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/ 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 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)	On successful completion of this course, the students will be able to: • 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)
	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 Bresenhams line drawingalgorithm. 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. 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	• 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	• 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 anduse 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.**
	• 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 arithmeticoperators, 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 ofthree given numbers. • Write PHP Script using two dimensional arrays such as addition oftwo 2×2 matrices. • Write PHP Script for FOR EACH 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 thisinformation in tabular form on output screen. • Write a program to manipulate data and display all this informationusing table format. • Create form to search data. • Develop small PHP application(s) using forms and database withupdate and delete option. • 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):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**	**Total 30**
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**	**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)*	***On successful completion of this course, the students will be able to:*** 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***

	processing(OLAP) system.	
III	*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.*	***12***
IV	*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*	***12***
V	*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.*	***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, Addision Wesley*
10. *Adriaans: Data Mining, Addision Wesley.*
11. *Jayee Bischaff & Ted Alexender : Data Warehouse: Practical advice from the Expert, Prentice Hall, New jursey.*
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)**	**On successful completion of this course, the students will be able to:** 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)

	Topics	*No. of Lectures (2 Hour Each)*
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: Degree	**Class : UG**	**Year: III** **Session: .**
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)**	**On successful completion of this course, the studentswill be able to:** 1. Understand basics of Internet, World WideWeb(WWW), Client server Computing. 2. Have Knowledge of various web browsers, familiarize with Java scripting, Client side scriptinglanguage, Web server Architecture, Database connectivity(DBC) 3. Have knowledge of HTML, it's essential tags, Attributes, Text styles, Links to External Documents anddifferent sections of a HTML page. 4. Develop skills to generate HTML and haveknowledge of Java Script and style sheets 5. Have knowledge of Objects, Methods, Events andFunctions 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	**Topics Basics** of **Internet and Web:** 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.	**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, MenuControl, 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-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 Discipline Specific Elective/ Elective Generic Elective /Vocational/)**	**Discipline Specific Elective** - II	
4	**Pre-requisite (if any)**		
5	**Course Learning outcomes(CLO)**	**On successful completion of this course, the studentswill be able to:** **1** Perform **HTML** programming with use ofelements and tags... **2** Perform basic and advanced text formattingand 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 Drop Down List and demonstrate addition of items at first and lastposition. 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 Grid ViewControl.

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-Willey Publishing) by Matt Doyle
3. Beginning HTML, XHTML, CSS and Javascript by John Duckett

Reference Book:

1. HTML, XHTML and CSS Bible, 5thedition, Willey 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	**Nlarks**	**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, thestudents will be able to:** 1. Develop and execute simple Python programs. 2. Structure a Python program into functions. 3. Using Python lists, tuples to representcompound 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, PyDevetc, Data Types and Variables, Numbers, Operators Comments in Python. Input output operation in Python.	**14**
Unit - II	Control Statements: Conditional control statements - if, If-else, lf-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. Lamda 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 ofOOP - 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	Multithreading 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:

I.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		
l	**Course Code**	S3-BCAA2Q
2	**Course Title**	**Python Programming (Practical)**
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 basic Logical, and analytical skills.
kr,	**Course Learning outcomes(CLO)**	**On successful completion of this course,the students will be able to:** 1. Develop Simple programs in Pythong 2. Knowledge of conditional and loop statements. 3. Learning of Tuple, List, Directory in Python 4. Knowledge of Files and Ooops Concepts in Pyhton. **5.** !ntroductory 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)		

	1. Write a program to demonstrate differentnumber data types in Python. 2. Write a program to perform differentArithmetic Operations on numbers in Python. 3. Write a program to create, concatenateand 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 pfogram to create, append, andremove lists in python. 6. Write a program to demonstrate workingwith tuples in python. 7. Write a program to demonstrateworking with dictionaries in python. 8. Write a python program to findlargest of three numbers. 9. Write a Python program to construct the following pattern, using a nested for loop * * * * * * * ** * * 10. Write a Python script that prints primenumbers less than20. 11. Write a python program to define a module to find Fibonacci Numbers and importthe module to another program. 12. Write a python program to define amodule and import a specific function in thatmodule to another program. 13. Write a program that inputs a text file. Theprogram should print all of the unique words inthe file in alphabetical order. 14. Write a Python class to convert an integer toa roman numeral. 15. Write a Python class to reverse a stringword by word.	

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. JamesPayne.BeginningPythonusingPython2.6andPython32.			
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/1061061 82	**12** Weeks	NPTEL
02	Complete Python course https://www.udemy.com/topic/pyt lion/	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)**	After the completion of the course, a successful student will be able to do the following: CO1. Understanding of the need for data science, its benefits and uses, the facets of data, and the data science CO2. Apply statistical concepts and techniques to analyze and interpret data. CO3. Execute a variety of data analysis tasks using Python, specifically utilizing libraries like Pandas and Numpy. CO4. Apply and analyze various machine learning algorithms.		
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), Binning with Pandas	12
4	numpy- indexing, reshape, generating random values, mathematical operations, merging and joining, Concatenation, Data Visualization	13
5	Introduction to Machine Learning, ML types (Supervised Learning, Unsupervised Learning, and Reinforcement Learning). Case study: Prediction of the disease in health services by build a model.	

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
3. press, E-book.
4. Annalyn Ng, Kenneth Soo, "Numsense! Data Science for the Layman: No Math Added", 2017,1st Edition.
5. Cathy O'Neil, Rachel Schutt, "Doing Data Science Straight Talk from the Frontline", O'Reilly Media 2013.
6. 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 **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.	

PART C: Learning Resources			
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. ShawLearn Python the Hard Way: 3rd Edition** **John M. ZellePython 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 willbe able to: 1. Identify the key components of cyber security network architecture. 2. Employ, design and implement appropriate security technologies and policies toprotect 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: 3**0+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, Playfair, 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: 8i-315-1349-1, ISBN-I 3: 978-81-315-1349-l, 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, iSBN-13: 978-0130142498, 2000.
4. William Stallings, "Cryptography and Network Security", Pearson Education, 6th Edition, !SB 10: 0133354695, 2013.
5. Jonathan Rosenoer,"Cyber Law: The law of the Internet", Springer-Verlag, 1997.
6. Mark F Grady, Fransesco Parisi, "The Law and Economics of Cyber Security", Cambridge **University Press, 2006.**

Suggestive digital platforms/ web links

1. https://onlinccourscs.swayam2.ac.in/nou 19cs08/Qreview
2. https://onlinecourses.swavam2.ac.in/cec20csl5/12review
3. https://ngtel.ac.in/courses/l06106129
4. https://ngtel.ac. in/courses/ J06105031
5. https://ngtel.ac.in/courses/106106199

Suggested cquivalent online courses:

1. https://www.simplilcarn.com/cyber-securitv/certification
2. https ://study. toron tosom. ca/cybersecurity/diploma
3. https://aws.amazon.com/securitycourses/by aws experts
4. **https://www.udemv.com/topic/cvber-securitv/**

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**