ST. ALOYSIUS COLLEGE(AUTONOMOUS),

JABALPUR

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

College with Potential for Excellence by UGC
DST-FIST Supported & STAR College Scheme by DBT

SUBJECT: B.Com
B.Com III Semester
Paper-Elective
Database Management System

Content of the Course
Theory

No. of Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures: 60 Hrs. **Maximum Marks:** 60

Units	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	15
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.	16
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, Alternate Key, Unique 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).	18
IV	Advance SQL: - Views in SQL, SQL join operations, Sub Queries, Aggregate Functions. Introduction to PL/SQL: - PL/SQL structure, Cursors, Triggers, Stored Procedures and functions.	11

References

Text Books:

- "SQL, PLSQL The programming Language of Oracle 4th Edition by Ivan Bayross, BPB Publication

Reference Books:

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
Books published by M.P. Hindi Granth Academy, Bhopal

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B.Com IV Semester
Paper:- Elective
Subject:- Introduction to ASP.NET & C#
Content of the Course
Theory

Total No. of Lectures: 45 **Maximum Marks:** 60

Units	Topics	No. of Lecture
I	**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#. **Introduction to .NET Framework**: Programming Platform .NET Framework, .NET Architecture, CLR, the Just-in-Time Compiler	
II	**Working with C#:-** Introduction to C#.,The Basics and Console Applications in C#, **Windows Forms and Controls:** The Windows Forms Model, Creating Windows Forms, Windows Forms Properties and Events, Windows Form Controls, Menus - Dialogs - ToolTips.Visual development & event driven Programming Methods and events. Data type, type conversion. Variables constants, operators, Decision making, Loops, Arrays.	11
III	**Introduction to ASP.NET**:- ASP.NET Life Cycle, page life cycle phases, Understanding ASP.NET Controls, Introduction of Web forms, Web form controls ,server controls, user 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 **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

References

Text Books:

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 Evangelospetroutsos- BPB publications
5. Introduction to .NET framework-Worx publication
6. Books published by M.P. Hindi Granth Academy, Bhopal

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B.Com Vth Semester
Discipline Specific Elective
Artificial Intelligence for Business
Content of the Course

Theory

No. of Lectures (in hours per week): 2 Hrs. per week
Total No. of Lectures: 60 Hrs.
Maximum Marks: 60

Units	Topics	No. of Lecture
I	Introduction of Artificial Intelligence, Foundation of AI, History, AI in Business Applications – AI for Marketing: Customer Segmentation, Personalized Recommendations, Sentiment Analysis, AI For operations and Supply Chain.	12
II	Machine Learning: Supervised vs. unsupervised Learning, ETL process Data Cleaning: Noisy data, duplicate data, ML technique: Association: Apriori Algorithm. Classification: Naïve Bayes, Decision tree, Clustering: K-Means, Hierarical Clustering.	12
III	Arrays in Python, types of arrays Basic Python Programming, data types, Lists, Dictionaries, Tuple , Control Statements: Conditional control statements - if, If-else, If-elseif-else, Loop control statements- for, while, Functions in python and typs of functions, In built functions (Arithmetic and String), Operators in python and Types.	12
IV	Data visualization using Matplotlib, Creating Data Frames , Reading and uploading the CSV file, Dataset Manipulation using Pandas Concatenation and Merging of dataframe, Numpy, Mathematical operations on Numpy Array, Reshaping of Numpy Array Regression and Correlation	12
V	NLP used in Business Ethical Consideration, Python processing with unstructured data, Introduction to NLP techniques, Tokenization :- Character, Word and Sentence ,stemming and lemmatization, parts of speech using NLTK, applications of NLP in business, Basics of Recommendation system.	12

References

Textbook :

1. Artificial Intelligence Basics: Tom Taulli
2. A first course in Artificial Intelligence – Deepak Khemani
3. Artificial Intelligence for Business, 2nd Edition – Doug Rose
4. Artificial Intelligence For Business – An Implementation Guide Containing Practical and Industry–Specific Case Studies, Edited By Hemachandran K , Raul V. Rodriguez
5. Applied Artificial Intelligence in Business – Leong Chan, Liliya Hogaboam, Renzhi Cao

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B. Com VI Semester
Discipline Specific Elective
Subject- Business Analytics
Theory

No. of Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures: 45 **Maximum Marks:** 60

Units	Topics	No. of Lectures
I	**Introduction to Business Analytics:** Concept of analytics and Artificial Intelligence, AI in business, Application fields - Marketing Analytics, Finance Analytics, HR Analytics, Operation Analytics, organization and source of data, Social Networking Analysis.	8
II	Introduction of machine learning and its types, ETL Process, Data Cleaning importance of data quality, dealing with missing or incomplete data, machine learning techniques in business, Association rule mining, Apriori algorithm , Frequent pattern mining.	8
III	Predictive modelling in business: Basic concept of classification:- Naïve Bayes, Decision tree, linear regression and correlation, Introduction to clustering :- K Means, Hierarchical . Introduction to business analysis using python:- Data types, List, Dictionary , tuple, Operators in Python, Control statements, strings, Functions in Python.	10
I V	Data visualization using matplotlib, numpy, mathematical and logical operations on Numpy ,Python date and time functions Pandas, creating dataframes, creating series, operations with dataframe and series NLP used in business, case studies	10
V	Data Wrangling , Data Web Scraping, Python processing with unstructured data, introduction to NLP techniques, Word tokenization , stemming and lemmatization, parts of speech using NLTK, applications of NLP in business.	9

References

Text Books:

1. Turban E, Armson, JE, Liang, TP &Sharda, Decision support and Business Intelligence Systems, 8th Edition, John Wiley & Sons, 2007
2. Frank J. Ohlhorst, Big Data Analytics, 1st Edition, Wiley, 2012.
3. Efraim Turban, Ramesh Sharda, Jay Aronson, David King, Decision Support and Business Intelligence Systems, 9th Edition, Pearson Education, 2009.