजाण्डविन्यास। *स्थानीय रूप से उपलब्ध पादप के माध्यम से अनुपस्थ काट, परागकणों और वर्तिका का अध्ययन।	
सार बिंदु (कीवर्ड) / टैग: विभाज्योत्तक ऊतक, एकबीजपत्री और द्विबीजपत्री, जड़, तना, पत्ती, हाइड्रिला तना, नेरियम पत्ती, परागकोश, मादा युग्मकोद्भिद बंड समुच्चय, परागण, बीज प्रकीर्णन, बीजांड, बीजांडन्या	

भाग स- अनुशासित अध्ययन संसाधन पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन
अनुशासित सहायक पुस्तकें/ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:- 1. जौहरी बी. एम. वैस्कुलर प्लांट्स का प्रायोगिक धूणविज्ञान, स्प्रिंगर-बेर्लाग बर्लिन हीडलबर्ग न्यूयॉर्क (1982) 2. अनुशासित डिजिटल प्लेटफॉर्म वेब लिंक: अनुशासित समकक्ष ऑनलाइन पाठ्यक्रम: www.eshiksha.mp.gov.in

भाग द - अनुशासित मूल्यांकन विधियां:			
अनुशासित सतत मूल्यांकन विधियां : आंतरिक और बाह्य मूल्यांकन में उत्तीर्ण होने हेतु पृथक पृथक न्यूनतम प्राप्तांक आना अनिवार्य है।			
आंतरिक मूल्यांकन:	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद /प्रश्नोत्तरी		प्रायोगिक मौखिकी(वायवा)	
उपरिस्थिति		प्रायोगिक रिकॉर्ड फाइल	
असाइनमेंट	10	टेबल वर्क/प्रयोग	05
(चार्ट/मॉडल/सेमिनार/ग्रामीण	10		05
सेवा/प्रौद्योगिकी प्रसार/भ्रमण	20		50
(एक्सकर्शन) की रिपोर्ट/ सर्वेक्षण /			
प्रयोगशाला भ्रमण (लैब विजिट)/			
औद्योगिक यात्रा			
	40	कुल अंक: 100	60

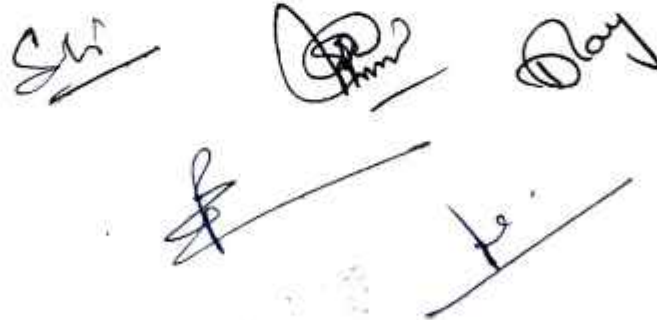


DEPARTMENT OF BOTANY AND MICROBIOLOGY
ST. ALOYSIUS COLLEGE (AUTO.) JABALPUR,

B.Sc. III Sem

Theory Paper

Part A Introduction	
Program: Diploma	Class: B.Sc. Year: III Semester 2023-24
Subject: Botany	
1. Course Code	S2-BOTA1T
2. Course Title	Plant Anatomy and Embryology
3. Course Type (Core Course/ Discipline Specific Elective / Generic Elective /Vocational/....)	Elective
4. Pre-requisite (if any)	To study this course, a student must have had subject botany in B.Sc. I year/ certificate course.
5. Course Learning outcomes (CLO)	<p>On successful com their course, the students will be able to:</p> <p>Students will learn the internal structure of plants. It will enhance the basic understanding of organization of plant body by cells and tissues.</p> <p>Students will understand the dynamic mechanism of plant pollination, fertilization and development.</p> <p>They will have hands on training on section cutting, preparation of slides, study of pollen and ovules.</p>
6. Credit Value	3 credits
7. Total Marks	* Marks: 40+60 Min. Passing Marks: 35



Part B-Content of the Course

Total No. of Lectures- 60 Tutorial- 6 Practical-0 (theory 2 hours per week)		
Unit	Topics	No. of Lectures
I	Topics Meristematic and permanent tissues 1.1 Types of meristems, 1.2 Organization of Root and shoot apex 1.3 Simple and complex tissues. 1.4 Special type of tissues. 1.5 Structure of dicot and monocot root, stem and leaf Kranz anatomy. 1.6 Pits and plasmodesmata. 1.7 Wall ingrowths and transfer cells. 1.8 Hydathodes, cavities, lenticels and laticifers	09
II	Secondary Growth: 1.1 Vascular cambium-structure, function and seasonal activity. 1.2 Secondary growth in root and stem. 1.3 Wood (heartwood and sapwood) 1.4 Anomalous structures. 1.5 Adaptive and protective systems: Epidermis, cuticle, stomata; 1.6 General account of adaptations in xerophytes and hydrophytes. 1.7 Dendrochronology.	12
III	Embryology: 1.1 History and importance of embryology, 1.2 Structure of flower, anther and pollen, 1.3 Micro-sporogenesis and Mega-sporogenesis; 1.4 Structure and types of ovules, 1.5 Types of embryo sacs, 1.6 organization and ultra structure of mature embryo sac.	12
IV	Pollination and fertilization 1.1 Types of Anthers and pollen, 1.2 Pollination mechanisms and adaptations; 1.3 Pollen pistil interaction, 1.4 Double fertilization; 1.5 Post fertilization changes, 1.6 Seed structure appendages and dispersal mechanisms. 1.7 Palynology and Scope (a brief account)	12
Keywords/Tags: Meristematic and permanent tissues, plasmodesmata, Hydathodes, cavities, lenticels, Secondary Growth, Vascular cambium Wood, Xerophytes hydrophytes, Dendrochronology, Embryology, Embryo-sac, Pollination, Fertilization, Embryo, Endosperm Apomixis, polyembryony		

Part C-Learning Resources	
Text Books, Reference Books, Other resources	
Suggested Readings:	
1. Bhojwani, S.S. & Bhatnagar, S.P. (2011). Embryology of Angiosperms. Vikas Publication House Pvt. Ltd New Delhi. 5th edition.	
2. Dickison, W.C. (2000). Integrative Plant Anatomy. Harcourt Academic Press, USA.	
3. Fahn, A. (1974). Plant Anatomy. Pergmon Press, USA.	
4. Mauseth, J.D. (1988). Plant Anatomy. The Benjamin/Cummings Publisher, USA.	
5. Evert, R.F. (2006) Esau's Plant Anatomy: Meristems, Cells, and Tissues of the Plant Body: Their Structure, Function and Development. John Wiley and Sons, Inc.	
6. Johri, B.M.(1984)Embryology of Angiosperms Springer-Verlag, Berlin Heidelberg.	
7.Mahenshwari,P. Indroduction of embryology of Angiospem, Tata magrohill publication com. (1971)	
8. Pandey, B.P. plant anatomy S. Chand & company (1986) 9. Pandey S.N, and Chaddha A., Plant anatomy and embryological development Publishing house Pvt.	
Suggestive digital platforms/ web links:	
1. https://www.davuniversity.org/images/files/study-material/EDU246%20BOTANY%202.pdf	
2. https://gache.ac.in/pdf/ematerial/18BB043C-U3.pdf	
3. https://uou.ac.in/sites/default/files/sim/BSCBO-202.pdf	
Suggested equivalent online courses:	

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE): 40	Class Test Assignment/Presentation	15+25 (Total 40)
External Assessment: University Exam Section: 60 Time: 03.00 Hours	Section(A): Very Short Questions	60
	Section (B): Short Questions	
	Section (C): Long Questions	
	Total	

Handwritten signatures and initials: SCW, [Signature], Day, [Signature]

PART A INTRODUCTION			
PROGRAM: Diploma	Class: B.Sc.	Year : III Semester	Session:2023-24

		Subject: Botany	
1	Course Code	S2-BOIAIP	
2	Course Title	Plant Anatomy and Embryology, Practical	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	Elective	
4	Pre-requisite (if any)	To study this course, a student must have the subject Botany, Life Science in first year / certificate	
5	Course Learning outcomes (CLO)	<ul style="list-style-type: none"> • Students will be able to recognize the different types of tissues system. • Students will be acquainted with the internal structure of plant root, stem and leaf. • Students will learn the techniques of section cutting and slide preparation 	
6	Credit Value	1 Credits	
7	Total Marks	Max. Marks: 40+60=100	Min. Passing Marks:35

Part B-Content of the Course
 Total No. of Lectures-00 Tutorials-00 Practical-30 (2 hours per week): L-T-P.

Unit	Topics	No. of Lectures
I-IV	<ol style="list-style-type: none"> 1. Study of meristems through permanent slides and photographs. 2. Study of Tissues (Parenchyma, Collenchyma and Sclerenchyma): Macerated xylary elements, Phloem (Permanent slides, Photographs) 3. Study of Monocotstem : Maize (Zea Mays);Dicot Stem: Sunflower (Helianthus): Secondary Growth: (Helianthus) 4. Study of Monocot Root: Maize (Zea Mays): Dicot Stem: Sunflower (Helianthus): Secondary Growth: Helianthus 5. Study of Dicot and Monocot Leaf 6. Study of anomalous structure in <i>Achyranthes</i>, <i>Boerhaavia</i>, <i>Nyctanthes</i> through section cutting, 7. Study of Xerophytes (Nerium Leaf) and Hydrophytes (Hydrilla stem), plant 8. Study of anther (young and mature), tapetum (amoeboid and secretory) through Permanent slides/ pictures. 9. Demonstration of different types of pollination and seed dispersal. 10. Study of percentage germination of pollen grains in a given medium. 11. Demonstration of pollen germination, 12. Types of ovules in pollen and placentation through temporary slides/photographs/permanent slide. • Section cutting, study of pollen grains and stigma through locally available plants 	15



Keywords/Tags: Meristems, tissues, Monocot and Dicot, Root, Stem, Leaf, Anther, Female Gametophytes, egg-Apparatus, Pollination, seed Dispersal, Ovules, Placentation

Part-C Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings: 1. Johri B. M Experimental Embryology of Vascular Plants, Springer-Verlag Berlin Heidelberg New York (1982)

Part-D- Assessment and Evaluation

Suggested Continuous Evaluation methods: It is compulsory to get minimum passing marks in Internal and External Assessment separately.

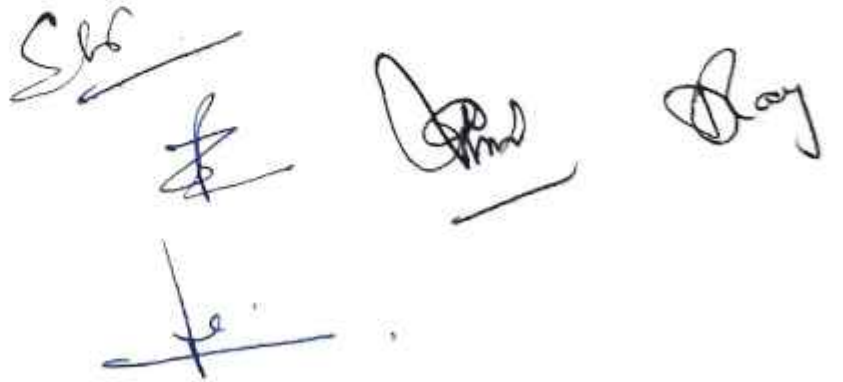
Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit)	20	Table Work/Experiments	50
TOTAL	40		60

Shw ✓
✓
Pr
Day

सैद्धांतिक प्रश्नपत्र

भाग अ- परिचय

कार्यक्रम: उपाधि	कक्षा : बी.एस.सी	वर्ष : III Semester	सत्र: 2023-24
विषय: जनस्वास्थ्य शास्त्र			
1. पाठ्यक्रम का कोड	S2-BOTAIT		
2. पाठ्यक्रम का शीर्षक	पाठ्य आंतरिकी एवं भ्रूणीक		
3. पाठ्यक्रम का प्रकार : (कोर कोर्स/ इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल)	इलेक्टिव		
4. पूर्वपेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने विज्ञान विषय अध्ययन कक्षा प्रथम वर्ष / सर्टिफिकेट कोर्स में किया हो		
5. पाठ्यक्रम अध्ययन की परिणतियां (कोर्स लर्निंग आउटकम) (CLO)	विद्यार्थी पाठ्य की आंतरिक संरचना के बारे में जानेंगे वे पाठ्य कोशिकाओं और ऊतकों के संगठन को समझेंगे विद्यार्थी पाठ्य परागण, निषेचन और भ्रूणविकास को समझेंगे विद्यार्थी सेक्शन कटिंग, स्लाइड तैयार करने में दक्षता प्राप्त करेंगे तथा परागकण और अण्डाशय का अध्ययन करेंगे		
1. क्रेडिट मान	3		
2. कुल अंक	अधिकतम अंक: 40+60=100	न्यूनतम उत्तीर्ण अंक: 35	



भाग व पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या 60 ट्यूटोरियल- 0 प्रायोगिक 0 (प्रति सप्ताह 02 घंटे में): L-T-P

इकाई	विषय	व्याख्यान की संख्या
I	<p>विभज्योतक और स्थायी ऊतक</p> <p>1.1 विभज्योतक के प्रकार।</p> <p>1.2 जड़ और प्ररोह शीर्ष का संगठन।</p> <p>1.3 सरल, जटिल और विशेष प्रकार के ऊतक।</p> <p>1.5 द्विबीजपत्री और एकबीजपत्री जड़, तना और पत्ती की संरचना</p> <p>1.6 पिट्स और प्लास्मोडेस्मता</p> <p>1.7 भ्रिति अंतर्वृद्धि और स्थानांतरण कोशिकाएं।</p> <p>1.8 जलरंध्र, गुठिकाये, लिथोसाइट्स और रबड़क्षीर।</p>	09
II	<p>द्वितीयक वृद्धि, अनुकूलन और रक्षात्मक आवरण</p> <p>1.1 संवहनी पूल के प्रकार</p> <p>1.2 एधा संरचना, कार्य और मौसमी गतिविधि।</p> <p>1.3 जड़ और तने में द्वितीयक वृद्धि।</p> <p>1.4 काष्ठ (अतः काष्ठ और रसदारू)।</p> <p>1.5 अनुकूली और सुरक्षात्मक प्रणालियाँ: चर्म, उपचर्म, रंध्रा</p> <p>1.6 मरूदभिद और जलोदभिद अनुकूलन का सामान्य विवरण।</p> <p>1.7 डेंड्रोक्रोनोलॉजी</p>	12
III	<p>भ्रूणविज्ञान</p> <p>1.1 भ्रूणविज्ञान का इतिहास और महत्व।</p> <p>1.2 पुष्प, पराग कोष और पराग की संरचना।</p> <p>1.3 लघु बीजाणुजनन और गुरुबीजाणुजनन।</p> <p>1.4 बीजाण्ड की संरचना और प्रकार।</p> <p>1.5 भ्रूणकोष के प्रकार।</p> <p>1.6 परिषव्व भ्रूणकोष का संगठन और संरचना।</p> <p>1.7 भ्रूणविज्ञान में भारतीय वैज्ञानिकों का योगदान</p>	12
IV	<p>परागण और निषेचन</p> <p>1.1 परागकोश और पराग के प्रकार।</p> <p>1.2 परागण तंत्र और अनुकूलन।</p> <p>1.3 पराग स्त्रीकेसर परस्पर क्रिया।</p> <p>1.4 द्विनिषेचन और त्रिसंयोजन।</p> <p>1.5 निषेचनोपरांत परिवर्तन।</p> <p>1.6 बीज संरचना उपांग और प्रकीर्णन।</p> <p>1.7 परागकण विज्ञान और संभावनाएं का एक संक्षिप्त विवरण</p>	12

सार बिंदु (कीवर्ड)/टैग : विभज्योतक और स्थायी ऊतक, द्वितीयक वृद्धि, मरूदभिद, जलोदभिद, डेंड्रोक्रोनोलॉजी, भ्रूणविज्ञान, भ्रूणकोष, परागण, निषेचन, भ्रूण, भ्रूणपोष, असंगजनन और बहुभ्रूणीता



प्रायोगिक प्रश्नपत्र के पाठ्यक्रम हेतु

भाग अ- परिचय

कार्यक्रम: डिप्लोमा


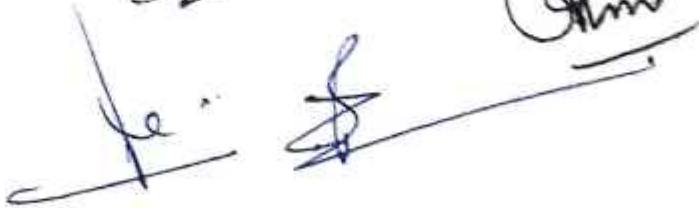


कक्षा: बी.एस.सी

वर्ष: III Semester

सत्र: 2023-24

विषय-वनस्पति विज्ञान

1. पाठ्यक्रम का कोड	S2-BOTA1P
2. पाठ्यक्रम का शीर्षक	पादप आंतरिकी एवं भ्रूणिकी
3. पाठ्यक्रम का प्रकार : (कोर कोर्स/ डिप्लोमा स्पेशल इलेक्टिव / इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल)	इलेक्टिव
4. पूर्वापेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, विद्यार्थी ने विषय वनस्पति शास्त्र/जीव विज्ञान / विज्ञान का अध्ययन कक्षा प्रथम वर्ष / प्रमाणपत्र में किया हो
5. पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	विद्यार्थी विभिन्न प्रकार के ऊतकों को पहचानने में सक्षम होंगे विद्यार्थी पादप जड़, तना और पत्ती की आंतरिक संरचना को समझे वे अनुप्रस्थ फाट और स्लाइड तैयार करने का कौशल सीखेंगे
1. क्रेडिट मान	01
2. कुल अंक	अधिकतम अंक: 40+60 =100 न्यूनतम उत्तीर्ण अंक: 35

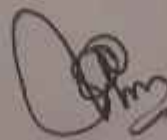





भाग व पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-00- दूरलेखन-00- प्रायोगिक -30- (प्रति सप्ताह 02 घंटे में): L-T-P		
इकाई	विषय	व्याख्यान की संख्या (घंटे/व्याख्यान)
1-IV	<ol style="list-style-type: none"> 1. स्थायी स्लाइड और प्रदर्श के माध्यम से विभाज्योत्क ऊतकों का अध्ययन 2. ऊतक पैरेन्काइमा, कोलेन्काइमा और स्क्लेरेन्काइमा मैसोमेटो जाइवरी तत्व, एलोएम का स्थायी स्लाइड और प्रदर्श द्वारा अध्ययन 3. एकबीजपत्री तना मक्का (जिया मेस); द्विबीजपत्री तना: सूरजमुखी (हेलिफ्ल्यस); द्वितीयक वृद्धि हेलिफ्ल्यस का अध्ययन। 4. एकबीजपत्री जड़ मक्का (जिया मेस), द्विबीजपत्री जड़ सूरजमुखी (हेलिफ्ल्यस); द्वितीयक वृद्धि हेलिफ्ल्यस का अध्ययन। 5. एकबीजपत्री और द्विबीजपत्री पत्ती का अध्ययन 6. अनुप्रस्थ काटके माध्यम से (निवटेन्थस, बोरहाविया, एकाइरेन्स) में असामान्य संरचना का अध्ययन: 7. सरुद्दिदो (नेरियम पत्ती), जलोद्दिदो (हाइड्रिला तना) में अनुकूलन का अध्ययन 8. परागकोष की संरचना (तरुण और परिपक्व), टेपेटम (अमीबाइड और स्थायी) स्थायी स्लाइड द्वारा अध्ययन 9. विभिन्न प्रकार के परागण और बीज वितरण का प्रदर्शन 10. किसी दिए गए माध्यम में परागकों के अंकुरण प्रतिशत का अध्ययन। 11. पराग अंकुरण का प्रदर्शन 12. अस्थायी स्लाइड/फोटो/स्थायी स्लाइड के माध्यम से घाटप में बीजाण्ड के प्रकार और बीजाण्डविन्यास। <p>*स्थानीय रूप से उपलब्ध घाटप के माध्यम से अनुप्रस्थ काट, परागकों और वर्तिका का अध्ययन।</p>	30
<p>सार बिंदु (कीवर्ड) / टिप्पणी: विभाज्योत्क ऊतक, एकबीजपत्री और द्विबीजपत्री, जड़, तना, पत्ती, हाइड्रिला तना, नेरियम पत्ती, परागकोष, मादा युग्मकोद्भिद बंड समुच्चय, परागण, बीज प्रकीर्णन, बीजांड, बीजांडन्या</p>		

भाग स- अनुशासित अध्ययन संसाधन
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन
अनुशासित सहायक पुस्तकें/ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:-
1. जौहरी बी. एम. वैस्कुलर प्लांट्स का प्रायोगिक धूणविज्ञान, सिप्रिंगर-बेरलाग बर्लिन हीडलबर्ग न्यूयॉर्क (1982)
2. अनुशासित डिजिटल प्लेटफॉर्म वेब लिंक:
अनुशासित समकक्ष ऑनलाइन पाठ्यक्रम: www.eshiksha.mp.gov.in











भाग द - अनुशासित मूल्यांकन विधियां:

अनुशासित सतत भूल्यांकन विधियां : आंतरिक और बाह्य मूल्यांकन में उत्तीर्ण होने हेतु पृथक पृथक न्यूनतम प्राप्तांक आना अनिवार्य है।

आंतरिक मूल्यांकन:	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद /प्रश्नोत्तरी	10 10 20	प्रायोगिक मौखिकी(वायवा)	05 05 50
उपरिस्थिति		प्रायोगिक रिकॉर्ड फाइल	
असाइनमेंट (चार्ट/मॉडल/सेमिनार/ग्रामीण सेवा/प्रायोगिकी प्रसार/भ्रमण (एवसकर्शन) की रिपोर्ट/ सर्वेक्षण / प्रयोगशाला भ्रमण (लैब विजिट)/ औद्योगिक यात्रा		टेबल वर्क/प्रयोग	
		कुल अंक: 100	
	40		60

कोई टिप्पणी/सुझाव:टेबल कार्य/ प्रयोग स्थानीय स्तर पर उपलब्ध संसाधन पर आधारित होंगे।



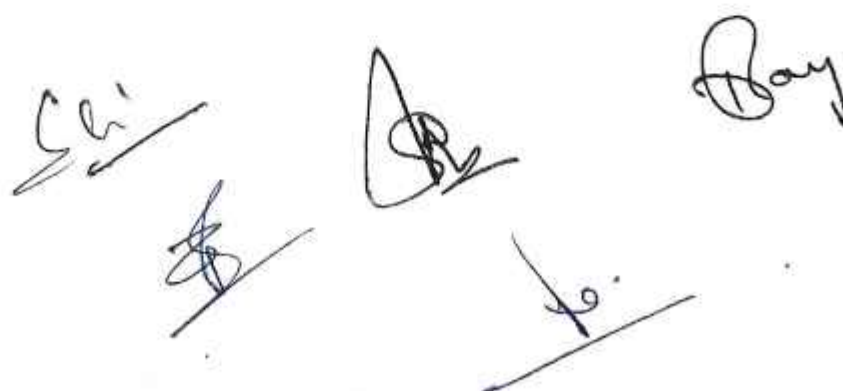






St. Aloysius College Autonomous Jabalpur, M.P
 Department of Microbiology
 B.Sc. IV Semester
 Botany: Paper 2/Minor
 2023-24
 Syllabus of Theory Paper

Part A Introduction			
Program: Diploma	Class: B.Sc.	Year: IV Semester	Session: 2023-24
Subject: Botany			
1	Course Code	S2-BOTA2T	
2	Course Title	Industrial Botany	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/...)	Core Course	
4	Pre-requisite (if any)	The course is open to all who have completed I year certificate course in botany and other subjects	
5	Course Learning outcomes (CLO)	<ul style="list-style-type: none"> This course will provide knowledge on plants and their parts used in various industries. Students will get an idea to establish plant based natural product industry. This course will make the students self-reliant. 	
6	Credit Value	4 Credits	
7	Total Marks	Max. Marks: 40+60=100	Min. Passing Marks:35



Part B- Content of the Course

Total No. of Lectures- 60 Hours Tutorials- 0 Practical (theory 2 hours per week): L/T/P:

Unit	Topics	No. of Lectures
I	Plants in Timber Industry: 1.1 Timber yielding trees of India and their products (Shisham, Sal, Teak, Deodar, Babool). 1.2 Bamboo and Cane Industry. 1.3 Kattha' Industry.	12
II	Leaf Based Industries- 1.1 Utility products of leaf (Palash, Banana). 1.2 Tea Industry (Production of various types of teas). 1.3 Leaf oil Industry (Mint, Camphor, Neem, Tulsi, Eucalyptus and Lemon grass). 1.4 Leaves used as spices (Kasoori Methi, Pudina, Curry patta, Onion, Tejpatta).	12
III	Flower based Industries — 1.1 Perfume products of Gulab, Jasmine, Henna, 1.2 Color industry (Food and Holi colors). 1.3 Raw material for Fermentation (Mahua) in Mahakoushal region	12
IV	Fruits and Seed-based Industries- 1.1 Jams, Jellies, Juice, Sauce and Pickles. 1.2 Poha and Daal Industry. 1.3 Edible Oil Industry (Groundnut, Soybean) 1.4 Starch, Glucose, and Dextrose Industry.	12
V	Other parts of plants based Industries 1.1 Sugar and Jaggery Industries. 1.2 Jute and Agarbatti stick making industry. 1.3 Project proposal preparation for establishment of an industry. 1.4 Grants and funding provider organizations of India.	12

Plants used to
 for silk worm
 in M.P.

Keywords/Tags: Keywords-Timber, Bamboo, Cane, Jute, Tea Industry, Oil yielding leaves, Perfumes, Leaf spices, Fermentation, Food colours, Edible oils, Food preservation techniques, Sugar industries.

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Gerald E. Wickens, Economic Botany, principles and Practice, Kluver Academic Publishers (2001)
2. Kocchar, S.L. Economic Botany, Cambridge University Press, UK (2016)
3. Simpson, B.B. and Ogorzaly, M.C. Economic Botany, Tata Macgray Hill Publisher (1986)

Suggested online material:

1. <https://krishi.icar.gov.in/jspui/bitstream/123456789/19815/1/Timber.pdf>
2. file:///C:/Users/CSP/Downloads/7B.pdf
3. [https://swsu.ru/sbornik-statev/pdf/ll chapter%202.pdf](https://swsu.ru/sbornik-statev/pdf/ll%20chapter%202.pdf)

Part -D: Assessment and Evaluation (Theory)

Suggested Continuous Evaluation Methods:

Maximum Marks: 100; CCE: 40, University Exam (UE): 60

Internal Assessment: Continuous Comprehensive Evaluation (CCE): 40	Class Test, Assignment/Presentation	15+25 (Total: 40)
External Assessment: University Exam Section: 60 Time: 03.00 Hours	Section (A): Objective Type Questions	
	Section (B): Short Questions	
	Section (C): Long Questions	
	Total	60

Note: Field Visit/ project report for a specific topic can be prepared by the students.

St. Aloysius College Autonomous Jabalpur, M.P

Department of Microbiology

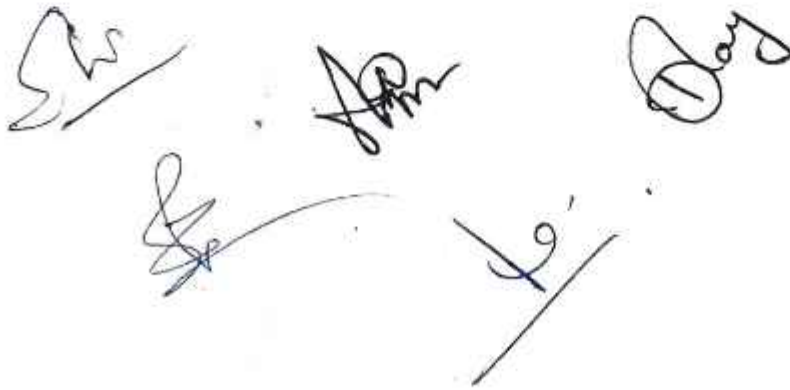
B.Sc. IV Semester

Botany: Paper / Minor

2023-24

Practical

Part A Introduction		
Program: Diploma	Class: II year	Year: IV Semester Session: 2023-24
Subject: Botany		
1	Course Code	S2BOTA2P
2	Course Title	Industrial Botany / Practical
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	Core Course
4	Pre-requisite (if any)	To study this course, a student must have the subject Botany, Biology, Life Science in First Year/Certificate.
5	Course Learning outcomes (CLO)	<ul style="list-style-type: none">• Students will be able to recognize different parts of plants used in plant-based industries• This course will provide practical knowledge to establish small or large scale plant based industries
6	Credit Value	2 Credits
7	Total Marks	Max. Marks: 40+60 =100 Min. Passing Marks:35



Part B- Content of the Course

Total No. of Lectures-OO Tutorials-OO Practical 30 Hours (02 hours per week):

L-T-P:

Unit	Topics	No. of Lectures
I-V	<ol style="list-style-type: none"> 1. Preparation of Holi colors from locally available flowers 2. Preparation of food colors from locally available flowers 3. Perfume extraction process by distillation method 4. Preparation and preservation techniques of jams, jellies and prickles. 5. Extraction and preservation of juices (lemon and orange etc.) 6. Preparation of different types of teas (Tulsi tea, lemon tea etc.) 7. Identification, collection and extraction of oil yielding leaves. 8. Identification, collection and specimen preparation of leafy spices. 9. Hands on training for preparation of "Douna and Pattal" using Palash and Banana leaves. 10. Visit to any plant-based industry. 11. Herbarium preparation of different parts of plants used in various industries <p>*Practicals can be performed according to availability</p>	30

Keywords/Tags: Holi, food colors, Perfume extraction, jams, jellies and prickles, juices preservation techniques, oil yielding leaves, leafy spices, Palash and Banana leaves

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks

It is compulsory to get minimum passing marks in Internal and External Assessment separately.




Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)	20	Table work / Experiments	50
TOTAL	40		60

★ Additives and preservatives used in food processing

★ phytochemical content of medicinal plants

Handwritten signatures and initials in blue ink.

भाग अ- परिचय			
कार्यक्रम : डिप्लोमा	कक्षा द्वितीय वर्ष	वर्ष: IV Semester	सत्र: 2023-24
विषय: वनस्पति शास्त्र			
1	पाठ्यक्रम का कोड	S2-BOTA2T	
2	पाठ्यक्रम का शीर्षक	औद्योगिक वनस्पतिशास्त्र	
3	पाठ्यक्रम का प्रकार : कोरकोर्स / इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल (...)	कोरकोर्स	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	सभी के लिए खुला: किसी भी संकाय से कोई भी इस पाठ्यक्रम को ले सकता है। जिसने पूर्व में सर्टिफिकेट कोर्स किया हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<ul style="list-style-type: none"> ● यह पाठ्यक्रम विभिन्न उद्योगों में प्रयुक्त होने वाले पादप एवं उनके भागों का ज्ञान प्रदान करेगा। ● छात्रों को पौधों पर आधारित प्राकृतिक उत्पाद उद्योग स्थापित करनेकी अवधारणा मिलेगी। ● यह पाठ्यक्रम विद्यार्थियों को आत्मनिर्भर बनाएगा। 	
6	क्रेडिट मान	4	
7	कुल अंक	अधिकतम अंक: 40+60 =100	न्यूनतम उत्तीर्ण अंक: 35

भाग व पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या 60 घंटे ट्यूटोरियल 0 प्रायोगिक 0 घंटा) 04 घंटा प्रति सप्ताह : L-T-P:

इकाई	विषय	व्याख्यान की संख्या
I	<p>इमारती लकड़ी उद्योग में पादप</p> <p>1.1 भारत के इमारती लकड़ी उत्पादक वृक्ष एवं उनके उत्पाद (शीशम, साल, सागौन, देवदार, बबूल,)</p> <p>1.2 बांस और बैत उद्योग</p> <p>1.3 कत्था उद्योग</p>	12
II	<p>पत्ती आधारित उद्योग</p> <p>1.1 पत्तियों के उपयोगी उत्पाद (पलाश केला)</p> <p>1.2 चाय उद्योग (विभिन्न प्रकार की चाय का उत्पादन)</p> <p>1.3 पत्तियों से प्राप्त तेल उद्योग (पुदीना, कपूर, नीम, तुलसी, नीलगिरी, और लेमन ग्रास)।</p> <p>1.4 मसाले के रूप में उपयोग की जाने वाली पत्तियां (कसूरी मेथी, पुदीना, करी पत्ता, प्याज, और तेजपत्ता)।</p>	12
III	<p>फूल आधारित उद्योग</p> <p>1.1 गुलाब, चमेली, और मेंहदी के इत्र उत्पाद।</p> <p>1.2 रंग उद्योग (खाद्य और होली के रंग)।</p> <p>1.3 किण्वन के लिए कच्चा माल (महुआ)।</p>	12
IV	<p>फल और बीज आधारित उद्योग</p> <p>1.1 जैम, जेली, जूस, लॉस, अचार,</p> <p>1.2 पोहा और दाल उद्योग</p> <p>1.3 वाद्य तेल उद्योग (मूंगफली, और सोयाबीन)।</p> <p>1.3 स्टार्च, ग्लूकोज और डेक्सट्रोस उद्योग ।</p>	12
V	<p>पौधों के अन्य भाग आधारित उद्योग</p> <p>1.1 चीनी और गुड़ उद्योग</p> <p>1.2 जूट और अगरबत्ती बनाने का उद्योग।</p> <p>1.3 उद्योग स्थापित करने हेतु परियोजना प्रस्ताव बनाना.</p> <p>1.4 भारत के अनुदान और वित्तपोषण प्रदाता संगठन</p>	12

सार बिंदु (फीवर्ड) / टैग: इमारती लकड़ी, बांस, बैत, जूट, चाय उद्योग, तेल देने वाली पत्तियां, इन मसाले वाली पत्तियां, किण्वन, खाद्यरंग, खाद्यतेल, खाद्य प्रसंस्करण तकनीक. चीनी उद्योग.

भाग स-अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / ग्रन्थ/अन्य पाठ्य संसाधन/ पाठ्य सामग्री:

सुझाए गए रीडिंग:

1. गेराल्ड ई. विकास, आर्थिक वनस्पति सिद्धांत और प्रैक्टिस, क्लुवर एकेडमिक पब्लिशर्स (2001)
2. कोचर, एस. एल. आर्थिक वनस्पतिविज्ञान, कैम्ब्रिज विश्वविद्यालय प्रेस, यूके (2016)
3. सिम्पसन बी. बी. और ओगोर्जनी, एम. सी. आर्थिक वनस्पतिविज्ञान, टाटा मैकग्रेहल प्रकाशक (1986)

अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक:

1. <https://krishi.icar.gov.in/isoul/bastream/123456789/19815/1/Timber.pdf>
2. <file:///C:/Users/CSP/Downloads/7B.pdf>
3. [https://swww.ru/sbornik-satev/pdf/11 chapter 2.pdf](https://swww.ru/sbornik-satev/pdf/11%20chapter%202.pdf)

भाग द - अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियां:

अधिकतम अंक : 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30 विश्वविद्यालयीन परीक्षा (UE) अंक: 70

आंतरिक और बाह्य मूल्यांकन में उत्तीर्ण होने हेतु पृथक पृथक न्यूनतम प्राप्तांक आना अनिवार्य है।

आंतरिक मूल्यांकन: क्लास टेस्ट मूल्य (CCE):	असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक: 40
व्याकलन: विश्वविद्यालयीन परीक्षा: समय 03.00 घंटे	अनुभाग (वस्तुनि प्रश्न) अनुमान (ब): लघु उत्तरीय प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक: 60

नोट: छात्रों द्वारा किसी विशिष्ट विषय में फील्ड विजिट/ प्रोजेक्ट रिपोर्ट तैयार की जा सकती है



St. Aloysius College Autonomous Jabalpur, M.P
 Department of Microbiology
 B.Sc. IV Semester
 Botany: Paper /Minor/...
 2023-24

प्रायोगिक प्रश्न पत्र पाठ्यक्रम

भाग अ- परिचय			
कार्यक्रम: डिप्लोमा	कक्षा: B.Sc.	वर्ष: IV Semester	सत्र: 2023-24
विषय: वनस्पतिशास्त्र			
1	पाठ्यक्रम का कोड	S2-BOTA2P	
2	पाठ्यक्रम का शीर्षक	औद्योगिक वनस्पति विज्ञान प्रायोगिक	
3	पाठ्यक्रम का प्रकार: (कोर कोर्स /इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल.....)	कोर कोर्स	
4	पूर्वापेक्षा (Pre-requisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, विद्यार्थी ने विषय वनस्पतिशास्त्र / जीवविज्ञान / विज्ञान का अध्ययन कक्षा प्रथम वर्ष / प्रमाण पत्र में किया हो।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्ससर्निंगआउटकम) (CLO)	<ul style="list-style-type: none"> • विद्यार्थी पौधे आधारित उद्योगों में उपयोगी होने वाले पौधों के विभिन्न भागों को पहचान सकेंगे • यह पाठ्यक्रम छोटे या बड़े पैमाने पर पौधे आधारित उद्योग स्थापित करने के लिए व्यावहारिक ज्ञान प्रदान करेगा 	
6	क्रेडिटमान	02	
7	कुलअंक	अंक: 40+60=100	न्यूनतम उत्तीर्ण अंक: 35



भाग ब - पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुलसंख्या-00- ट्यूटोरियल-00- प्रायोगिक 30- (प्रति सप्ताह 02 घंटे में): L-T-P:

इकाई	विषय	व्याख्यान की संख्या
I-V	<ol style="list-style-type: none"> 1. स्थानीय रूप से उपलब्ध फूलों से होली के रंग तैयार करना 2. स्थानीय रूप से उपलब्ध फूलों से साथ रंग तैयार करना 3. आसवन विधि द्वारा इत्र निष्कर्षण प्रक्रिया का अध्ययन करना 4. जैम, जेली और अचार की तैयारी और संरक्षण तकनीक का अध्ययन करना 5. रस (नींबू और संतरा आदि) का निष्कर्षण और संरक्षण का अध्ययन करना। 6. विभिन्न प्रकार की चाय (तुलसी की चाय, नींबू की चाय आदि) तैयार करना। 7. तेल देने वाली पत्तियों की पहचान, संग्रह और निष्कर्षण का अध्ययन करना। 8. पत्तेदार मसालों की पहचान, संग्रह और नमूना तैयार करना । 9. पनाश और केले के पत्तों से दौना और पत्तल तैयार करने का प्रशिक्षण। 10. किसी पौधों आधारित औद्योगिक इकाई का भ्रमण 11. विभिन्न उद्योगों में प्रयुक्त पौधों के विभिन्न भागों के हर्बेरियम तैयार करना <p>*प्रायोगिक कार्य स्थानीय उपलब्धता के अनुसार किया जा सकता है।</p>	30

सार बिंदु (फीवर्ड) / टैग होली, बाथ रंग, पत्र निष्कर्षण, जैम, जेली और अचार, रस संरक्षण तकनीक, तेल देने वाले पत्ते, पत्तेदार मसाले, पलाश और केले के पत्ते



भाग द- अनुशंसित मूल्यांकन विधियां

अनुशंसित सतत मूल्यांकन विधियां: आंतरिक और बाह्य मूल्यांकन में उत्तीर्ण होने हेतु पृथक पृथक न्यूनतम प्राप्तांक आना अनिवार्य है।

आंतरिक मूल्यांकन	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद / प्रश्नोत्तरीय	10	प्रायोगिक मौखिक (वायवा)	05
उपस्थिति	10	प्रायोगिक रिकॉर्ड फाइल	05
असाइनमेंट (चार्ट/मॉडल / सेमिनार ग्रामीण सेवा/ प्रौद्योगिकी प्रसार / भ्रमण (एक्सकॉन) की रिपोर्ट/सर्वेक्षण प्रयोगशाला भ्रमण (लैबविजिट) / औद्योगिक यात्रा	20	टेबलवर्क / प्रयोग	50
कुल अंक	40		60

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St. Aloysius College Autonomous Jabalpur, M.P
 Department of Microbiology
 B.Sc. IV Semester
 Botany: Major Paper II / Elective
 2023-24
 Syllabus of Theory Paper

Part A Introduction			
Program: Diploma		Class: B.Sc.	Year: IV Sem
Session: 2023-24			
Subject: Botany			
1	Course Code	S2-BOTA2T	
2	Course Title	Industrial Botany	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/...)	Elective	
4	Pre-requisite (if any)	The course is open to all who have completed 1 year certificate course in botany and other subjects	
5	Course Learning outcomes (CLO)	<ul style="list-style-type: none"> • This course will provide knowledge on plants and their parts used in various industries. • Students will get an idea to establish plant based natural product industry. • This course will make the students self-reliant. 	
6	Credit Value	3 Credits	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks:35



Part B- Content of the Course

Total No. of Lectures- 60 Hours Tutorials- 0 Practical (theory 2 hours per week): L/T/P:

Unit	Topics	No. of Lectures
I	1 Plants in Timber Industry: 1.1 Timber yielding trees of India and their products (Shisham, Sal, Teak, Deodar, Babool). 1.2 Bamboo and Cane Industry. 1.3 Kattha' Industry.	09
II	Leaf Based Industries- 1.1 Utility products of leaf (Palash, Banana). 1.2 Tea Industry (Production of various types of teas). 1.3 Leaf oil Industry (Mint, Camphor, Neem, Tulsi, Eucalyptus and Lemon grass). 1.4 Leaves used as spices (Kasoori Methi, Pudina, Curry patta, Onion, Tejpatta).	12
III	Flower based Industries — 1.1 Perfume products of Gulab, Jasmine, Henna. 1.2 Color industry (Food and Holi colors). 1.3 Raw material for Fermentation (Mahua).	12
IV	Fruits and Seed-based Industries- 1.1 Jams, Jellies, Juice, Sauce and Pickles. 1.2 Poha and Daal Industry. 1.3 Edible Oil Industry (Groundnut, Soybean) 1.4 Starch, Glucose, and Dextrose Industry.	12

Keywords/Tags: Keywords-Timber, Bamboo, Cane, Jute, Tea Industry, Oil yielding leaves, Perfumes, Leaf spices, Fermentation, Food colours, Edible oils

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Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Gerald E. Wickens, Economic Botany, principles and Practice, Kluver Academic Publishers (2001)
2. Kocchar, S.L. Economic Botany, Cambridge University Press, UK (2016)
3. Simpson, B.B. and Ogorzaly, M.C. Economic Botany, Tata Macgray Hill Publisher (1986)

Suggested online material:

1. <https://krishi.icar.gov.in/jspui/bitstream/123456789/19815/1/Timber.pdf>
2. <file:///C:/Users/CSP/Downloads/7B.pdf>
3. [https://swsu.ru/sbornik-statev/pdf/ll chapter%202.pdf](https://swsu.ru/sbornik-statev/pdf/ll%20chapter%202.pdf)

Part -D: Assessment and Evaluation (Theory)

Suggested Continuous Evaluation Methods:

Maximum Marks: 100; CCE: 40, University Exam (UE): 60

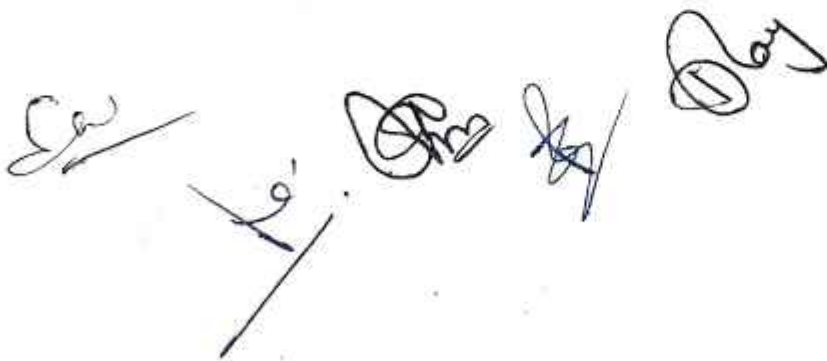
Internal Assessment: Continuous Comprehensive Evaluation (CCE): 40	Class Test, Assignment/Presentation	15+25 (Total: 40)
External Assessment: University Exam Section: 60 Time: 03.00 Hours	Section (A): Objective Type Questions	
	Section (B): Short Questions	
	Section (C): Long Questions	
	Total	60

Note: Field Visit/ project report for a specific topic can be prepared by the students.

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St. Aloysius College Autonomous Jabalpur, M.P
 Department of Microbiology
 B.Sc. IV Semester
 Botany: Elective
 2023-24
 Practical

Part A Introduction		
Program: Diploma	Class: B.Sc.	Year: IV Semester Session: 2023-24
Subject: Botany		
1	Course Code	S2BOTA2P
2	Course Title	Industrial Botany / Practical
3	Course Type (Core Course/Elective/Generic Elective/Vocational/)	Elective
4	Pre-requisite (if any)	To study this course, a student must have the subject Botany, Biology, Life Science in First Year/Certificate.
5	Course Learning outcomes (CLO)	<ul style="list-style-type: none"> • Students will be able to recognize different parts of plants used in plant-based industries • This course will provide practical knowledge to establish small or large scale plant based industries
6	Credit Value	1 Credits
7	Total Marks	Max. Marks: 40+60 =100 Min. Passing Marks:35



Part B- Content of the Course

Total No. of Lectures-OO Tutorials-OO Practical 30 Hours (02 hours per week):

L-T-P:

Unit	Topics	No. of Lectures
I-V	<ol style="list-style-type: none"> 1. Preparation of Holi colors from locally available flowers 2. Preparation of food colors from locally available flowers 3. Perfume extraction process by distillation method 4. Preparation and preservation techniques of jams, jellies and prickles. 5. Extraction and preservation of juices (lemon and orange etc.) 6. Preparation of different types of teas (Tulsi tea, lemon tea etc.) 7. Identification, collection and extraction of oil yielding leaves. 8. Identification, collection and specimen preparation of leafy spices. 9. Hands on training for preparation of "Douna and Pattal" using Palash and Banana leaves. 10. Visit to any plant-based industry. 11. Herbarium preparation of different parts of plants used in various industries <p>*Practicals can be performed according to availability</p>	15

Keywords/Tags: Holi, food colors, Perfume extraction, jams, jellies and prickles, juices preservation techniques, oil yielding leaves, leafy spices, Palash and Banana leaves

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE) 60 marks
It is compulsory to get minimum passing marks in Internal and External Assessment separately.

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)	20	Table work / Experiments	50
TOTAL	40		60

* Additives and preservatives used in food processing

* Phytochemical content of medicinal plant leaves.

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St. Aloysius College Autonomous Jabalpur, M.P
 Department of Microbiology
 B.Sc. IV Semester
 Botany: Elective
 2023-24
 Syllabus of Theory Paper

सैद्धांतिक प्रश्नपत्र पाठ्यक्रम

भाग अ- परिचय			
कार्यक्रम : डिप्लोमा	कक्षा द्वितीय वर्ष	वर्ष: B.Sc. IV Sem	सत्र: 2023-24
विषय: वनस्पति शास्त्र			
1	पाठ्यक्रम का कोड	S2-BOTA2T	
2	पाठ्यक्रम का शीर्षक	औद्योगिक वनस्पतिशास्त्र	
3	पाठ्यक्रम का प्रकार : कोरकोर्स / इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल (...)	वैकल्पिक	
4	पूर्वापेक्षा (Prerequisite) (यदि कोई हो)	सभी के लिए खुला: किसी भी संकाय से कोई भी इस पाठ्यक्रम को ले सकता है। जिसने पूर्व में सर्टिफिकेट कोर्स किया हो ।	
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<ul style="list-style-type: none"> ● यह पाठ्यक्रम विभिन्न उद्योगों में प्रयुक्त होने वाले पादप एवं उनके भागों का ज्ञान प्रदान करेगा। ● छात्रों को पौधों पर आधारित प्राकृतिक उत्पाद उद्योग स्थापित करनेकी अवधारणा मिलेगी। ● यह पाठ्यक्रम विद्यार्थियों को आत्मनिर्भर बनाएगा। 	
6	क्रेडिट मान	3	
7	कुल अंक	अधिकतम अंक: 40+60 =100	न्यूनतम उत्तीर्ण अंक: 35



भाग व पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुल संख्या 60 घंटे ट्यूटोरियल 0 प्रायोगिक 0 घंटा) 04 घंटा प्रतिसप्ताह : L-T-P:

इकाई	विषय	व्याख्यान की संख्या
I	<p>इमारती लकड़ी उद्योग में पादप</p> <p>1.1 भारत के इमारती लकड़ी उत्पादक वृक्ष एवं उनके उत्पाद (शीशम, साल, सागौन, देवदार, बबूल,))</p> <p>1.2 बांस और बेंत उद्योग</p> <p>1.3 कत्था उद्योग</p>	09
II	<p>पत्ती आधारित उद्योग</p> <p>1.1 पत्तियों के उपयोगी उत्पाद (पलाश केला)</p> <p>1.2 चाय उद्योग (विभिन्न प्रकार की चाय का उत्पादन)</p> <p>1.3 पत्तियों से प्राप्त तेल उद्योग (पुदीना, कपूर, नीम, तुलसी, नीलगिरी, और लेमन ग्रास)।</p> <p>1.4 मसाले के रूप में उपयोग की जाने वाली पत्तियां (कसूरी मेथी, पुदीना, करी पत्ता, प्याज, और तेजपत्ता)।</p>	12
III	<p>फूल आधारित उद्योग</p> <p>1.1 गुलाब, चमेली, और मेंहदी के इत्र उत्पाद।</p> <p>1.2 रंग उद्योग (खाद्य और होली के रंग)।</p> <p>1.3 किण्वन के लिए कच्चा माल (महुआ)।</p>	12
IV	<p>फल और बीज आधारित उद्योग</p> <p>1.1 जैम, जेली, जूस, लॉस, अचार,</p> <p>1.2 पोहा और दाल उद्योग</p> <p>1.3 वाद्य तेल उद्योग (मूंगफली, और सोयाबीन)।</p> <p>1.3 स्टार्च, ग्लूकोज और डेक्सट्रोज उद्योग ।</p>	12

सार बिंदु (फीवर्ड) / टैग: इमारती लकड़ी, बांस, बेंत, जूट, चाय उद्योग, तेल देने वाली पत्तियां, इन मसाले वाली पत्तियां, किण्वन, खाद्यरंग, खाद्यतेल

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भाग स-अनुशंसित अध्ययन संसाधन

पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन

अनुशंसित सहायक पुस्तकें / ग्रन्थ/अन्य पाठ्य संसाधन/ पाठ्य सामग्री:

सुझाए गए रीडिंग:

1. गेराल्ड ई. विकास, आर्थिक वनस्पति सिद्धांत और प्रैक्टिस, क्लुवर एकेडमिक पब्लिशर्स) 2001)
2. कोचर, एस. एल. आर्थिक वनस्पतिविज्ञान, कैम्ब्रिज विश्वविद्यालय प्रेस, यूके) 2016)
3. सिम्पसन बी. बी. और ओगोर्जनी, एम. सी. आर्थिक वनस्पतिविज्ञान, टाटा मैकग्रेहल प्रकाशक) 1986)

अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक:

1. <https://krishi.icar.gov.in/isoul/bastream/123456789/19815/1/Timber.pdf>
2. <file:///C:/Users/CSP/Downloads/7B.pdf>
3. [https://swww.ru/sbornik-satev/pdf/11 chapter 2.pdf](https://swww.ru/sbornik-satev/pdf/11%20chapter%202.pdf)

भाग द - अनुशंसित मूल्यांकन विधियां:

अनुशंसित सतत मूल्यांकन विधियां:

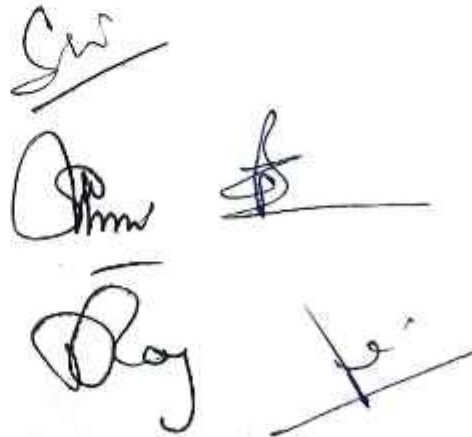
अधिकतम अंक : 100

सतत व्यापक मूल्यांकन (CCE) अंक: 30 विश्वविद्यालयीन परीक्षा (UE) अंक: 70

आंतरिक और बाह्य मूल्यांकन में उत्तीर्ण होने हेतु पृथक पृथक न्यूनतम प्राप्तांक आना अनिवार्य है।

आंतरिक मूल्यांकन: क्लास टेस्ट मूल्य (CCE):	असाइनमेंट प्रस्तुतीकरण (प्रेजेंटेशन)	कुल अंक: 40
व्याकलन: विश्वविद्यालयीन परीक्षा: समय 03.00 घंटे	अनुभाग (वस्तुनि प्रश्न अनुमान (ब): लघु उत्तरीय प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	कुल अंक: 60

नोट: छात्रों द्वारा किसी विशिष्ट विषय में फील्ड विजिट/ प्रोजेक्ट रिपोर्ट तैयार की जा सकती है



St. Aloysius College Autonomous Jabalpur, M.P.
Department of Microbiology
B.Sc. IV Semester
Botany: Elective
2023-24

प्रायोगिक प्रश्न पत्र पाठ्यक्रम

भाग अ- परिचय

कार्यक्रम: डिप्लोमा कक्षा: B.Sc. वर्ष: IV Sem सत्र: 2023-24

विषय: वनस्पतिशास्त्र

1	पाठ्यक्रम का कोड	S2-BOTA2P
2	पाठ्यक्रम का शीर्षक	औद्योगिक वनस्पति विज्ञान प्रायोगिक
3	पाठ्यक्रम का प्रकार: (कोर कोर्स /इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल.....)	वैकल्पिक
4	पूर्वापेक्षा (Pre-requisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, विद्यार्थी ने विषय वनस्पतिशास्त्र / जीवविज्ञान / विज्ञान का अध्ययन कक्षा प्रथम वर्ष / प्रमाण पत्र में किया हो।
5	पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्ससर्निंगआउटकम) (CLO)	<ul style="list-style-type: none">• विद्यार्थी पौधे आधारित उद्योगों में उपयोगी होने वाले पौधों के विभिन्न भागों को पहचान सकेंगे• यह पाठ्यक्रम छोटे या बड़े पैमाने पर पौधे आधारित उद्योग स्थापित करने के लिए व्यावहारिक ज्ञान प्रदान करेगा
6	क्रेडिटमान	01
7	कुलअंक	अंक: 40+60=100 न्यूनतम उत्तीर्ण अंक: 35



भाग ब - पाठ्यक्रम की विषयवस्तु

व्याख्यान की कुलसंख्या-00- ट्यूटोरियल-00- प्रायोगिक 30- (प्रति सप्ताह 02 घंटे में): L-T-P:

इकाई	विषय	व्याख्यान की संख्या
I-V	<ol style="list-style-type: none"> 1. स्थानीय रूप से उपलब्ध फूलों से होली के रंग तैयार करना 2. स्थानीय रूप से उपलब्ध फूलों से साथ रंग तैयार करना 3. आसवन विधि द्वारा इत्र निष्कर्षण प्रक्रिया का अध्ययन करना 4. जैम, जेली और अचार की तैयारी और संरक्षण तकनीक का अध्ययन करना 5. रस (नींबू और संतरा आदि) का निष्कर्षण और संरक्षण का अध्ययन करना। 6. विभिन्न प्रकार की चाय (तुलसी की चाय, नींबू की चाय आदि) तैयार करना। 7. तेल देने वाली पत्तियों की पहचान, संग्रह और निष्कर्षण का अध्ययन करना। 8. पत्तेदार मसालों की पहचान, संग्रह और नमूना तैयार करना । 9. पनाश और केले के पत्तों से दौना और पत्तल तैयार करने का प्रशिक्षण। 10. किसी पौधों आधारित औद्योगिक इकाई का भ्रमण 11. विभिन्न उद्योगों में प्रयुक्त पौधों के विभिन्न भागों के हर्बेरियम तैयार करना <p>• प्रायोगिक कार्य स्थानीय उपलब्धता के अनुसार किया जा सकता है।</p>	15
<p>सार बिंदु (फीवर्ड) / टैग होली, बाथ रंग, पत्र निष्कर्षण, जैम, जेली और अचार, रस संरक्षण तकनीक, तेल देने वाले पत्ते, पत्तेदार मसाले, पलाश और केले के पत्ते</p>		

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भाग द- अनुशंसित मूल्यांकन विधियां

अनुशंसित सतत मूल्यांकन विधियां: आंतरिक और बाह्य मूल्यांकन में उत्तीर्ण होने हेतु पृथक पृथक न्यूनतम प्राप्तांक आना अनिवार्य है।

आंतरिक मूल्यांकन	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद / प्रश्नोत्तरीय	10	प्रायोगिक मौखिक (वायवा)	05
उपस्थिति	10	प्रायोगिक रिकॉर्ड फाइल	05
असाइनमेंट (चार्ट/मॉडल / सेमिनार ग्रामीण सेवा/ प्रौद्योगिकी प्रसार / भ्रमण (एक्सकॉन) की रिपोर्ट/सर्वेक्षण प्रयोगशाला भ्रमण (लैबविजिट) / औद्योगिक यात्रा	20	टेबलवर्क / प्रयोग	50
कुल अंक	40		60

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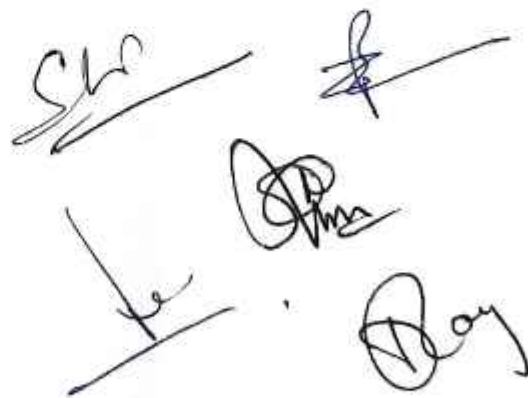
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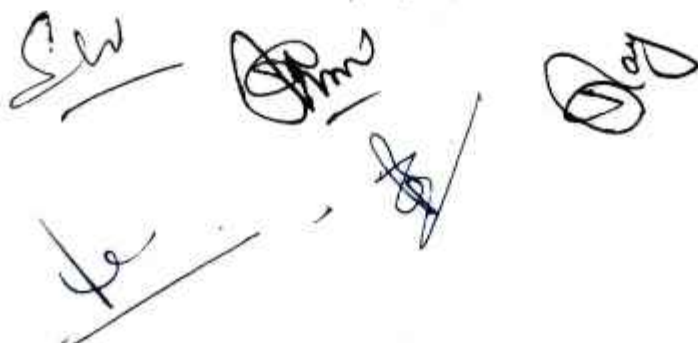
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DEPARTMENT OF BOTANY AND MICROBIOLOGY
 ST. ALOYSIUS COLLEGE (AUTD) JABALPUR
 B.Sc III YEAR
 Theory Paper

Part A Introduction		
Program: Degree	Class: B.Sc.	
Year: III	Session: 2023-24	
Subject: Botany		
1.	Course Code	S3-BOTA2T
2.	Course Title	Ethnobotany (Theory)
3.	Course Type (Core Course/ Discipline Specific Elective/Elective/ Generic Elective /Vocational/....)	<u>Minor</u>
4.	Pre-requisite (if any)	To study this course, a student must have had this subject in Diploma.
5.	Course Learning outcomes (CLO)	<p>On successful com this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the importance of plants and their relationship with Human being. 2. Explain how plants are a part of culture and traditions. 3. How traditional medicine can cure various diseases
6.	Credit Value	4
7.	Total Marks	* Marks: 30 + 70 Min. Passing Marks: 35

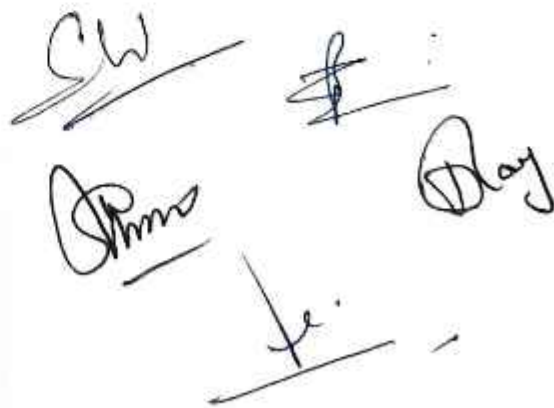


Part B-Content of the Course		
Total No. of Lectures-60 Tutorials-0 Practical- 0 (in hours per week): L-T-P: 2-0-		
Unit	Topics	No. of Lectures
I	Ethnobotany Introduction, concept, scope and objectives; Ethnobotany as an interdisciplinary science. Various branches of Ethnobotany. The relevance of ethnobotany in the present context; Major and minor ethnic groups or Tribals of India, and their life styles.	12
II	Plants used by the tribals: a) Food plants b) intoxicants and beverages c) Resins and oils and miscellaneous uses. Plants in mythology, Taboos and totems in relation to plants, folklore and folktales, Wildlife protection tribals. Plants in similes and metaphors.	12
III	Medico-ethnobotanical sources in India; Significance of the following plants in ethno botanical practices (along with their habitat and morphology) a) <i>Azadiractha indica</i> b) <i>Ocimum sanctum</i> c) <i>Vitex negundo</i> . d) <i>Gloriosa superba</i> e) <i>Tinospora cordifolia</i> f) <i>Batea monosperma</i> g) <i>Cassia fistula</i> h) <i>Indigofera tinctoria</i> . Role of ethnobotany in modern medicine with special example <i>Rauwolfia serpentina</i> , <i>Terminalia arjuna</i> , <i>Artemisia</i> , <i>Withania</i> . Role of ethnic groups in conservation of plant genetic resources. Endangered taxa and forest management	12
IV	Ethnobotany and legal aspects. Ethnobotany as a tool to protect interests of ethnic groups. Sharing of wealth concept with few examples from India. Biopiracy, Intellectual Property Rights and Traditional Knowledge. Role of Peoples Biodiversity Register (PBR) and Biodiversity Management committees(BMC).	12
V	Study of common Plants in Skin Diseases, Bronchial inflammation, Asthma, Jaundice, Malaria, Expulsion of Worms, Jaundice, Piles, Rheumatism, Heart Diseases, Amoebic Dysentery, leukoderma.	12
Keywords/Tags: Ethnobotany, plants used by Tribals, Common Plants in curing Diseases, PBR		



Part C-Learning Resources	
Text Books, Reference Books, Other resources	
Suggested Readings:	
1) S.K. Jain, Manual of Ethnobotany, Scientific Publishers, Jodhpur, 1995.	
2) S.K. Jain (ed.) Glimpses of Indian. Ethnobotny, Oxford and I B H, New Delhi - 1981	
3) Lone et al., Palaeoethnobotany	
4) S.K. Jain (ed.) 1989. Methods and approaches in ethnobotany. Society of ethnobotanists, Lucknow, India.	
5) S.K. Jain, 1990. Contributions of Indian ethnobotany, Scientific publishers, Jodhpur. Education	
6) Colton C.M. 1997. Ethnobotany - Principles and applications. John and sons - Chichester	
7) Rama Ro, N and A.N. Henry (1996). The Ethnobotany of ern Ghats in Andhra Pradesh, India. Botanical Survey of India. Howrah	
8) Rajiv K. Sinha - Ethnobotany The Renaissance of Traditional Herbal medicine	
Suggestive digital platforms/ web links:	
Suggested equivalent online courses: www.eshiksha.mp.gov.in	

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE):30	Class Test	30
	Assignment/Presentation	
External Assessment: University Exam Section:70	Section(A): Very Short Questions Section (B): Short Questions Section (C): Long Questions	70



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Practical Paper

Part A Introduction			
Program: Degree	Class: B.Sc.	Year: III	Session: 2023-24
Subject: Botany			
1. Course Code	S3-BOTA2P		
2. Course Title	Ethnobotany (Practical)		
3. Course Type (Core Course/ Discipline Specific Elective/Elective/ Generic Elective /Vocational/....)	Minor		
4. Pre-requisite (if any)	<p>To study this course, a student must have had this subject in Diploma.</p> <p>This course can be opted as an elective by the students of following subjects: / Open for all.</p>		
5. Course Learning outcomes (CLO)	<p>On successful completion course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Able to recall the botanical names of crops 2. Develop the ability to prepare herbarium 3. Survey and inspect the plants growing around 4. Interpret the data available in traditional knowledge 5. Develop the habit of conservation 		
1. Credit Value	2		
2. Total Marks	* Marks: 30 + 70	Min. Passing Marks: 35	

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Part B-Content of the Course		
Total No. of Lectures-0 Tutorials- 0 Practical- 30 (in hours per week): 0-0-2		
Unit	Topics	No. of Lectures
1.	Prepare an inventory of plants in the vicinity (in the College campus, Near Your Home, In your village or town)	30
2.	Herbarium Techniques	
3.	Preparation of Questionnaire for collection of Ethnobotanical data	
4.	Study of Indigenous literature for ethnobotanical knowledge	
5.	Listing of crop plants agricultural and horticultural crops with their varieties growing in your district,	
6.	Study of plants with ethnomedicinal importance	
7.	Preparation of herbal colours from plant products	
8.	Identify the seeds of cereals, millets and legumes	
9.	Prepare herbarium of at least 20 plants of local ethnobotanical importance	
10.	Field visit for ethnobotanical study	
11.	Identification of plant parts of ethnomedicinal importance	
12.	Plantation of at least one RET species of ethnobotanical importance in the campus by every student and conserve it	
*	Ethnomedicinal plant: Digital Herbarium	
	Keywords/Tags: Ethnobotany, Herbarium,	

* Generation of DNA barcodes for medicinal plants

Part C-Learning Resources
Text Books, Reference Books, Other resources
Suggested Readings:
1. Jain, S.K., Manual of Ethnobotany, Scientific Publishers Jodhpur, India, 2010 2nd edition
2. Gary J. Martin, Ethnobotany A methods manual, Chapman & Hall, Madras, India 2004 Author Surname, Initials, "Book Title", Publisher's name, City/country of publication, Year of publication. Edition No. if any.
3. Author Surname, Initials, "Book Title", Publisher's name, City/country of publication, Year of publication. Edition No. if any.
Suggestive digital platforms/ web links
http://www.bhojvirtualuniversity.com/ss/sim/botany/msc_botany_final_paper8_bll.doc .
Suggested equivalent online courses: www.eshiksha.mp.gov.in

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Part D-Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment:	Marks	External Assessment	Marks
Class interaction/ quiz	30	Viva voce on practical	70
attendance		Practical record file	
Assignment(chart/model seminar/rural service/ technology dissertation/ report of excursion/ lab visits/ survey/ industrial visit		Table work/ experiments	
		Total Marks: 100	

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भाग अ- परिचय			
समय/कक्षा: उपरि	कक्षा की संख्या	वर्ष: तृतीय	सत्र: 2023-24
विषय: एम्बीबीटी			
1. पाठ्यक्रम का नाम	CS ROTARY		
2. पाठ्यक्रम का स्तर	विषय: एम्बीबीटी (मैट्रिकल)		
3. पाठ्यक्रम का प्रकार: (कोर्स कोर्स/ डिप्लोमा स्पोर्टिव्स इलेक्टिव / इलेक्टिव/नेलेरिक इलेक्टिव/ कोकेशनल ...)	Minor		
4. पूर्वपेक्षा (Prerequisite) (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र को विषय का अध्ययन डिप्लोमा में करना होगा इस पाठ्यक्रम को निम्नलिखित विषयों के छात्रों द्वारा एक वैकल्पिक विषय के रूप में चुना जा सकता है		
5. पाठ्यक्रम अध्ययन की परिणामिता (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे 1. रीज के महत्व और मनुष्य के साथ उनके संबंध को समझे। 2. समझें कि रीज कैसे संस्कृति और परंपराओं का हिस्सा है। 3. कैसे पारंपरिक चिकित्सा विभिन्न रोगों का इलाज कर सकती है		
4. क्रेडिट मात्रा	4		
5. कुल अंक	अधिपठन अंक: 30+70	अनुष्ठान स्वीकृत अंक: 15	



भाग व पाठ्यक्रम की विषयवस्तु		
व्याख्या की कुल संख्या 60 ट्यूटोरियल- 0 प्रायोगिक 0 (प्रति सप्ताह घंटे में): L-T-P:2-0-0		
इकाई	विषय	व्याख्यान की संख्या (1 घंटा / व्याख्यान)
I	एथनोबोटनी परिचय, अवधारणा, कार्यक्षेत्र और उद्देश्य; एक अंतःविषय विज्ञान के रूप में एथनोबोटनी। एथनोबोटनी की विभिन्न शाखाएँ। वर्तमान संदर्भ में एथनोबोटनी की प्रासंगिकता; भारत के प्रमुख और छोटे जातीय समूह या आदिवासी और उनकी जीवन शैली।	12
II	आदिवासियों द्वारा उपयोग किए जाने वाले पौधे: बी) नशीले पदार्थ और पेय पदार्थ सी) उपयोग। पौराणिक कथाओं में पौधे, पौधों के संबंध में निषेध और कुलदेवता, लोककथाएं और लोककथाएं, आदिवासियों में वन्यजीव संरक्षण। उपमाओं और रूपकों में पौधे।	12
III	भारत में मेडिको-एथनोबोटनिकल स्रोत; एथनो वानस्पतिक प्रथाओं में निम्नलिखित पौधों का महत्व (उनके निवास स्थान और आकारिकी के साथ ए) अज़ादिरवथा इंडिका बी) ओसिमम सैवटम सी) विटेवस नेगुंडो डी) ग्लोरियोसा सुपरबा ई) टीनोस्पेरा कॉर्डिफोलिया एफ) ब्यूटिया मोनोस्पेर्मा जी) कैसिया फिस्टुला एच) इंडिगोफेरा टिवटोरिया। विशेष उदाहरण के साथ आधुनिक चिकित्सा में एथनोबोटनी की भूमिका गजवोल्फिया सेपेंटिना, टर्मिनलिया अर्जुन, आर्टेमिसिया, विथानिया। पादप आनुवंशिक संसाधनों के संरक्षण में जातीय समूहों की भूमिका लुप्तप्राय टैक्स और वन प्रबंधन।	12
IV	एथनोबोटनी और कानूनी पहलू जातीय समूहों के हितों की रक्षा के लिए एथनोबोटनी एक उपकरण के रूप में भारत से कुछ उदाहरणों के साथ धन अवधारणा को साझा करना। बायोपाइरेसी, बौद्धिक संपदा अधिकार और पारंपरिक ज्ञान। जन जैव विविधता रजिस्टर (पीबीआर) और जैव विविधता प्रबंधन समितियों (बीएमसी) की भूमिका।	12
V	त्वचा रोग, क्रोनिकयल सूजन, अस्थमा, पीलिया, मलेरिया, कीड़े का निष्कासन, पीलिया, पाइल्स, गठिया, हृदय रोग, अमीबिक पेयिश, ल्यूकोडर्मा में सामान्य पौधों का अध्ययन।	12
सार बिंदु (कीवर्ड)/टैग		

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भाग २- अनुशासित अध्ययन संग्रहालय	
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संग्रहालय	
अनुशासित महायुक्त पुस्तकें /अन्य/अन्य पाठ्य संग्रहालय/पाठ्य सामग्री-	
1) एस. के. जैन, मैनुअल ऑफ एथनोबोटनी, माइंटिकस पब्लिशर्स, जोधपुर, 1995।	
2) एस. के. जैन (संपा.) ग्लोबल जेन ऑफ इंडियन एथनोबोटनी, ऑक्सफोर्ड और आईबीएच, नई दिल्ली-1981	
3) एन एच अल, पौलियोएथनोबोटनी	
4) एस. के. जैन (संपा.) 1989. एथनोबोटनी में तरीके और एप्लिकेशन। सोसाइटी ऑफ एथनोबोटनिस्ट्स, लखनऊ, भारत	
5) एस. के. जैन, 1990। भारतीय एथनोबोटनी का चोमटाना वैज्ञानिक प्रकाशक जोधपुर	
6) कोरटन सी. एम. 1997. एथनोबोटनी - सिद्धांत और अनुप्रयोग। जॉन विले एंड संस. सिचेस्टर	
7) सभा रे. एल और ए. एल. हेनरी (1996)। आंध्र प्रदेश, भारत में पूर्वी घाटों का एथनोबोटनी। भारतीय वनस्पति सर्वेक्षण हावड़ा	
8) राजीव के. सिन्हा - एथनोबोटनी ट रेनेसांस ऑफ ट्रेडिशनल हर्बल मेडिसिन	
2. अनुशासित डिजिटल प्लेटफॉर्म /वेब लिंक	
अनुशासित समाकष ऑनलाइन पाठ्यक्रम: www.eshiksha.mp.gov.in	

भाग ८ - अनुशासित मूल्यांकन विधियां:		
अनुशासित सतत मूल्यांकन विधियां:		
अधिकतम अंक : 100		
सतत व्यापक मूल्यांकन (CCE) अंक : 30 विश्वविद्यालयीन परीक्षा (UE) अंक: 70		
आंतरिक मूल्यांकन:	वत्सास टेस्ट	30
सतत व्यापक मूल्यांकन (CCE):	असाइनमेंट / प्रस्तुतीकरण (प्रेजेंटेशन)	70
आकलन :	अनुभाग (अ): अति लघु प्रश्न	
विश्वविद्यालयीन परीक्षा: समय-03.00 घंटे	अनुभाग (ब): लघु प्रश्न	
	अनुभाग (स): दीर्घ उत्तरीय प्रश्न	100
	कुल	







प्रायोगिक प्रश्नपत्र

भाग अ- परिचय

कार्यक्रम: उपाधि	कक्षा : बी.एस.सी	वर्ष: तृतीय	सत्र: 2023-24
विषय वनस्पति विज्ञान			
6. पाठ्यक्रम का कोड	S3-BOTA2P		
7. पाठ्यक्रम का शीर्षक	एथनोबॉटनी (प्रायोगिक)		
8. पाठ्यक्रम का प्रकार : (कोर कोर्स/ डिसिप्लिन स्पेसिफिक इलेक्टिव / इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल	Minor		
9. पूर्वापेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने विषय का अध्ययन डिप्लोमा में किया हो।		
10. पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<p>इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे:</p> <ol style="list-style-type: none"> 1. फसलों के वानस्पतिक नामों को याद करने में सक्षम 2. हर्बेरियम तैयार करने की क्षमता विकसित करना 3. आसपास उगने वाले पौधों का सर्वेक्षण और निरीक्षण करें 4. पारंपरिक ज्ञान में उपलब्ध आंकड़ों की व्याख्या करें 5. संरक्षण की आदत विकसित करें 		
3. क्रेडिट मान	2		
4. कुल अंक	अधिकतम अंक: 100	न्यूनतम उत्तीर्ण अंक: 35	

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भाग व पाठ्यक्रम की विषयवस्तु		
व्याख्या की कुल संख्या-0ट्यूटोरियल 0 प्रायोगिक 30 (प्रति सप्ताह घंटे में): 30L-T-P: 0-0-2		
इकाई	विषय	व्याख्या की संख्या (2 घंटे/व्याख्यान)
1.	आसपास के पौधों की एक सूची तैयार करें (कॉलेज परिसर में, अपने घर के पास, अपने गांव या शहर में)	30
2.	हर्बेरियम तकनीक	
3.	एथनोबोटैनिकल डेटा के संग्रह के लिए प्रस्तावती तैयार करना	
4.	नृवंशविज्ञान संबंधी ज्ञान के लिए स्वदेशी साहित्य का अध्ययन	
5.	आपके जिले में उगने वाले फसली पौधों कृषि और बागवानी फसलों की किस्मों की सूची	
6.	एथनोमेडिसिनल महत्व वाले पौधों का अध्ययन	
7.	पादप उत्पादों से हर्बल रंग तैयार करना	
8.	अनाज, बाजरा और फलियों के बीजों की पहचान करें	
9.	स्थानीय नृजातीय वानस्पतिक महत्व के कम से कम 20 पौधों का हर्बेरियम तैयार करें	
10.	नृजातीय वानस्पतिक अध्ययन के लिए क्षेत्र का दौरा	
11.	एथनोमेडिसिनल महत्व के पौधे के हिस्सों की पहचान	
12.	प्रत्येक छात्र द्वारा परिसर में नृजातीय वानस्पतिक महत्व की कम से कम एक आर्सीटी प्रजाति का रोपण और उसका संरक्षण करना	
सार बिंदु (की वर्ड) / टैग: एथनोबोटनी, हर्बेरियम		

भाग स- अनुशंसित अध्ययन संसाधन
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन
अनुशंसित सहायक पुस्तकें /ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:-
1. जैन, एस.के., एथनोबॉटनी का मैनुअल, वैज्ञानिक प्रकाशक जोधपुर, भारत, 2010 दूसरा संस्करण
2. मैरी जे. मार्टिन, एथनोबोटनी ए मेथड्स मैनुअल, वैपमैन एंड हॉल, मद्रास, भारत 2002.
2. अनुशंसित डिजिटल प्लेटफॉर्म/वेब लिंक
अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम: www.eshiksha.mp.gov.in

भाग द - अनुशंसित मूल्यांकन विधियां:

अनुशंसितसतत मूल्यांकन विधियां:

आंतरिक मूल्यांकन:	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद /प्रश्नोत्तरी	30	प्रायोगिक मौखिकी(वायवा)	70
उपस्थिति		प्रायोगिक रिकॉर्ड फाइल	
असाइनमेंट		टेबल वर्क/प्रयोग	
(चार्ट/मॉडल/सेमिनार/ग्रामीण सेवा/प्रौद्योगिकी प्रसार/भ्रमण (एवसकर्शन) की रिपोर्ट/ सर्वेक्षण / प्रयोगशाला भ्रमण (लैब विजिट)/ औद्योगिक यात्रा			
		कुल अंक: 100	

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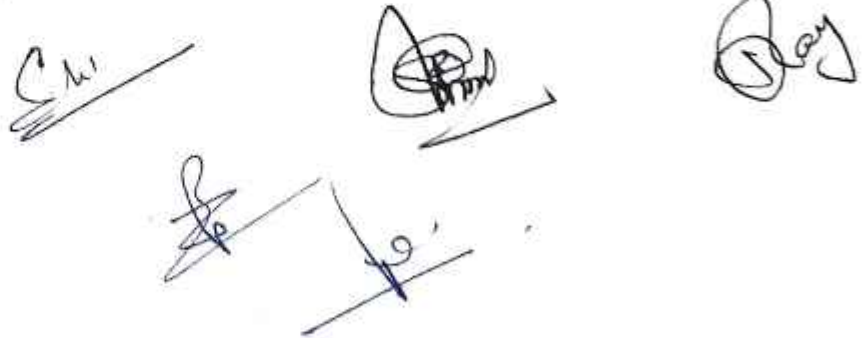
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DEPARTMENT OF BOTANY AND MICROBIOLOGY
 ST. ALOYSIUS COLLEGE (AUTO) JABALPUR
 B.Sc III YEAR
 Theory Paper

Part A Introduction	
Program: Degree	Class: B.Sc.
Year: III	Session: 2023-24
Subject: Botany	
1. Course Code	S3-BOTA2T
2. Course Title	Ethnobotany (Theory)
3. Course Type (Core Course/ Discipline Specific Elective/ Generic Elective /Vocational/....)	<u>Elective</u>
4. Pre-requisite (if any)	To study this course, a student must have had this subject in Diploma.
5. Course Learning outcomes (CLO)	<p>On successful com this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the importance of plants and their relationship with Human being. 2. Explain how plants are a part of culture and traditions. 3. How traditional medicine can cure various diseases
6. Credit Value	3
7. Total Marks	* Marks: 30 + 70 Min. Passing Marks: 35



Part B-Content of the Course

**Total No. of Lectures-60 Tutorials-0 Practical- 0 (in hours per week): L-T-P:
2-0-**

Unit	Topics	No. of Lectures
I	Ethnobotany Introduction, concept, scope and objectives; Ethnobotany as an interdisciplinary science. Various branches of Ethnobotany. The relevance of ethnobotany in the present context; Major and minor ethnic groups or Tribals of India, and their life styles.	10
II	Plants used by the tribals: a) Food plants b) intoxicants and beverages c) Resins and oils and miscellaneous uses. Plants in mythology, Taboos and totems in relation to plants, folklore and folktales, Wildlife protection tribals. Plants in similes and metaphors.	11
III	Medico-ethnobotanical sources in India; Significance of the following plants in ethno botanical practices (along with their habitat and morphology) a) <i>Azadiractha indica</i> b) <i>Ocimum sanctum</i> c) <i>Vitex negundo</i> . d) <i>Gloriosa superba</i> e) <i>Tinospora cordifolia</i> f) <i>Batea monosperma</i> g) <i>Cassia fistula</i> h) <i>Indigofera tinctoria</i> . Role of ethnobotany in modern medicine with special example <i>Rauwolfia serpentina</i> , <i>Terminalia arjuna</i> , <i>Artemisia</i> , <i>Withania</i> . Role of ethnic groups in conservation of plant genetic resources. Endangered taxa and forest management	12
IV	Ethnobotany and legal aspects. Ethnobotany as a tool to protect interests of ethnic groups. Sharing of wealth concept with few examples from India. Biopiracy, Intellectual Property Rights and Traditional Knowledge. Role of Peoples Biodiversity Register (PBR) and Biodiversity Management committees(BMC).	12

Keywords/Tags: Ethnobotany, plants used by Tribals, Common Plants in curing Diseases, PBR

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

- 1) S.K. Jain, Manual of Ethnobotany, Scientific Publishers, Jodhpur, 1995.
- 2) S.K. Jain (ed.) Glimpses of Indian. Ethnobotny, Oxford and I B H, New Delhi - 1981
- 3) Lone et al., Palaeoethnobotany
- 4) S.K. Jain (ed.) 1989. Methods and approaches in ethnobotany. Society of ethnobotanists, Lucknow, India.
- 5) S.K. Jain, 1990. Contributions of Indian ethnobotany, Scientific publishers, Jodhpur. Education

6) Colton C.M. 1997. Ethnobotany - Principles and applications. John and sons - Chichester

7) Rama Ro, N and A.N. Henry (1996). The Ethnobotany of ern Ghats in Andhra Pradesh, India. Botanical Survey of India. Howrah

8) Rajiv K. Sinha - Ethnobotany The Renaissance of Traditional Herbal medicine

Suggestive digital platforms/ web links:
Suggested equivalent online courses: www.eshiksha.mp.gov.in

Part D-Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 30 marks University Exam (UE) 70 marks		
Internal Assessment:	Class Test	30
Continuous Comprehensive Evaluation (CCE):30	Assignment/Presentation	
External Assessment:	Section(A): Very Short Questions Section (B): Short Questions Section (C): Long Questions	70
University Exam Section:70		

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Practical Paper

Part A Introduction			
Program: Degree	Class: B.Sc.	Year: III	Session: 2023-24
Subject: Botany			
1.	Course Code	S3-BOTA2P	
2.	Course Title	Ethnobotany (Practical)	
3.	Course Type (Core Course/ Discipline Specific Elective/Elective/ Generic Elective /Vocational/....)	Elective	
4.	Pre-requisite (if any)	<p>To study this course, a student must have had this subject in Diploma.</p> <p>This course can be opted as an elective by the students of following subjects: / Open for all.</p>	
5.	Course Learning outcomes (CLO)	<p>On successful completion course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Able to recall the botanical names of crops 2. Develop the ability to prepare herbarium 3. Survey and inspect the plants growing around 4. Interpret the data available in traditional knowledge 5. Develop the habit of conservation 	
1.	Credit Value	1	
2.	Total Marks	* Marks: 30 + 70	Min. Passing Marks: 35

Part B-Content of the Course		
Total No. of Lectures-0 Tutorials- 0 Practical- 30 (in hours per week): 0-0-2		
Unit	Topics	No. of Lectures
1.	Prepare an inventory of plants in the vicinity (in the College campus, Near Your Home. In your village or town)	15
2.	Herbarium Techniques	
3.	Preparation of Questionnaire for collection of Ethnobotanical data	
4.	Study of Indigenous literature for ethnobotanical knowledge	
5.	Listing of crop plants agricultural and horticultural crops with their varieties growing in your district,	
6.	Study of plants with ethnomedicinal importance	
7.	Preparation of herbal colours from plant products	
8.	Identify the seeds of cereals, millets and legumes	
9.	Prepare herbarium of at least 20 plants of local ethnobotanical importance	
10.	Field visit for ethnobotanical study	
11.	Identification of plant parts of ethnomedicinal importance	
12.	Plantation of at least one RET species of ethnobotanical importance in the campus by every student and conserve	
★	II. Ethnomedicinal plant: Digital Herbarium Keywords/Tags: Ethnobotany, Herbarium,	

★ generation of DNA barcodes for medicinal plants

Part C-Learning Resources
Text Books, Reference Books, Other resources
<p>Suggested Readings:</p> <ol style="list-style-type: none"> 1. Jain, S.K., Manual of Ethnobotany, Scientific Publishers Jodhpur, India, 2010 2nd edition 2. Gary J. Martin, Ethnobotany A methods manual, Chapman & Hall, Madras, India 2004 Author Surname, Initials, "Book Title", Publisher's name, City/country of publication, Year of publication. Edition No. if any. 3. Author Surname, Initials, "Book Title", Publisher's name, City/country of publication, Year of publication. Edition No. if any. <p>Suggestive digital platforms/ web links http://www.bhojvirtualuniversity.com/ss/sim/botany/msc_botany_final_paper8_bll.doc Suggested equivalent online courses: www.eshiksha.mp.gov.in</p>

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Part D-Assessment and Evaluation			
Suggested Continuous Evaluation Methods:			
Internal Assessment:	Marks	External Assessment	Marks
Class interaction/ quiz	30	Viva voce on practical	70
attendance		Practical record file	
Assignment(chart/model seminar/rural service/ technology dissertation/ report of excursion/ lab visits/ survey/ industrial visit		Table work/ experiments	
		Total Marks: 100	

SW

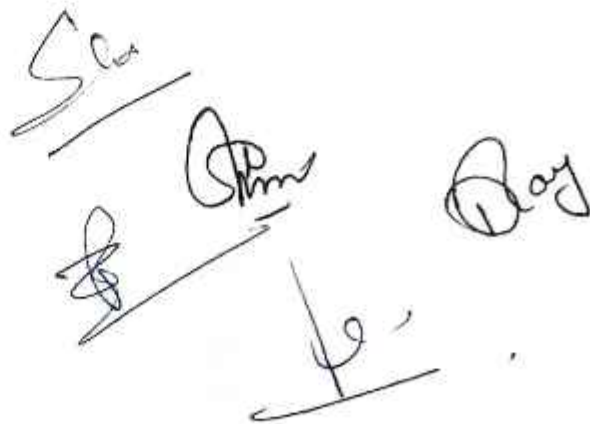
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सैद्धांतिक प्रश्नपत्र

भाग अ- परिचय			
कार्यक्रम: उपाधि	कक्षा : बी.एस.सी	वर्ष : तृतीय	सत्र: 2023-24
विषय: एथनोबोटनी			
1. पाठ्यक्रम का कोड	S3-BOTA2T		
2. पाठ्यक्रम का शीर्षक	विषय: एथनोबोटनी (सैद्धांतिक)		
3. पाठ्यक्रम का प्रकार : (कोर कोर्स/ डिस्टिक्ट स्पेशलिफिक इलेक्टिव / इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल	इलेक्टिव		
4. पूर्वपेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने विषय का अध्ययन डिप्लोमा में किया हो। इस पाठ्यक्रम को निम्नलिखित विषयों के छात्रों द्वारा एक वैकल्पिक विषय के रूप में चुना जा सकता है		
5. पाठ्यक्रम अध्ययन की परिस्थितियां (कोर्स लर्निंग आउटकम) (CLO)	इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे: 1. पीपों के महत्व और मनुष्य के साथ उनके संबंध को समझे। 2. समझएं कि पीपे कैसे संस्कृति और परंपराओं का हिस्सा हैं। 3. कैसे पारंपरिक चिकित्सा विभिन्न रोगों का इलाज कर सकती है		
4. क्रेडिट मान	3		
5. कुल अंक	अधिकतम अंक: 30+70	न्यूनतम उत्तीर्ण अंक: 35	



भाग व पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या 60 ट्यूटोरियल- 0 प्रायोगिक 0 (प्रति सप्ताह घंटे में): L-T-P:2-0-0		
इकाई	विषय	व्याख्यान की संख्या (1 घंटा / व्याख्यान)
I	एथनोबोटनी परिचय, अवधारणा, कार्यक्षेत्र और उद्देश्य; एक अंतःविषय विज्ञान के रूप में एथनोबोटनी। एथनोबोटनी की विभिन्न शाखाएँ वर्तमान संदर्भ में एथनोबोटनी की प्रासंगिकता; भारत के प्रमुख और छोटे जातीय समूह या आदिवासी और उनकी जीवन शैली।	10
II	आदिवासियों द्वारा उपयोग किए जाने वाले पौधे: बी) नशीले पदार्थ और पेय पदार्थ सी) उपयोग। पौराणिक कथाओं में पौधे, पौधों के संबंध में निषेध और कुलदेवता, लोककथाएं और लोककथाएं, आदिवासियों में वन्यजीव संरक्षण। उपमाओं और रूपकों में पौधे।	11
III	भारत में मेडिको-एथनोबोटनिकल स्रोत; एथनो वानस्पतिक प्रथाओं में निम्नलिखित पौधों का महत्व (उनके निवास स्थान और आकारिकी के साथ) ए) अजादिरवथा इंडिका बी) ओसिमम सैंवटम सी) विटैस नेगुंडो डी) ग्लोरियोसा सुपरबा ई) टीनोस्पेरा कॉर्डिफोलिया एफ) ब्यूटिया मोनोस्पेर्मा जी) कैसिया फिस्टुला एच) इंडिगोफेरा टिवटोरिया। विशेष उदाहरण के साथ आधुनिक चिकित्सा में एथनोबोटनी की भूमिका राउबोर्फिया सेपेंटेना, टर्मिनलिया अर्जुन, आर्टेमिसिया, विथानिया। पादप आनुवंशिक संसाधनों के संरक्षण में जातीय समूहों की भूमिका लुप्तप्राय टैक्स और वन प्रबंधन।	12
IV	एथनोबोटनी और कानूनी पहलू जातीय समूहों के हितों की रक्षा के लिए एथनोबोटनी एक उपकरण के रूप में भारत से कुछ उदाहरणों के साथ धन अवधारणा को साझा करना बायोपाइरेसी, बौद्धिक संपदा अधिकार और पारंपरिक ज्ञान जन जैव विविधता रजिस्टर (पीबीआर) और जैव विविधता प्रबंधन समितियों (बीएमसी) की भूमिका।	12

भाग स- अनुशासित अध्ययन संसाधन	
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन	
अनुशासित सहायक पुस्तकें/ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:-	
1) एस. के. जैन, मैनुअल ऑफ एथनोबोटनी, साइंटिफिक पब्लिशर्स, जोधपुर, 1995।	
2) एस.के. जैन (संपा.) ग्लोबल एज ऑफ इंडियन। एथनोबोटनी, ऑक्सफोर्ड और आईबीएच, नई दिल्ली-1981	
3) लोन एट अल, पैलियोएथनोबोटनी	
4) एस.के. जैन (संपा.) 1989. एथनोबोटनी में तरीके और टिप्पणियाँ। सोसाइटी ऑफ एथनोबोटनिस्ट्स, लखनऊ, भारत।	
5) एस.के. जैन, 1990। भारतीय एथनोबोटनी का योगदान वैज्ञानिक प्रकाशक जोधपुर।	
6) कोल्टन सी.एम. 1997. एथनोबोटनी - सिद्धांत और अनुप्रयोग। जॉन विले एंड संस - विचेस्टर	
7) रामा से, एन और ए. एन. हेनरी (1996)। आंध्र प्रदेश, भारत में पूर्वी घाटों का एथनोबोटनी। भारतीय वनस्पति सर्वेक्षण। हावड़ा	

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8) राजीव के. सिन्हा - एथनोबोटनी द रेनेसां ऑफ ट्रेडिशनल हर्बल मेडिसिन

2. अनुशंसित डिजिटल प्लेटफॉर्म /वेब लिंक

अनुशंसित समकक्ष ऑनलाइन पार्यायकमः: www.eshiksha.mp.gov.in

भाग द - अनुशंसित मूल्यांकन विधियां:

अनुशंसितसतत मूल्यांकन विधियां:

अधिकतम अंक : 100

सतत व्यापक मूल्यांकन (CCE) अंक : 30 विश्वविद्यालयीनपरीक्षा (UE) अंक: 70

आंतरिक मूल्यांकन:	बलास टेस्ट	30
सतत व्यापक मूल्यांकन (CCE):	असाइनमेंट / प्रस्तुतीकरण (प्रेजेंटेशन)	
आकलन :	अनुभाग (अ): अति लघु प्रश्न	70
विश्वविद्यालयीन परीक्षा: समय- 03.00 घंटे	अनुभाग (ब): लघु प्रश्न अनुभाग (स): दीर्घ उत्तरीय प्रश्न	
	कुल	100

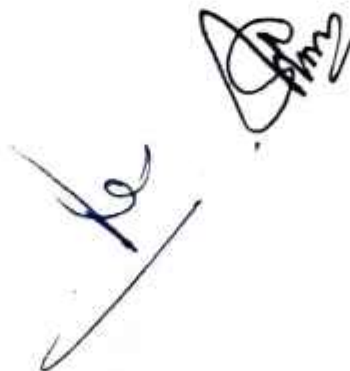
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प्रायोगिक प्रश्नपत्र

भाग अ- परिचय

कार्यक्रम: उपाधि	कक्षा : बी.एस.सी	वर्ष: तृतीय	सत्र: 2023-24
विषय वनस्पति विज्ञान			
6. पाठ्यक्रम का कोड	S3-BOTA2P		
7. पाठ्यक्रम का शीर्षक	एथनोबॉटनी (प्रायोगिक)		
8. पाठ्यक्रम का प्रकार : (कोर कोर्स/ डिसिप्लिन स्पेसिफिक इलेक्टिव / इलेक्टिव/जेनेरिक इलेक्टिव/ वोकेशनल)	इलेक्टिव		
9. पूर्वापेक्षा (Prerequisite). (यदि कोई हो)	इस कोर्स का अध्ययन करने के लिए, छात्र ने विषय का अध्ययन डिप्लोमा में किया हो।		
10. पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम) (CLO)	<p>इस पाठ्यक्रम के सफल समापन पर, विद्यार्थी निम्न में सक्षम होंगे:</p> <ol style="list-style-type: none"> 1. फसलों के वानस्पतिक नामों को याद करने में सक्षम 2. हर्बेरियम तैयार करने की क्षमता विकसित करना 3. आसपास उगने वाले पौधों का सर्वेक्षण और निरीक्षण करें 4. पारंपरिक ज्ञान में उपलब्ध आंकड़ों की व्याख्या करें 5. संरक्षण की आदत विकसित करें 		
3. क्रेडिट मान	1		
4. कुल अंक	अधिकतम अंक: 100	न्यूनतम उत्तीर्ण अंक: 35	







भाग व पाठ्यक्रम की विषयवस्तु		
व्याख्यान की कुल संख्या-0 द्यूलीरियल 0 प्रायोगिक 30 (प्रति सप्ताह घंटे में): 30L-T-P: 0-0-2		
इकाई	विषय	व्याख्यान की संख्या (2 घंटे/व्याख्यान)
1.	आसपास के पौधों की एक सूची तैयार करें (कॉलेज परिसर में, अपने घर के पास, अपने गांव या शहर में)	15
2.	हर्बेरियम तकनीक	
3.	एथनोबोटैनिकल डेटा के संग्रह के लिए प्रश्नावली तैयार करना	
4.	नृवंशविज्ञान संबंधी ज्ञान के लिए स्वदेशी साहित्य का अध्ययन	
5.	आपके जिले में उगने वाले फसली पौधों कृषि और बागवानी फसलों की किस्मों की सूची	
6.	एथनोमेडिसिनल महत्व वाले पौधों का अध्ययन	
7.	पादप उत्पादों से हर्बल रंग तैयार करना	
8.	अनाज, बाजरा और फलियों के बीजों की पहचान करें	
9.	स्थानीय नृजातीय वानस्पतिक महत्व के कम से कम 20 पौधों का हर्बेरियम तैयार करें	
10.	नृजातीय वानस्पतिक अध्ययन के लिए क्षेत्र का दौरा	
11.	एथनोमेडिसिनल महत्व के पौधे के हिस्सों की पहचान	
12.	प्रत्येक छात्र द्वारा परिसर में नृजातीय वानस्पतिक महत्व की कम से कम एक आर्स्टी प्रजाति का रोपण और उसका संरक्षण करना।	
सार बिंदु (की वर्ड) / टैग: एथनोबोटनी, हर्बेरियम		

भाग स- अनुशासित अध्ययन संसाधन	
पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन	
अनुशासित सहायक पुस्तकें /ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:-	
1. जैन, एस.के., एथनोबोटनी का मैनुअल, वैज्ञानिक प्रकाशक जोधपुर, भारत, 2010 दूसरा संस्करण	
2. गैरी जे. मार्टिन, एथनोबोटनी ए मेथड्स मैनुअल, चैपमैन एंड हॉल, मद्रास, भारत 2002.	
2. अनुशासित डिजिटल प्लेटफॉर्म/वेब लिंक	
अनुशासित समकक्ष ऑनलाइन पाठ्यक्रम: www.eshiksha.mp.gov.in	

भाग द - अनुशासित मूल्यांकन विधियां:			
अनुशासितसतत मूल्यांकन विधियां:			
आंतरिक मूल्यांकन:	अंक	बाह्य मूल्यांकन	अंक
कक्षा में संवाद /प्रश्नोत्तरी	30	प्रायोगिक मौखिकी(वायवा)	70
उपस्थिति		प्रायोगिक रिकॉर्ड फाइल	
असाइनमेंट (वार्ट/मॉडल/सेमिनार/ग्रामीण सेवा/प्रायोगिकी प्रसार/भ्रमण (एक्सकर्सन) की रिपोर्ट/ सर्वेक्षण / प्रयोगशाला भ्रमण (लैब विजिट)/ औद्योगिक यात्रा		टेबल वर्क/प्रयोग	
		कुल अंक: 100	

St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
B.Sc. I Semester Industrial Microbiology
 Tools and techniques in Microbiology
 Paper—1/ Major / MINOR
 Format for Syllabus of Theory Paper

Part A- Introduction			
Program: Certificate	Class: B.Sc.	Semester : I	Session: 2023-24
Subject: Industrial Microbiology			
1	Course Code	SIINMB1T	
2	Course Title	Tools and Technique in Industrial Microbiology	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)	Core Course	
4	Pre-requisite (If any)	To study this course, a student must have had the subject Biology in Class/12th/certificate/diploma.	
5	Course Learning Outcomes (CLO)	On completion of this course, the learners will CO 1- be able to understand the relevance of microscopic approaches in life sciences. CO 2- develop skills to understand concept and applications of instruments used in life sciences. CO 3- develop scientific understanding of analytical techniques CO 4- be able to interpret the results of an experiment CO 5- demonstrate use of different tools and different modern techniques in the field of Industrial Microbiology.	
6	Credit Values	4	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures- Tutorials- Practical (in hours per week): 60 Hrs			
L-T-P:			
Unit	Topics	No. of Lectures	
1	Microscopy and Microscopic Techniques Principle and application of light microscopy, dark field microscopy, phase contrast microscopy, fluorescence microscopy, confocal microscopy, Electron Microscopy, scanning & transmission electron microscopy, AFM Atomic Force Microscopy, Micrometry, Camera Lucida software in Microscopy	12 Hrs	
2	Chromatography and Electrophoresis ❖ Principle, application and affinity of paper chromatography (including 2-D & descending chromatography) ❖ Thin layer Chromatography – column packing & fraction collection ❖ Gel filtration chromatography and Ion Exchange Chromatography ❖ GLC and HPLC principle and application ❖ Principle and application of native polyacrylamide gel electrophoresis, SDS – polyacrylamide gel electrophoresis,	12 Hrs	



	2D gel electrophoresis, isoelectric focusing, zymograph preparation, agarose gel electrophoresis	
3	Spectrometry, Colorimetry, Turbidometry and Centrifugation <ul style="list-style-type: none"> ❖ Principle and use of absorption spectra of biomolecules. Their analysis using UV and visible range. ❖ Principle and use of colorimetry ❖ Principle and use of turbidometry ❖ Principle and types of analytical centrifugation, RCF and sedimentation co-efficient, ultra centrifugation and types of gradient ❖ pH meter, autoclave, hot air oven, incubator and BOD incubator and Laminar Air Flow. 	12 Hrs
4	Culture Techniques <ul style="list-style-type: none"> ❖ Culture media, preparation, types- define differential, selective and enrichment culture media ❖ Isolation techniques – pour plate, spread plate, streak plate, serial dilution method. ❖ Pure culture, enrichment culture and micromanipulator. ❖ Maintenance and preservation of pure microbial cultures. ❖ Lyophilization and cryopreservation. 	12 Hrs
5	Sterilization and Staining Techniques <ul style="list-style-type: none"> ❖ Sterilization – Principle & method of sterilization, physical and chemical agents of sterilization. ❖ Disinfectants, antiseptics, phenol coefficient ❖ Nature of dyes, physical and chemical theories of staining ❖ Principle, procedure and application of simple staining, negative staining, differential staining. ❖ Study of Aseptic techniques – preparation of cotton plugs for test tubes and pipettes, wrapping of petri plates and pipettes. 	12 Hrs

Keywords/Tags; Techniques, microscopy, chromatography, spectrophotometry, sterilization

Part C- Learning Resources

Text Books, Reference Books, Other resources

Suggested Books:

1. Tools & Techniques in Microbiology – Nath & Upadhyay
2. Principles & Techniques of Biochemistry and Molecular Biology Cambridge University Press – Wilson & Walker J 2010
3. Hand book of techniques in microbiology AS Karwa, MK Rai, HB Singh (A Laboratory guide to microbes)
4. Tools & Techniques of microbiology text book by Sundara S Rajan
5. Hand book of microbiology – PS Bisen and Kavita Verma
6. Practical Microbes A Laboratory Manual by B Senthil Kumar, Zothansganga, D Senbagam, N Senthil Kumar, G Gurusubramaniam (Paper Back – Kumar BS)

2. Suggestive digital platform web links

- Suggested equivalent online courses:**
<http://nptel.ac.in/courses/104/104/104104066/> analytical methods
<http://nptel.ac.in/courses/102/107/102107028/> techniques tools

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Part D – Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE): 60 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE): 40	Class Test	15
	Assignment/Presentation	25
External Assessment: University Exam Section: 60 Time – 02:00 Hours	Section (A): Three Very Short Questions (50 words each) Section (B): Three Short Questions (200 words each) Section (C): Three Long Questions (500 words each)	Total : 60

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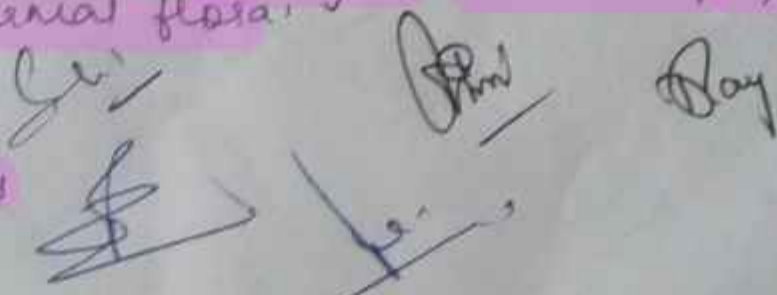
St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
B.Sc. I Semester Industrial Microbiology
 Tools and techniques in Microbiology
 Paper—1/Major/MINOR
 Practical

Part A- Introduction			
Program: Certificate	Class: B.Sc.	Semester: First	Session: 2023-2024
Subject: Industrial Microbiology			
1	Course Code	SIINMBIP	
2	Course Title	Techniques in Industrial Microbiology	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/....)	CORE	
4	Pre-requisite (If any)	To study this course, a student must have had the subject BIOLOGY in class/12th/certificate/diploma.	
5	Course Learning Outcomes (CLO)	On completion of this course, learners will able to: To be able to understand the role and use of different tools and different modern techniques in the study's of industrial microbiology	
6	Credit Value	2	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B- Content of the Course		
Total No. of Lectures- Tutorials- Practical (in hours per week): 30 hrs		
L-T-P:		
Unit	Topics	No. of Lectures
1	Study of fluorescent micrographs to visualize bacterial cells	30 hrs
2	Ray diagram of phase contrast microscopy & electron microscopy	
3	Separation of mixture in by paper/ thin layer chromatography	
4	Demonstration of column packing in any form of column chromatography	
5	Separation of protein mixture by any form of chromatography	
6	Separation of protein mixture by polyacrylamide Gel Electrophoresis page	
7	Determination of Lamda max for and unknown sample and calculation of extinction coefficient	
8	Separation of component of a given mixture using a laboratory scale centrifuge	
9	Understand density gradient centrifugation with help of pictures	
10	To study the principle and application of important instruments- colony counter, autoclave, incubator, hot air oven, pH meter, laminar air flow.	
11	Preparation of culture media for bacterial cultivation	

★ Micro biology at home: Study on milk sample, packaged food, preserved food, normal flora.

★ Isolation of microflora from nature: waterbodies



12	Sterilization of medium by using autoclave and assessment for sterility	
13	Sterilization of glassware using hot air oven and assessment for sterility	
14	Sterilization of heat sensitive material by membrane filtration and assessment for sterility	
15	Demonstration of the presence of micro flora in the environment by exposing nutrient agar plates to air	
16	Simple staining, Gram staining, methylene blue staining	
17	Pure culture techniques, pour, streak & spread. Use of inoculation loop and needle, demonstration	
18	To study the principle and application of incubators, centrifuge. Different types of filter and colony counter, calorimeter and spectrophotometer	

Keywords/Tags: MICROBIAL PRACTICAL TECHNIQUES

Part C- Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

Essential of Practical Microbiology 2Nd Edition 2021 by SASTRY APURBA S, Jaypee

Suggestive digital platforms web links

<http://nptel.ac.in/courses/104/104/104104066/> analytical methods
<http://nptel.ac.in/courses/102/107/102107028/> techniques tools

Suggested equivalent online courses:

Part D- Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/ Quiz	10	Viva Voice on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit)	20	Table work/ Experiments	50
		Major Exercise 20 marks, Two minor exercise 10 marks each, spotting 10 marks	
TOTAL	40		60

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
B.Sc. I Semester Industrial Microbiology
Tools and techniques in Microbiology
Paper - Elective
Format for Syllabus of Theory Paper

Part A- Introduction			
Program: Certificate	Class: B.Sc.	Semester : I	Session: 2023-24
Subject: Industrial Microbiology			
1	Course Code	SIINMB1T	
2	Course Title	Tools and Technique in Industrial Microbiology	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)	Elective	
4	Pre-requisite (If any)	To study this course, a student must have had the subject Biology in Class/12th/certificate/diploma.	
5	Course Learning Outcomes (CLO)	On completion of this course, the learners will CO 1- be able to understand the relevance of microscopic approaches in life sciences. CO 2- develop skills to understand concept and applications of instruments used in life sciences. CO 3- develop scientific understanding of analytical techniques CO 4- be able to interpret the results of an experiment CO 5- demonstrate use of different tools and different modern techniques in the field of Industrial Microbiology.	
6	Credit Values	3	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B- Content of the Course

Total No. of Lectures- Tutorials- Practical (in hours per week): 60 Hrs

L-T-P:

Unit	Topics	No. of Lectures
1	Microscopy and Microscopic Techniques Principle and application of light microscopy, dark field microscopy, phase contrast microscopy, fluorescence microscopy, confocal microscopy, Electron Microscopy, scanning & transmission electron microscopy, AFM Atomic Force Microscopy, Micrometry, Camera Lucida software in Microscopy	10 Hrs
2	Spectrometry, Colorimetry, Turbidometry and Centrifugation ❖ Principle and use of absorption spectra of biomolecules. Their analysis using UV and visible range. ❖ Principle and use of colorimetry ❖ Principle and use of turbidometry ❖ Principle and types of analytical centrifugation, RCF and sedimentation co-efficient, ultra centrifugation and types of gradient ❖ pH meter, autoclave, hot air oven, incubator and BOD incubator and Laminar Air Flow.	11Hrs
3	Culture Techniques ❖ Culture media, preparation, types- define differential, selective and enrichment culture media ❖ Isolation techniques – pour plate, spread plate, streak plate, serial dilution method. ❖ Pure culture, enrichment culture and micromanipulator. ❖ Maintenance and preservation of pure microbial cultures. ❖ Lyophilization and cryopreservation.	12 Hrs
4	Sterilization and Staining Techniques ❖ Sterilization – Principle & method of sterilization, physical and chemical agents of sterilization. ❖ Disinfectants, antiseptics, phenol coefficient ❖ Nature of dyes, physical and chemical theories of staining ❖ Principle, procedure and application of simple staining, negative staining, differential staining. ❖ Study of Aseptic techniques – preparation of cotton plugs for test tubes and pipettes, wrapping of petri plates and pipettes.	12 Hrs

Keywords/Tags; Techniques, microscopy, chromatography, spectrophotometry, sterilization

Part C- Learning Resources

Text Books, Reference Books, Other resources

Suggested Books:

1. Tools & Techniques in Microbiology – Nath & Upadhyay
 2. Principles & Techniques of Biochemistry and Molecular Biology Cambridge University Press – Wilson & Walker J 2010
 3. Hand book of techniques in microbiology AS Karwa, MK Rai, HB Singh (A Laboratory guide to microbes)
 4. Tools & Techniques of microbiology text book by Sundara S Rajan
 5. Hand book of microbiology – PS Bisen and Kavita Verma
 6. Practical Microbes A Laboratory Manual by B Senthil Kumar, Zothansganga, D Senbagam, N Senthil Kumar, G Gurusubramaniam (Paper Back – Kumar BS)
2. Suggestive digital platform web links

Suggested equivalent online courses:

<http://nptel.ac.in/courses/104/104/104104066/> analytical methods
<http://nptel.ac.in/courses/102/107/102107028/> techniques tools

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Part D – Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks University Exam (UE): 60 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE): 40	Class Test	15
	Assignment/Presentation	25
External Assessment: University Exam Section: 60 Time – 02:00 Hours	Section (A): Objective type questions Section (B): Short answer type questions Section (C): Long answer type questions	Total : 60

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Day

St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. I Semester Industrial Microbiology
 Tools and techniques in Microbiology
 Paper- Elective
 Practical

Part A- Introduction			
Program: Certificate	Class: B.Sc.	Semester: First	Session: 2023-2024
Subject: Industrial Microbiology			
1	Course Code	SIINMBIP	
2	Course Title	Techniques in Industrial Microbiology	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/....)	Elective	
4	Pre-requisite (If any)	To study this course, a student must have had the subject BIOLOGY in class/12th/certificate/diploma.	
5	Course Learning Outcomes (CLO)	On completion of this course, learners will able to: To be able to understand the role and use of different tools and different modern techniques in the study's of industrial microbiology	
6	Credit Value	1	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures- Tutorials- Practical (in hours per week): 30 hrs			
L-T-P:			
Unit	Topics	No. of Lectures	
1.	Study of fluorescent micrographs to visualize bacterial cells	15 hrs	
2.	Ray diagram of phase contrast microscopy & electron microscopy		
3.	Determination of Lamda max for and unknown sample and calculation of extinction coefficient		
4.	Separation of component of a given mixture using a laboratory scale centrifuge		
5.	Understand density gradient centrifugation with help of pictures		
6.	To study the principle and application of important instruments- colony counter, autoclave, incubator, hot air oven, pH meter, laminar air flow		
7.	Preparation of culture media for bacterial cultivation		
8.	Sterilization of medium by using autoclave and assessment for sterility		
9.	Sterilization of glassware using hot air oven and assessment for sterility		

★ Microbiology at home: Study on milk sample, packaged food, preserved food, normal flora.

Isolation of microflora from nature: waterbodies.

Day

10.	Sterilization of heat sensitive material by membrane filtration and assessment for sterility	
11.	Demonstration of the presence of micro flora in the environment by exposing nutrient agar plates to air	
12.	Simple staining, Gram staining, methylene blue staining	
13.	Pure culture techniques, pour, streak & spread. Use of inoculation loop and needle, demonstration	
14.	To study the principle and application of incubators, centrifuge. Different types of filter and colony counter, calorimeter and spectrophotometer	

Keywords/Tags: MICROBIAL PRACTICAL TECHNIQUES

Part C- Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

Essential of Practical Microbiology 2Nd Edition 2021 by SASTRY APURBA S, Jaypee

Suggestive digital platforms web links

<http://nptel.ac.in/courses/104/104/104104066/> analytical methods

<http://nptel.ac.in/courses/102/107/102107028/> techniques tools

Suggested equivalent online courses:

Part D- Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/ Quiz	10	Viva Voice on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit)	20	Table work/ Experiments Major Exercise 20 marks, Two minor exercise 10 marks each, spotting 10 marks	50
TOTAL	40		60

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
 B.Sc. II Semester Industrial Microbiology
 Fundamentals of Industrial Microbiology
 Paper—2/ Major / MINOR
 Format for Syllabus of Theory Paper

Part A – Introduction			
Program: Certificate	Class: B.Sc.	Semester: II	Session: 2023-2024
Subject: Industrial Microbiology			
1	Course Code	SIINMB2T	
2	Course Title	FUNDAMENTALS OF INDUSTRIAL MICROBIOLOGY	
3	Course Type (Core Course/ Elective/ Generic Elective/ Vocational/.....)	CORE COURSE	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology in class/12th	
5	Course Learning Outcome (CLO)	On completion of this course, the learners will CO 1- be able to understand the history and development of Microbiology CO 2- be able to describe the role and significance of microorganisms in societal welfare. CO 3- be able to identify and classify the important microorganisms. CO 4- be able to discover the contributions of important scientists in the field of Microbiology.	
6	Credit Value	4	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B – Content of the Course

Total No. of Lectures- Tutorials- Practical (in hours per week): 60 hrs

L-T-P:

Unit	Topic	No. of Lectures
1	HISTORY AND SCOPE 1.1 Development of Industrial Microbiology 1.2 Germ Theory of Disease 1.3 Scope and Application of Industrial Microbiology in human welfare. 1.4 Contribution of – A.V. Leeuwenhoek, Alexander Fleming, Louis Pasteur, Robert Koch, Edward Jenner, Joseph Lister. 1.5 Development of various Microbiological techniques and Golden Era of Industrial Microbiology. <i>Women Scientists in life science</i>	10 hrs
2	MICROBIAL DIVERSITY: A 2.1 Systems of Classification – Binomial Nomenclature, Whittaker's five kingdom, Carl Woese's three domain classification system and their utility. 2.2 VIRUS: Classification, General characteristics, Structure and Reproduction of viruses. 2.3 Viroids and Prions 2.4 Life cycle of RNA and DNA virus, Lytic cycle and Lysogeny 2.5 BACTERIA: General characteristics 2.6 Classification, Ultra structure and Reproduction of bacteria 2.7 Role of bacteria in Industries.	14 hrs
3	MICROBIAL DIVERSITY: B	14 hrs

	<p>3.1 Bacteria with unusual properties: General characteristics, occurrence, reproduction and economic importance of the following:- <i>Cyanobacteria, Mycoplasma, Rickettsia</i> and <i>Actinomycetes</i>.</p> <p>3.2 Beneficial and harmful microbes and their role in daily life</p> <p>3.3 Archaea- habit and general morphological characters</p> <p>3.4 Important Representative of Archaea- Methanogens and thermophiles.</p>	
4	<p>MICROBIAL DIVERSITY: C (EUKARYOTIC MICROORGANISMS)</p> <p>4.1 Morphological features, classification and characteristics of Myxomycetes (Slime Mould)</p> <p>4.2 Some microbiologically important Micro Fungi – <i>Rhizopus, Mucor, Neurospora, Aspergillus, Penicillium, Yeast</i> and <i>Agaricus</i>.</p> <p>4.3 General account of Microbiologically important Algae.</p> <p>4.4 Role of Fungi in Medicines and in Industries.</p>	12 hrs
5	<p>APPLICATIONS OF MICROBES IN INDUSTRIAL MICROBIOLOGY:</p> <p>5.1 Application in human therapeutics.</p> <p>5.2 Agriculture (Biofertilizers and Mycorrhizae)</p> <p>5.3 Environmental and Food Technology.</p> <p>5.4 Use of Prokaryotic and Eukaryotic microorganisms in Biotechnological applications.</p> <p>5.5 Genetically engineered microbes for Industrial application.</p> <p>5.6 Alternative source of Energy.</p>	10 hrs

Keywords/ Tags: History and diversity of micro-organisms

Part C – Learning Resources

Text Books, Reference Books and Other books

Suggested Readings:

1. Microbiology- Pelczar, Chan and Kreig, Ingrahm.
2. General microbiology- Stainier, Ingharam, Wheelis and Painter.
3. Biology of Microorganisms- Brook and Madigan.
4. Fundamental Principles of Bacteriology- A.J. Salle.
5. Introduction to Microbiology- Ingraham and Ingraham.
6. Tools and Techniques in Microbiology by Nath and Upadhyay.
7. Powar C.B. and H.F. Dagainawa (2003). General Microbiology Vol.2; Himalaya Publishing House.
8. Dubey R.C. and D.K. Maheswari (2004). A text book of Microbiology, 1st Edition; S.C. Chand and Company Ltd.

Suggested equivalent online courses:

BASIC MICROBIOLOGY <http://nptel.ac.in/courses/102/103/102103015>

Part D – Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks University Exam (UE): 60 Marks

Internal Assessment:	Class Test	15
Continuous Comprehensive Evaluation (CCE): 40	Assignment/ Presentation	25
External Assessment:	Section (A): Three Very Short Questions	Total: 60
University Exam Section: 60	Section (B): Four Short Questions Section	
Time – 02:00 hours	(C): Two Long Questions	

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
B.Sc. II Semester Industrial Microbiology
 Fundamentals of Industrial Microbiology
 Paper—2/ Major
Practical

Syllabus of Practical Paper

Part A – Introduction

Program: Certificate	Class: B.Sc.	Semester: II	Session: 2023-2024
Subject: Industrial Microbiology			
1	Course Code	S1INMB2P	
2	Course Title	BASIC EXERCISES IN INDUSTRIAL MICROBIOLOGY	
3	Course Type: (Core Course/Elective/Generic Elective/Vocational/.....)	CORE COURSE	
4	Pre-requisite (if any)	To study this course, a student must have had the subject BIOLOGY in class/12th	
5	Course Learning Outcomes (CLO)	On completion of this course, learners will be able to : To stain and identify bacteria and understand the working of various instruments used in basic study of bacteria.	
6	Credit Values	2	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B – Content of the Course

Total No. of Lectures- Tutorials- Practical (in hours per week): Total – 30 hrs

L-T-P:

Unit	Topic	No. of Lectures
1	Safety measures in Laboratory	30 hrs
2	Cleaning and Sterilization of glassware's.	
3	Use of microscope.	
4	Study of equipment used in Microbiology laboratory – Hot air oven, Autoclave, Laminar air flow, colony counter, inoculation loop and needle, incubator, pH meter, etc.	
5	Study of aseptic techniques – Preparation cotton plug for test tubes, wrapping of petri plates	
6	Staining of bacteria, Metachromatic staining, cell wall staining, spore staining, Staining of Fungi and Algae	
7	Use of micrometre and Camera Lucida.	
8	Microscopic Examination of living microorganisms.	
9	Preparation of Bacterial smear.	
10	Study of <i>Rhizopus</i> , <i>Mucor</i> , <i>Penicillium</i> , <i>Aspergillus</i> and yeasts.	
11	Slide culture techniques for studying morphology of Moulds.	
12	Microscopic observation of Michorrhiza Infection	
13	Study of Cyanobacteria.	
14	Study of structure and types of mushroom.	

Keywords/ Tags: Basic Microbiology Practicals

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Practical Microbiology by Dr. R.C. Dubey & D.K. Maheshwary. S Chand Publications.
2. Microbiology: A Laboratory Manual by James G. Cappuccino & Natalie Sherman.
3. Experiments in Microbiology Plant Pathology, Tissue Culture Microbial Biotechnology by A.R. Aneja. New Age International Publishers

Suggested equivalent online courses:

<http://nptel.ac.in/courses/102/103/102103044/> techniques and tools and microbiology

<http://nptel.ac.in/courses/104/105/104105102/> techniques in microbiology

Part D - Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/ Quiz	10	Viva Voice on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/ Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit)	20	Table work/ Experiments Major Exercise 20 marks, Two minor exercise 10 marks, spotting 10 marks	50
TOTAL	40		60

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
B.Sc. II Semester Industrial Microbiology
 Fundamentals of Industrial Microbiology
 Paper—2/ Elective

Format for Syllabus of Theory Paper

Part A – Introduction			
Program: Certificate	Class: B.Sc.	Semester: II	Session: 2023-2024
Subject: Industrial Microbiology			
1	Course Code	SIINMB2T	
2	Course Title	FUNDAMENTALS OF INDUSTRIAL MICROBIOLOGY	
3	Course Type (Core Course/ Elective/ Generic Elective/ Vocational/.....)	Elective	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology in class/12th	
5	Course Learning Outcome (CLO)	On completion of this course, the learners will CO 1- be able to understand the history and development of Microbiology CO 2- be able to describe the role and significance of microorganisms in societal welfare. CO 3- be able to identify and classify the important microorganisms. CO 4- be able to discover the contributions of important scientists in the field of Microbiology.	
6	Credit Value	3	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
Part B – Content of the Course			
Total No. of Lectures- Tutorials- Practical (in hours per week): 60 hrs			
L-T-P:			
Unit	Topic	No. of Lectures	
1	HISTORY AND SCOPE 1.1 Development of Industrial Microbiology 1.2 Germ Theory of Disease 1.3 Scope and Application of Industrial Microbiology in human welfare. 1.4 Contribution of – A.V. Leeuwenhoek, Alexander Fleming, Louis Pasteur, Robert Koch, Edward Jenner, Joseph Lister. 1.5 Development of various Microbiological techniques and Golden Era of Industrial Microbiology. <i>Women Scientist in life Science</i>	10 hrs	
2	MICROBIAL DIVERSITY: A 2.1 Systems of Classification – Binomial Nomenclature, Whittaker's five kingdom, Carl Woese's three domain classification system and their utility. 2.2 VIRUS: Classification, General characteristics, Structure and Reproduction of viruses. 2.3 Viroids and Prions	11 hrs	

	2.4 Life cycle of RNA and DNA virus, Lytic cycle and Lysogeny 2.5 BACTERIA: General characteristics 2.6 Classification, Ultra structure and Reproduction of bacteria 2.7 Role of bacteria in Industries.	
3	MICROBIAL DIVERSITY: B 3.1 Bacteria with unusual properties: General characteristics, occurrence, reproduction and economic importance of the following:- <i>Cyanobacteria, Mycoplasma, Rickettsia</i> and <i>Actinomyces</i> . 3.2 Beneficial and harmful microbes and their role in daily life 3.3 Archaea- habit and general morphological characters 3.4 Important Representative of Archaea- Methanogens and thermophiles.	12 hrs
4	MICROBIAL DIVERSITY: C (EUKARYOTIC MICROORGANISMS) 4.1 Morphological features, classification and characteristics of Myxomycetes (Slime Mould) 4.2 Some microbiologically important Micro Fungi – <i>Rhizopus, Mucor, Neurospora, Aspergillus, Penicillium, Yeast</i> and <i>Agaricus</i> . 4.3 General account of Microbiologically important Algae. 4.4 Role of Fungi in Medicines and in Industries.	12 hrs

Keywords/ Tags: History and diversity of micro-organisms

Part C – Learning Resources

Text Books, Reference Books and Other books

Suggested Readings:

1. Microbiology- Pelczar, Chan and Kreig, Ingrahm.
2. General microbiology- Stainier, Ingharam, Wheelis and Painter.
3. Biology of Microorganisms- Brook and Madigan.
4. Fundamental Principles of Bacteriology- A.J. Salle.
5. Introduction to Microbiology- Ingraham and Ingraham.
6. Tools and Techniques in Microbiology by Nath and Upadhyay.
7. Powar C.B. and H.F. Dagainawa (2003). General Microbiology Vol.2; Himalaya Publishing House.
8. Dubey R.C. and D.K. Maheswari (2004). A text book of Microbiology, 1st Edition; S.C. Chand and Company Ltd.

Suggested equivalent online courses:

BASIC MICROBIOLOGY <http://nptel.ac.in/courses/102/103/102103015>

Part D – Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 Marks University Exam (UE): 60 Marks

Internal Assessment:	Class Test	15
Continuous Comprehensive Evaluation (CCE): 40	Assignment/ Presentation	25
		Total = 40
External Assessment:	Section (A): Objective type questions	Total: 60
University Exam Section: 60	Section (B): Short answer type questions	
	Section (C): Long answer type questions	
Time – 02:00 hours		

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St. Aloysius' College (Autonomous) Jabalpur, M.P.
 Department of Botany and Microbiology
B.Sc. II Semester Industrial Microbiology
 Fundamentals of Industrial Microbiology
 Paper—Elective

Practical

Syllabus of Practical Paper

Part A – Introduction			
Program: Certificate	Class: B.Sc.	Semester: II	Session: 2023-2024
Subject: Industrial Microbiology			
1	Course Code	SIINMB2P	
2	Course Title	BASIC EXERCISES IN INDUSTRIAL MICROBIOLOGY	
3	Course Type: (Core Course/Elective/Generic Elective/Vocational/.....)	Elective	
4	Pre-requisite (if any)	To study this course, a student must have had the subject BIOLOGY in class/12th	
5	Course Learning Outcomes (CLO)	On completion of this course, learners will be able to : To stain and identify bacteria and understand the working of various instruments used in basic study of bacteria.	
6	Credit Values	1	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
Part B – Content of the Course			
Total No. of Lectures- Tutorials- Practical (in hours per week): Total – 30 hrs			
L-T-P:			
Unit	Topic	No. of Lectures	
1	Safety measures in Laboratory	15 hrs	
2	Cleaning and Sterilization of glassware's.		
3	Use of microscope.		
4	Study of instruments used in microbiology laboratory: hot air oven, autoclave, Laminar Air Flow, Colony counter, Inoculation loop, needle, incubator, pH meter etc.		
5	Study of aseptic techniques – Preparation cotton plug for test tubes, wrapping of petri plates		
6	Staining of bacteria, Metachromatic staining, cell wall staining, spore staining, Staining of Fungi and Algae		
7	Microscopic Examination of living microorganisms.		
8	Use of micrometer and Camera Lucida.		
8	Preparation of Bacterial smear.		

9	Study of Rhizopus, Mucor, Penicillium, Aspergillus and yeasts.	
10	Slide culture techniques for studying morphology of Moulds.	

Keywords/ Tags: Basic Microbiology Practicals

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Practical Microbiology by Dr. R.C. Dubey & D.K. Maheshwary. S Chand Publications.
2. Microbiology: A Laboratory Manual by James G. Cappuccino & Natalie Sherman.
3. Experiments in Microbiology Plant Pathology, Tissue Culture Microbial Biotechnology by A.R. Aneja. New Age International Publishers

Suggested equivalent online courses:


<http://nptel.ac.in/courses/102/103/102103044/> techniques and tools and microbiology



<http://nptel.ac.in/courses/104/105/104105102/> techniques in microbiology

Part D - Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/ Quiz	10	Viva Voice on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/ Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial Visit)	20	Table work/ Experiments Major Exercise 20 marks, Two minor exercise 10 marks, spotting 10 marks	50
TOTAL	40		60

SW


Department of Microbiology
St. Aloysius College Autonomous Jabalpur, M.P
B.Sc. III Semester

Industrial Microbiology: Paper 1 **MAJOR**
Session 2023-24

Format For Syllabus of Theory Paper

Part A Introduction			
Program: Diploma	Class: B.Sc.	Year: III Semester	Session: 2023-2024
Subject: Industrial Microbiology			
1	Course Code	S2INMB1T	
2	Course Title	Application of Industrial Microbiology	
3	Course Type [Core Course / Elective/ Generic Elective / Vocational /.....]	Core MAJOR 1	
4	Pre-requisite [if any]	To study this course, a student must have had the subject Biology in class /12 th /certificate/.	
5	Course Learning outcomes [CLO]	<p>On successfully completing the module-</p> <p>CO1-Students will be able to understand working and design of a fermenter, its uses, and its different types.</p> <p>CO 2-Students will be able to demonstrate the knowledge and understanding of basic fermentations processes.</p> <p>CO 3- Students will be able to select industrially important microbes for economical use.</p> <p>CO 4-Students will be able to screen and identify organism of potential industrial importance</p> <p>CO 5-Students will be able to describe various separation techniques and downstream processing different metabolites.</p>	
6	Credit Value	4 (Int)+60	
7	Total Marks	Max. Marks: 40+60	Min. passing marks: 35

Part B-Content of the Course

MM: 60

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P:		
Unit	Topics	No. of Lectures
1	General concept of industrial microbiology and its applications, history & scope. Exploitation of microorganisms and their products, screening, strain development strategies, inoculum preparation, fermentation media, raw material used in media production, antifoaming agents, immobilization methods, buffers, downstream processing	15
2	Fermentation equipment and its uses, fermenter design, Types of	10

	fermenters and fermentations- single, batch, continuous, multiple, surface, submerged and solid state. Scale up and scale down process. Harvesting and recovery of intracellular and extracellular product.	
3	Industrial products from microorganisms- Antibiotics: production of Penicillin, Streptomycin. Enzymes from microbes: Amylase, Protease. Organic acids: Citric acid, Acetic acid Amino acids: Glutamic Acid, Lysine.	10
4	Production of Interferon, Vaccines, Hormones, Vitamins. Production of alcoholic beverages: Beer and wine, Biofuels: Ethanol, Methane, Biogas.	10
5	Ethics and law of industrial production: standard operating procedure (SOP), Good manufacturing practices (GMP), patent and copyrights, environmental hazard from fermentation industry, industrial waste management procedure and environmental safety measures	15
Keywords/Tags: Fermenters, Industrial Production, microbes		

Part C – Learning Resources

Text Books, Reference Books, Other resources

1. A.H. Patel. Industrial Microbiology, Laxmi Publications; Second edition
 2. K. R. Aneja. A Textbook of Basic and Applied Microbiology, New Age International.
 3. Whitaker and Stanbury. Principles of Fermentation Technology.
 4. Casida. Industrial Microbiology. Tata McGraw Hill.
 5. Biotechnology- Industrial Microbiology, Crueger W and Crueger A 2nd edition (Panima publication New Delhi).
 6. Industrial -Microbiology, Prescott SC & Dunn CG, 4th edition (Agrobios publication, Jodhpur)
 7. Industriarnicrobiology : An Introduction , Waites MJ, Margan NL, Rockey JS, Highton G, 1st edition (Blackwell Science Ltd. UK).
- B. Books Poblisbed by M.P Hindi Granth Academy, Bhopal.

Suggested equivalent online courses:

<http://ecoursesonline.iasri.res.in/course/view.php?id=461>
<https://nptel.ac.in/courses/102/105/102105058/>
<https://nptel.ac.in/courses/102/104/102104063/>
[|https://nptel.ac.in/courses/102/106/102106022](https://nptel.ac.in/courses/102/106/102106022)

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Part D – Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 40 marks

University Exam (UE) 60 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE):	40
External Assessment : University Exam :	60

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Department of Microbiology
 St. Aloysius College Autonomous Jabalpur, M.P
 B.Sc. III Semester
 Industrial Microbiology: Paper 1 *MAJOR*
 Session 2023-24

FORMAT FOR SYLLABUS OF PRACTICAL PAPER

Part A Introduction			
Program: Diploma	Class: BSc.	Year: III Semester	Session: 2023-2024
Subject: INDUSTRIAL MICROBIOLOGY			
1	Course code	S2INMB1P	
2	Course Title	Exercises in applications of industrial microbiology	
3.	Course type (core Course/ Elective / Generic Elective / Vocational/....)	CORE	
4	Pre-requisite (if any)	To study this course, a student must have had the subject BIOLOGY. in class/12th/ certificate/	
5	Course Learning outcomes (CLO)	On completion of this course, learners will be able to: Screen and identify organism of potential industrial importance, to understand working of a fermenter and to produce several biomolecules by fermenter.	
6	Credit Value	2	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B- Content of the Course

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P	
S.No	Topics
1.	Isolation and screening of antibiotic producing microorganism.
2.	Screening of amylase producing microorganism
3.	Screening of protease producing microorganism
4.	Screening of cellulase producing microorganism
5.	Screening of Organic acid producing microorganism
6.	Screening of methane producing microorganism
7.	Production of enzyme Protease
8.	Production of enzyme amylase
9.	Production of enzyme cellulase
10.	Production of ethanol
11.	Production of citric acid.
12.	Demonstration of working fermentor.
Keywords/Tags: Fermentation techniques	

* Preparation of fermented pickles
 * Isolation of microbes from fermented products

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Part- C- Learning Resources

Text Books, Reference Books, Other resources
Suggested Readings:
1 Practical Microbiology, Dr. R.C Dubey, Dr. D.K Maheshwari, S. Chand Publications.
Suggested equivalent online courses: https://nptel.ac.in/courses/102/105/102105058/

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/ Model Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)	20	Table work / Experiments	50
TOTAL	40		60

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St. Aloysius College Autonomous Jabalpur, M.P
 Department of Microbiology
 B.Sc. IV Semester
 Industrial Microbiology: Paper MAJOR
 2022-23
 Syllabus of Theory Paper

Part A Introduction				
Program: Diploma		Class: B.Sc.	Year: IV Semester	Session: 2023-2024
Subject: INDUSTRIAL MICROBIOLOGY				
1	Course Code	SZINMB2T		
2	Course Title	Physiology and Biochemistry of Microbes		
3	Course Type (Core Course / Elective/ Generic Elective/ Vocational/.....)	CORE		
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology. in class/ 12 th / certificate/.		
5	Course Learning Outcomes (CLO)	<p>On completion of this course:</p> <p>CO 1- The students will be able to demonstrate a knowledge and understanding of the basic. Principle of biochemistry including important molecules their economic and scientific importance inside the cell.</p> <p>CO 2-The students will be able to understand the biochemical pathways of synthesis and degradation of these molecules.</p> <p>CO 3-The students will be able to classify various types of enzymes and explain enzyme kinetics.</p> <p>CO 4- The students will be able to explain the transport of different metabolites generated, with application in industrial processes.</p> <p>CO 5- The students will have comprehensive knowledge of the microbial physiology and biochemistry.</p>		
6	Credit Value (T+P)	4		
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks:35	

Part B- Content of the Course

Total No. of Lectures - Tutorials-Practical (in hours per week): L-T-P:		
Unit	Topics	No. of Lectures
1	Biochemistry of Microbes: Chemical composition of cell, molecules of living systems, pH and pK, Buffers. Structure and classification of carbohydrates, lipids, proteins, DNA and RNA. <i>Microbial biopolymers</i>	12
2	Enzymes and their classification, Enzyme kinetics, allosteric enzymes, Michaelis Menten equation, coenzyme, isozyme, enzyme inhibition and regulation. Vitamins: classification and function.	12
3	Microbial growth, phases of growth, conditions of growth, measurement of growth, growth curves, generation time, Effect of temperature, pH, salinity and oxygen on growth. Bacterial sporulation and germination, binary fission.	12
4	Biosynthesis of bacterial cell wall, Difference in eubacterial and archaeobacterial cell wall, transport across membrane, Mechanism of flagellar and ciliary motion and its function. Physiological types of bacteria: Thermophiles, Halophiles, Acidophiles, Psychrophiles, Barophiles. Quorum sensing in bacteria	12
5	Microbial photosynthesis, photosynthetic apparatus in pro and eukaryotes, anoxygenic and oxygenic photosynthesis (Cyanobacteria and Algae). Light and dark reactions. Microbial respiration: Anaerobic and Aerobic mode of respiration, glycolysis, homo and hetero fermentative pathways. Energy transduction in archaeobacterial membrane	12
Keywords/Tags: Microbial biochemistry, physiology.		

Part C-Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. Lehninger. Principles of Biochemistry, Nelson and Cox
2. J. L. Jain. Biochemistry. S. Chand
3. A. G. Moat, J. W. Foster and M. P. Spector. Microbial Physiology. Wiley.
4. R. C. Dubey and D. K. Maheshwari. A Textbook of Microbiology. S. Chand
5. Reddy S. R. and Reddy S. M. Microbial Physiology. Scientific Publishers India.
6. Pelczar M. J., Chan E.C. S. and Krieg N. R. Microbiology. McGraw Hill Book Company

Suggested equivalent online courses:

<https://nptel.ac.in/courses/104/102/104102016/>

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30marks University Exam (UE) 70 marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE):	Total Marks: 40
External Assessment:	Total marks: 60
University Exam:	

Note: Please include the Tutorial related information (if any) in this format

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St. Aloysius College Autonomous Jabalpur, M.P

Department of Microbiology

B.Sc. IV Semester

Industrial Microbiology: Paper : MAJOR

Format for Syllabus of Practical Paper

Part A Introduction			
Program: Diploma	Class: B.Sc.	Year: IV Semester	Session: 2023-2024
Subject: INDUSTRIAL MICROBIOLOGY			
1	Course code	S2INMB2P	
2	Course Title	Exercises in Biochemistry and Physiology of Microbes	
3	Course Type (Core course/ Elective/Generic Elective/ Vocational/...)	CORE	
4	Pre-requisite (if any)	To study this course, a student must have had the subject BIOLOGY. in class/12th/ certificate/	
5	Course Learning Outcomes (CLO)	On completion of this course, learners will be able to: Enumerate microbial population, follow bacterial growth in culture in various conditions, isolate and culture of anaerobes, estimate protein, carbohydrates and lipids.	
6	Credit Value	2	
7	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35

Part B- Content of the Course

Total No. of Lectures - Tutorials-Practical (in hours per week): L-T-P:		
Unit	Topics	No. of Lectures
1.	Enumeration of microbial population.	
2.	Measurement of bacterial growth spectrophotometrically	
3.	Measurement of effect of temperature on bacterial growth	
4.	Measurement of effect of pH on bacterial growth	
5.	Measurement of effect of oxygen on bacterial growth	
6.	Measurement of effect of salinity on bacterial growth	
7.	Isolation and cultivation of anaerobes	
8.	Checking the motility of bacteria by hanging drop method	
9.	Estimation of proteins	
10.	Estimation of glucose	
11.	Estimation of Lipids	
12.	Enzyme assays - amylase, gelatinase, catalase, lipase etc.	
Keywords/Tags: Growth and culture of microbes		

Part C-Learning Resources

Text Books, Reference Books, Other resources
Suggested Readings: 1. Introduction to practical Biochemistry by David Plummer. Mc Graw Hill 2. Practical Microbiology. R. C. Dubey and D. K. Maheshwari
Suggested equivalent online courses: https://www.classcentral.com/course/swayam-experimental-biochemistry-12909

Part D-Assessment and Evaluation

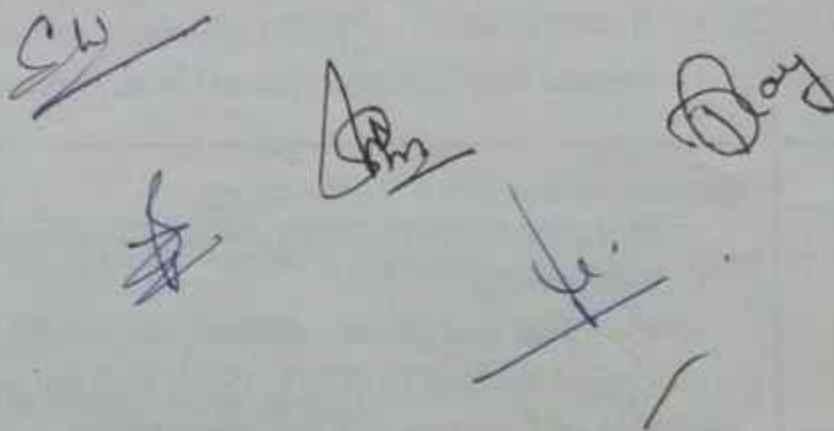
Suggested Continuous Evaluation Methods:			
Internal Assessment	Marks	External Assessment	Marks
Class Interaction/Quiz	10	Viva Voce on Practical	05
Attendance	10	Practical Record File	05
Assignments (Charts/ Model/ Seminar/ Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)	20	Table work / Experiments	50
TOTAL	40		60

Handwritten signatures and initials:
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St. Aloysius' College, (Autonomous),
Jabalpur, M.P., India.
Department of Botany and Microbiology
Session 2023-2024

B. Sc III YEAR
Theory Paper

Part A Introduction			
Subject: Industrial Microbiology			
Program : Degree		Class: B.Sc.	Year: III
		Session: 2023-24	
1	Course Code	S3INMBID	
2	Course Title	Molecular Biology and Genetics of Microbes <u>Group A</u> Paper I Theory	
3	Course Type (Core Course/ Discipline Specific Elective/ Generic Elective /Vocational)	Discipline specific elective DSE MAJOR PI	
4	Prerequisite (if any)	To study this course, a student must have had subject Industrial microbiology in Diploma.	
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will Be able to understand 1. Genetics and molecular basis of microorganism. 2. Nucleic acid metabolism and DNA 3. Protein synthesis Gene Regulation 4. Mutation and recombination in Bacteria 5. Recombination DNA technology 6. Gene Interaction and Fingerprinting	
6	Credit Value	4	
7	Total Marks	Max, Marks: 30 + 70	Min. Passing Marks: 35



Part B-Content of the Course		
Total No. of Lectures-Tutorials- Practical (in hours per week): L-T-P:		
Unit	Topics	No. of Lectures 1 Hr each
1	Nitrogen, Nucleic acid Metabolism and DNA <ul style="list-style-type: none"> • Nitrogen Metabolism, Nucleic Acid as genetic material • DNA-Physical and Chemical Structure and different forms of DNA • Types and Mechanism-Replication of DNA (Conservative, semi-conservative and dispersive mode of replication) • DNA Replication in Prokaryotes and Eukaryotes • DNA Topology, melting curve of DNA, & T_m Value Determination • RNA-Structure and types of RNA 	12
2	Protein Synthesis and Gene Regulation <ul style="list-style-type: none"> • Ribosomes Structure and its role in protein synthesis • Protein Synthesis and operon concept lac and trip • Gene Structure and Function • Gene Regulation in Prokaryotes and Eukaryotes • Gene Expression Britten Davidson Model of Gene Expression 	12
3	Mutation and Gene Recombination in Bacteria <ul style="list-style-type: none"> • Mutation- Molecular Basis of Mutation, types of mutation. Mode of action of physical and chemical & biological mutagens. Reverse in mutation • Gene Recombination in bacteria, transformation, transduction, and conjugation. • Auxotrophs, Prototrophs and Ames test F Factor, Hfr-Strain • Genetic Mapping microbes and binary vectors. 	12
4	Recombinant DNA Technology <ul style="list-style-type: none"> • Isolation of DNA. Enzyme used in recombinant DNA Technology • Plasmids and Binary vectors • Use of vectors PBR322, PUC, 8 phage vector m 13 λ(lambda). • Use of Bacteria & Virus engineering • Cosmid, phagemid Ti plasmid, SV40, gene cloning in Prokaryotes. 	12

9	Gene Interaction and Fingerprinting <ul style="list-style-type: none"> • Extrachromosomal Genetic Material • Genetic Interaction in microbes and analysis in microbial pathogen • Overlapping of gene and silent gene • DNA Profiling -DNA Fingerprinting • Transposons, Blotting, Southern and western • DNA Damage & Repair • rDNA Products- Insulin, Interference and immunotoxin 	12
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Keywords /Tags: DNA Replication, Protein Synthesis, Mutation, Recombinant DNA Technology, Finger Printing

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Introduction to Molecular Biology and Genetic Engineering -Oliver Brandenburg, Alessandra Sensi, Kakoli Ghosh, Andrea Sonmino
2. Molecular Biology by David P Clarke, Michelle R Mcgehen
3. Molecular Cell Biology Two Vol Set by Mousumi Debnath
4. Cell and Molecular Biology- N Aramugam
5. Molecular Cell Biology by Darnel I James E
6. M.P. Hindi Grant academy Publications

2.Suggestivedigital platforms/weblinkswww.eshiksha.mg.gov.in

Suggested equivalent online courses: https://onlinecourses.swayam2.ac.in/cee22_bt05/12review

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks University Exam (UE): 70 Marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30	
External Assessment: University Exam Section Time: 03.00 Hours	Section (A): Very Short Questions Section (B): Short Questions Section (C): Long Questions	Total 70	

Any remarks/ suggestions:

30+ 70 =
100

Practical Paper

Part A Introduction			
Program: Degree	Class: B.Sc.	Year: III	Session: 2023-24
Subject: Industrial Microbiology			
1.	Course Code	S3INMB1Q	
2.	Course Title	Practical Molecular Biology and Genetics of Microbes Group A	
3.	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective/Vocational/..)	Discipline specific elective/DSE	
4.	Prerequisite (if any)	To study this course, a student must have had the subject industrial microbiology in diploma.	
5.	Course Learning outcomes (CLO)	On Successful completion of this course, the student will be able to: Understand genetics and molecular basis of Micro-organism	
6.	Credit Value	2	
7.	Total Marks	Max. Marks: 100	Min. passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P			
Unit	Topics	No. of Lectures 2 Hr each	
	<ol style="list-style-type: none"> 1. Study of Osmosis and Plasmolysis in bacterial cell 2. Effect of pH, temperature, and salinity on the growth of microbes. 3. Effect of antibiotics on bacterial growth by paper disc method 4. Measurement of microbes with help of stage and ocular micrometer 5. Measurement of cell number of microbes with help of colony counter/ haemocytometer 6. Isolation of DNA from Bacteria 7. Immobilization of yeast cells by sodium alginate method. 8. Quantitative estimation of DNA by DPA method. 9. Quantitative estimation of RNA by orchizol method. 10. To study conjugation in bacteria 11. To transfer bacterial colonies by replica plating method 		

12. Effect of UV Light on growth of Bacteria 13. To study antibiotic resistance in bacteria 14. Primary screening of Amylase/ Protease products	
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Keywords/Tags: Microbial growth, measurement parameters

Part C - Learning Resources

Text Books Reference Books Other resources

Suggested Readings:

1. A Handbook of Practical Microbiology. R Saravanan, D. Dhachinamoorthi, CH.MM. Prasada Rao Lambert Academic Publishing.....

2. Practical Handbook of Microbiology by Lorrence H Green (Editor), Emanuel Goldman CRC Press

Suggestive digital platforms/ weblinks www.eshiksha.mp.gov.in

Suggested equivalent online courses:

Part D- Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction/ Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar/ Rural Service/ Technology Dissemination/Report of Excursion/Lab Visits/ Survey/ Industrial visit)		Tablework/Experiments	
		Total Marks: 100	

- * Demonstration of Gel electrophoresis.
- * Effect of mutagens on bacterial growth.
- * Effect of oxidative stress on bacterial growth.

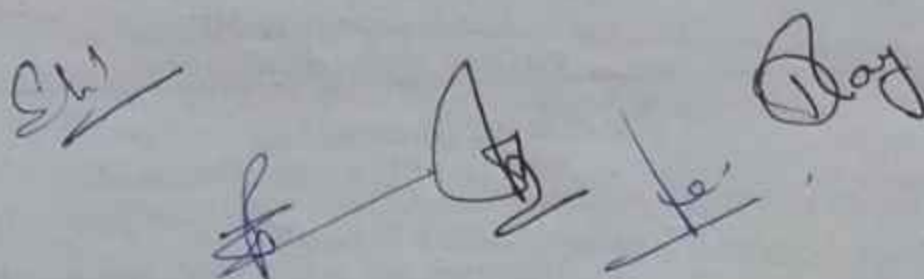
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St. Aloysius' College, (Autonomous),
 Jabalpur, M.P., India.
 Department of Botany and Microbiology
 Session 2023-2024
B.Sc III YEAR
 Theory Paper

Part A Introduction			
Program: Degree		Class: B.Sc.	Year: III
		Session: 2023-24	
Subject: Industrial Microbiology			
1	Course Code	S3INMB2D	
2	Course Title	Environmental Microbiology and Bioremediation <u>Group A</u> Paper II Theory	
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective/ Vocational/.....)	Discipline Specific Elective/DSE MAJOR PII	
4	Prerequisite (if any)	To study this course, a student must have had this subject Industrial Microbiology in Diploma.	
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: 1. Environmental Habitat of microbes 2. Physiological Adaptation of microbes 3. Water & Air Microbiology 4. Biogeochemical cycling (in relation to microbes) 5. Microbial bioremediation	
6	Credit Value	4	
7	Total Marks	Max. Marks: 30 + 70 Marks: 35	Min. Passing



Part B- Content of the Course

Total No. of Lectures-Tutorials-Practical in (hours per week): L-T-P:

Unit	Topics	No. of Lectures
1	<p>Habitat Environment of Microbes</p> <p>Terrestrial environment of microbes- Soil profile and soil microflora, physical and chemical characteristics of soil. Soil fertility and management of agricultural soil. Rhizosphere and phyllosphere.</p> <p>Aquatic Environment -Water Borders and microflora of freshwater and marine habitats.</p> <p>Atmospheric Environment-Different layers of atmosphere, and aero microflora and dispersal of microbes.</p> <p>Extreme Habitats: Different unusual habitats and extremophiles - Microbes thriving at high and low temperature, pH, high hydrostatic and osmotic pressures. Salinity and low nutrient levels.</p> <p>Toxic Photosynthetic microbes-microbial succession in decomposition of plant organic matter.</p>	<p>1 Hour Each</p> <p>12</p>
2	<p>Physiological Adaptation of Microbes</p> <ul style="list-style-type: none"> • Concept of environment in relation to microbes. Physiological adaptation in microbes. Nature of microbial population in different habitats. • Microbial Interaction -Mutualism, synergism, commensalism, competition, amensalism, neutralism. • Symbiotic and Asymbiotic interactions of microbes with plants and animals and their role in ecosystem stability. • Micro Organism- as Indicators • Biotransformation and Biodegradation- Biofilms of living surfaces, biodegradation of plastics. 	12
3	<p>Water & Air Microbiology</p> <ul style="list-style-type: none"> • Sources of Water distribution of microorganism in water system, water born disease. • Treatment and safety of drinking waterpotable water. Methods to detect potability of a water ssamples. MPN Analysis. Standard qualitative procedure, presumptive test. • Sampling of Airborne microorganisms. Analysis of bioaerosol samples & fate & transform of microorganism in airborne Bacteria & endotoxin. • Air borne viruses. • Standard qualitative procedure presumptive test/MPN analysis. 	12

4	<p>Biogeochemical Cycling</p> <ul style="list-style-type: none"> • Carbon Cycle-Microbial degradation of cellulose, hemicellulose, lignin and chitin. • Nitrogen Cycle-Nitrogen fixation, ammonification, nitrifications, denitrification and nitrate reduction. • Phosphorus Cycle- Phosphate immobilization and solubilization • Sulphur Cycle- Microbes involved in Sulphur cycle • Microorganism in composting 	12
5	<p>Microbial Bioremediations</p> <ul style="list-style-type: none"> • A waste management: Source and types of solid waste of methods of solid waste disposal. (a)Liquid waste management- (b) Nature composition and strength of sewage. BOD&COD Primary, secondary tertiary treatment. • Management of municipal waste • Management of Agricultural waste • Biopesticides-Production of Agricultural bacterial, viral and fungus bio pesticides, microbial warfare on plants. • Micro Arrays- Design and use for agriculture & environmental application. • PCR- Agricultural & environment application for soil microbes • Environmental policies and laws • Remediation of organic and metal pollutants. 	12

Keywords/Tags: Environmental Habitats, Microbial Interaction, Waterborne and Airborne Microorganisms, Biogeochemical Cycle, Bioremediation

Part C- Learning Resources

Text Books Reference Books, Other resources

Suggested Books:

1. Environmental microbiology-A.H. Verma & M.G. Evans (Google Book)
2. Environmental Microbiology for engineers Volodmyr Vanov
3. A text book of environmental microbiology Pradipta K Mohapatra.
4. Manual of Environmental microbiology Christian J Tearst, Ronald L Crawford, Jay L Garland, David A Lipson.
5. Environmental Microbiology S.K Dwivedi
6. Environmental Microbiology Fundamentals and Applications Jean Claude Bertrand- Pierre Caumette, Philippe Lebaron, Robert Matheran.
7. Environmental Microbiology P.D. Sharma
8. Environmental Microbiology K. Vijaya Ramesh.
9. M.P. Hindi Granth academy Publications

Suggested digital platforms web links www.eshiksha.mp.gov.in

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Suggested equivalent online courses:
<https://onlinecourses.nptel.ac.in/noc20ee17/preview>
<https://onlinecourses.nptel.ac.in/noc21bt22/preview>

Part D-Assessment and Evaluation






Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 Marks University Exam (UE): 70 Marks

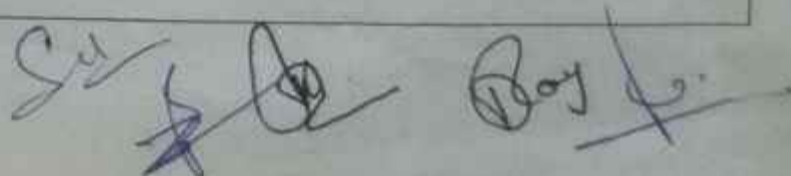
<p>Internal Assessment: Continuous Comprehensive Evaluation (CCE)</p>	<p>Class Test Assignment/Presentation</p>	<p>30</p>
<p>External Assessment: University Exam Section Time: 03.00 Hours</p>	<p>Section (A): Very Short Questions Section (B): Short Questions Each Section (C): Long Questions Each</p> <p style="text-align: center;">30+70=100</p>	<p>Total 70</p>

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Practical Paper

Part A Introduction			
Program: Degree	Class: B.Sc.	Year: III	Session: 2023-24
Subject: Industrial Microbiology			
1	Course Code	S3INMB2Q	
2	Course Title	Practical Environmental Microbiology and Bioremediation Group A	
3	Course Type (Core Course/ Discipline Specific Elective/ Elective/ Generic Elective/Vocational/.....)	Discipline specific elective/DSE	
4	Pre-requisite (if any)	To study this course, a student must have had this subject industrial microbiology in Diploma.	
5	Course Learning outcomes (CLO)	On successful completion of this course, the students will be able to: To understand the microbial environment and role of microbes in the development of the environment.	
6	Credit value 2	2	
7	Total Marks	Max.Marks:100	Min. Passing Marks: 35
Part B- Content of the Course			
Total No. of Lectures-Tutorials-Practical in hours per week: L-T-P:			
Unit	Topics	No. of Lectures (2 Hours Each)	
1-5	<ol style="list-style-type: none"> 1. Estimation of COD of water samples/treated sewage. 2. Bacterial Examination of tap water by MPN technique. 3. Isolation of microorganisms from the rhizosphere and calculation R.S. ration. 4. Estimation of BOD water samples/treated sewage 5. Estimation of COD of water samples/treated sewage. 6. Analysis of water by standard plate counts. 7. Study of antagonism between soil microorganisms. 8. Isolation and cultivation of rhizobium. 9. Central pollution control board standard for discharge of treated wastewater. 10. Isolation and identification of microorganisms present in Air using various air samplers. 11. Check the efficiency of laminar air flow and filtration techniques. 12. Isolation & Identification of microorganisms present in the water system. 13. Isolation of microbes (bacteria & fungus) from soil (28⁰ C to 45⁰ C) 		
Keywords/Tags: Microbes identification, environment			



Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

9. Environmental microbiology- A.H. Verma & M.G. Evans
10. Environmental Microbiology for engineers Volodymyr Vanov
11. A textbook of environmental microbiology Pradipta K Mohapatra.
12. Manual of Environmental microbiology Christan J, Tearst, Ronald L Crawford, Jay L Garland, David A Lipson.
13. Environmental Microbiology S.K Dwivedi
14. Environmental Microbiology Fundamentals and Applications Jean Claude Bertand- Pierre Caumette, Philippe Lebaron, Robert Matheran.
15. Environmental Microbiology by P.D. Sharma ** To isolate oil eating bacteria*
16. Environmental Microbiology K. Vijaya Ramesh.

Suggested equivalent online courses:

Part D- Assessment and Evaluation

** Preparation of herbal pesticides*

growth:

Suggested Continuous Evaluation Methods: ** Study of heavy metal toxicity on microbial diversity.*

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	30	Viva Voce on Practical	70
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/Technology Dissemination/Report of Excursion/Lab Visits/Survey/ Industrial visit)		Tablework/Experiments	
		Total Marks: 100	

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