G H RAISONI COLLEGE OF ENGINEERING & MANAGEMENT

(Approved by AICTE, New Delhi and Recognized by DTE, Maharashtra)
An Autonomous Institute Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
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Department of MCA

Syllabus

Semester-I

Course Contents:

MC3TT101: Operating System Concepts										
Teaching Scheme				**Credits**	**Continuous Evaluation Scheme**					
					Theory			**Practical**		
Th.	**Tu.**	**Pr.**	**Total Hours**		**TAE**	**CAE**	**ESE**	**Int**	**Ext**	**Total**
3	-	-	3	3	20	30	50	-	-	100

Course Objectives	1. To understand the concepts and functions of operating systems.
	2. To understand Processes and Threads and various scheduling algorithms
	3. To analyze various memory management schemes.
	4. To understand I/O management and File systems.
	5. To be familiar with System Protection & Security.
Course Outcomes	1. Describe the important computer system resources and the role of operating system in their management policies and algorithms.
	2. Understand the process management policies and scheduling of processes by CPU
	3. Describe and analyze the memory management and its allocation policies
	4. Identify use and evaluate the storage management policies with respect to different storage management technologies.
	5. Understand System Protection mechanism, Security environment and threads.

Unit	Content	Hours
I	**OPERATING SYSTEM OVERVIEW :** Computer System Overview-Basic Elements, Instruction Execution, Interrupts, Memory Hierarchy, Cache Memory, Direct Memory Access, Multiprocessor and Multicore Organization. Operating system overview-objectives and functions, Evolution of Operating System. - Computer System Organization Operating System Structure and Operations- System Calls, System Programs, OS Generation and System Boot.	10
II	**PROCESSMANAGEMENT :** Processes – Process Concept, Process Scheduling, Operations on Processes, Implementation Of Processes Inter-process Communication; CPU Scheduling – Scheduling criteria, Scheduling algorithms, Threads- Overview, Multithreading models, Implementing Threads In User Space & Kernel, Hybrid Implementation ,Threading issues; Process Synchronization – The critical-section problem, Synchronization hardware, Mutex locks, Semaphores, Critical regions, Monitors; Deadlock – System model, Deadlock characterization, Methods for handling deadlocks, Deadlock prevention, Deadlock avoidance, Deadlock detection, Recovery from deadlock.	10
III	**FILE MANAGEMENT :** File System Interface and Implementation: Concept of a File- Attributes of a File, Operations on Files, Types of Files; Structure of File; File Access Methods-Sequential Access, Direct Access, Indexed Sequential Access; Directory Structure: Single Level Directory, Two Level Directory; Tree Structured Directories; Allocation Methods-Contiguous allocation, Linked allocation, Indexed allocation, Performance comparison; Free Space Management, Directory Implementation.	10
IV	**MEMORY MANAGEMENT:** Memory Management requirements, Memory partitioning: Fixed and Variable Partitioning, Memory Allocation: Allocation Strategies (First Fit, Best Fit, and Worst Fit), Fragmentation, Swapping, and Paging. Segmentation, Demand paging Virtual Memory: Concepts, management of VM, Page Replacement Policies (FIFO, LRU, Optimal, Other Strategies), Thrashing	10
V	**SYSTEM PROTECTION & SECURITY :** System Protection: Goal of Protection, Access Matrix & its implementation, Access, Access control technique. System Security: Security Environment, Design Principles of Security, system and network threads UserAuthentication.	10

Text Books	1. Operating System Concepts (8th Edition) by Silberschatz, Peter B. Galvin and Greg Gagne, Wiley Indian Edition (2010).
	2. Modern Operating Systems (Third Edition) by Andrew S Tanenbaum,Prentice Hall India (2008).
Reference Books	1. Kernighan & Pike: "UNIX programming Environment", 2/E, PHI-EEE, 2001.
	2. W Richard Stevens, Stephen A Rago, "Advanced Programming in the UNIX Environment"; 3/E, Addison Wesley Professional, 2013.
	3. W. Stallings: "Operating Systems: Internals and Design Principles", 7/E, PearsonPub., 2014.
On-line TL Material	-

MC3TT102 : Database Management Systems										
Teaching Scheme				Credits	Continuous Evaluation Scheme					
					Theory			Practical		Total
Th.	Tu	Pr.	Total Hours		TAE	CAE	ESE	Int	Ext	
3	-	-	3	3	20	30	50	-	-	100

Course Objectives	**1.** To understand the basic concepts and the applications of database systems.
	2. To master the basics of SQL and construct queries using SQL.
	3. To understand the relational database design principles.
	4. To become familiar with the basic issues of transaction processing and concurrency control.
	5. To become familiar with database storage structures and access techniques.
Course Outcomes	**1.** Describe the basic concepts of DBMS and various databases used in real applications.
	2. Design relational database using E-R model, normalization and nonprocedural structural query languages for various database applications
	3. Apply concepts of Object Based Database, XML database and non-relational databases
	4. Explain the concept transaction management and Concurrency management for real applications
	5. Elaborate the concept Backup and Recovery Systems

Course Contents:

Unit	Contents	Hours
I	**Basic concepts-** Introduction, A Historical Perspective, Database and Need for DBMS, Characteristics, Users, Views, schema, 3-tier architecture, Introduction of Parallel, Distributed Databases. Models (Relational model, Object Models), Advantages and disadvantages of each model	12
II	**Data Modeling and Relational Database:-** Introduction to the Relational Model, Entities-attributes, Relationship, Attributes, relationship set, Keys, Codd's rules, Generalization, aggregation, ER diagrams, Normalization (1 NF, 2 NF, 3 NF, BCNF), Introduction to SQL, DDL, DML Queries.	10
III	**Databases and applications: -** Obstacles using Relational Data Model & Emergence of Special Databases, Object Oriented Databases (OODBMS), Feature, Advantages of OODBMS Architecture, ODL, OQL, OODBMS Vs RDBMS, Object Relational Database, Schema, Mapping, XML, Structure of XML Data, XML Document Schema, Querying and Transformation, Application Program Interfaces to XML, Storage of XML Data, XML Applications.	12
IV	**Transaction and Concurrency:** - Concept of transaction processing, ACID properties, States of transaction, Serializibility and testing for Serializibility, Concurrency control, schemes, Locking techniques, Timestamp based protocols, Granularity of data items, Deadlocks	10
V	**Backup and Recovery Systems:-** Failure classifications, Recovery & Atomicity, Log base recovery, Recovery with concurrent transactions, Failure with loss of non-volatile storage, Database backup & recovery from catastrophic failure, Remote backup system	10

Text Books	1. Database Systems Concepts: Silberschatz, Korth, Sudarshan, McGraw-Hill.
	2. An Introduction to Database Systems: Bipin C. Desai, Galgotia.
	3. An Introduction to Database Systems: C.J.Date, Narosa.
	4. Data base Management Systems, Raghu Ramakrishnan, Johannes Gehrke, McGraw Hill Education (India) Private Limited, 3rd Edition.
Reference Books	1. Introduction to database systems C.J.Date, Pearson
	2. Database system concept Korth, TMH,5th Ed.
	3. Principles of Database Management James Martin, PHI.
	4. Database Management systems Ramakrishna &Gehrke, McGrawHill,3rd Ed.
	5. Database Management Systems Bipin Desai, Galgotia Pub.
On-line TL Material	-

MC3TT103: PHP										
Teaching Scheme				Credits	Continuous Evaluation Scheme					
					Theory			Practical		Total
Th.	Tu	Pr.	Total Hours		TAE	CAE	ESE	Int	Ext	
3	-	4	7	3/2	20	30	50	25	25	100/50

Course Objectives	1. Gain the PHP programming skills needed to successfully build interactive, data driven sites
	2. Use the MVC pattern to organize code
	3. Test and debug a PHP application
	4. Work with form data, regular expressions, handle exceptions, and validate data, MYSQL and Database
Course Outcomes	1. Understand basic PHP syntax for variable use and standard language constructs, such as conditionals and loops.
	2. Understand the syntax and working with concept different concepts of functions
	3. Understand the paradigm for dealing with form-based data, both from the syntax of HTML forms, and how they are accessed inside a PHP-based script.
	4. Understand to deal with Error handling, file type processing and state management as well as processing images.
	5. Developing and understanding the working MYSQL and Database connectivity

Course Contents:

Unit	Contents	Hours
I	**INTRODUCTION TO PHP:** History of PHP, Apache Web Server, MySQL and Open Source, Relationship between Apache, MySQL and PHP (AMP Module), PHP configuration in IIS, Apache Web server BASICS OF PHP: PHP structure and syntax, Creating the PHP pages, Rules of PHP syntax, Integrating HTML with PHP, Constants, Variables : static and global variable, Conditional Structure & Looping, PHP Operators, Arrays, for each constructs, User defined function, argument function, Variable function, Return Function, default argument, variable length argument.	12
II	**WORKING WITH FUNCTIONS:** Variable Function, String Function, Math Function, Date Function, Array Function, and File Function. User defined function, Systems defined function, Parameterized function, Non parameterized function, Dynamic parameter in function, Variable scope, Passing Argument in function, Static function.	10

III	**WORKING WITH DATA:** FORM element, INPUT elements, Processing the form, User Input, Adding items, Validating the user input, Passing variables between pages. Files, Creating and deleting file, Reading and writing file, Working with file, Creating and deleting folder, Working with regular Expression Basic regular expression, Matching patterns, Finding match, Replace match.	10
IV	**ERROR HANDLING:** Error types in PHP, Generating PHP errors, Exceptions, Parse errors, State Management: - Cookies Session, Destroying cookies and session Http management, Sent mail Images with PHP: Working with GD Library, File types with GD and PHP, Compiling PHP with GD, Creating the image table, uploading the image.	08
V	**INTRODUCTION TO MYSQL:** MySQL structure and syntax, Types of MySQL tables and storages engines, MySQL commands, Integration of PHP with MySQL, Connection to the MySQL server, Working with PHP and arrays of data, Referencing two tables, Joining two tables. WORKING WITH DATABASE: Creating a table, manipulating the table, editing the database, inserting a record, deleting a record, editing data Understand process of executing a PHP-based script on a webserver.	12

Text Books	1. Beginning PHP, Apache, MySQL Web Development - Elizabeth Naramore, Jason Gerner, Yann Le, Scouarnec, Jeremy Stolz, Michael K. Glass, Gary Mailer - By Wrox Publication
	2. PHP, MySQL and Apache - Julie C. Melone By Pearson Education
Reference Books	1. Beginning PHP 5.3, by Matt Doyle - By Wrox Publication
	2. PHP and MySQL Bible – Tim Converse and Joyce Park with Clark Morgam By Wiley INDIA
On-line TL Material	

Sr. No.	Name of Experiments
1.	Write a program using Conditional Structure.
2.	Write a program using array which accepts five values and print the values.
3.	Write a program using Looping Structure with concept of Functions
4.	Write a program in PHP for type casting of a variable
5.	Write a program in PHP to display Multiplication Table using nested for loop
6.	Write a program In PHP to Sort an array using Bubble Sort function
7.	Design the personal information form ,submit and retrieve the form data using php $_POST,$_GET,$ REQUEST variable
8.	Study of Cookies and Session In PHP
9.	Study Of MySQL DDL,DML,DCL Commands
10.	Design Login Form and Validate that form using PHP Code
11.	Write a PHP code to create database & table in MySQL
12.	Write a PHP code to insert, delete, select the data from database
13.	Design a from which upload & Display image in PHP
14.	Write a PHP Code to make database connection, Create Data Base, Create Table In Mysql
15.	Write a PHP code Insert, Delete, Update, Select the Data From Data Base

MC3TT104: Discrete Mathematics & Graph Theory										
Teaching Scheme				**Credits**	**Continuous Evaluation Scheme**					
					Theory			**Practical**		**Total**
Th.	**Tu**	**Pr.**	**Total Hours**		**TAE**	**CAE**	**ESE**	**Int**	**Ext**	
3	0	0	3	3	20	30	50	-	-	100

Course Objectives	**1.** Use set notation, including the notations for subsets, unions, intersections, differences, Complements cross products, and power sets. Use mathematically correct terminology and notation. Write English sentences for logical expressions and vice-versa.
	2. Determine if a logical argument is valid or invalid. Apply standard rules of inference including Modus Ponens, Modus Tollens, Transitivity, and Elimination.
	3. Define and use the terms function, domain, codomain, range, image, inverse image, preimage, & composition. Define Relation & algebraic structure
	4. Understand basics of counting, generating functions, Recurrence relation and solution of recurrence relation.
	5. Understand Graph and Tree terms, and be able to relate these to practical examples.
Course Outcomes	1. Understand the basic principles of sets and operations in sets and Prove basic set equalities.
	2. Write an argument using logical notation and determine if the argument is or is not valid.
	3. Demonstrate an understanding of relations and functions and be able to determine their properties. Lattices, Partial Order Relation and Boolean Functions.
	4. Understand the terms Combinations, Permutations, Pigeonhole principles, Recurrence Relations.
	5. Model problems in Computer Science using graphs and trees.

Course Contents:

Unit	Contents	Hours
I	**Fundamentals** Fundamental: Sets and Relations, Operations on sets, Addition Principle: for 2 Sets and 3 Sets, Matrices, Boolean Matrix Operations, Mathematical Logic: Statements and notations, Connectives, conditional statements, Well-formed formulas, Truth Tables, tautology, equivalence, implication, Normal forms. Mathematical Induction.	10
II	**Inference & Predicate Theory** Theory of inference for the statement calculus: Rules of inference, Consistency, proof of contradiction, Automatic Theorem Proving. Predicate calculus: Predicative logic, Free and Bound variables, The Universe of Discourse. Inference theory of predicate calculus involving quantifiers.	10
III	**Relations & Algebraic Structure** Properties of binary Relations, equivalence, transitive closure. Lattices, Hasse Diagram. Functions: Composition of functions, Inverse Function, Algebraic structures: Algebraic systems, examples and general properties, Semi groups and monoids, groups and sub groups, Boolean algebra.	10
IV	**Elementary Combinatorics** Basics of counting, Combinations & Permutations with repetitions, Pigeon hole principles and its application. Recurrence Relations: Generating Functions, Function of Sequences, Calculating Coefficients of generating functions, Recurrence relations, solving recurrence relation by substitution and Generating functions, the method of Characteristic roots, and solution of homogeneous Recurrence Relations.	8
V	**Graphs** Graph Theory: Basic Concept of Graph Theory, Sub graphs, Euler Path & Circuits, Hamiltonian Path & Circuits, Trees: Introduction, Trees and their properties, Spanning Trees, Directed trees, Undirected Trees, Minimal Spanning Trees.	10

Text Books	**1.** Discrete Mathematical Structures by Kolman, Ross and Busby, PHI Publication.
	2. Discrete Mathematics with Applications to Computer Science, J P Trembley and R Manohar, TMH, 2008. (Units I and II).
	3. Discrete Mathematics for Computer Scientists and Mathematicians, second edition, J. L. Mott, A. Kandel, T.P. Baker, PHI
Reference Books	1. Elements of Discrete Mathematics- A Computer Oriented Approach, C.L.Liu, D.P. Mohapatra, 3rd edition, TMH.
	2. Discrete and Combinatorial Mathematics- An Applied Introduction-5th Edition– Ralph. P.Grimaldi, Pearson Education.
On-line TL Material	https://onlinecourses.nptel.ac.in/noc21_cs34/unit?unit=17&lesson=18 https://onlinecourses.nptel.ac.in/noc21_cs34/unit?unit=58&lesson=59 https://onlinecourses.nptel.ac.in/noc21_cs34/unit?unit=89&lesson=90 https://onlinecourses.nptel.ac.in/noc21_cs34/unit?unit=141&lesson=142

MC3TT105: OBJECT ORIENTED PROGRAMMING USING JAVA										
Teaching Scheme				**Credits**	**Continuous Evaluation Scheme**					
					Theory			**Practical**		**Total**
Th.	**Tu**	**Pr.**	**Total Hours**		**TAE**	**CAE**	**ESE**	**Int**	**Ext**	
3	-	4	7	3/2	20	30	50	25	25	100/50

Course Objectives	1. To write programs using abstract classes.
	2. To write programs for solving real world problems using java collection frame work.
	3. To write multithreaded programs.
	4. To write GUI programs using swing controls in Java.
	5. To introduce java compiler and eclipse platform.
	6. To impart hands on experience with java programming.
Course Outcomes	1. Understand the programming entities like Variables, Operators, Inheritance, Packages and Tokens.
	2. Implement exception handling and Thread Programming.
	3. Develop application using AWT components and apply Event handling.
	4. Implement JDBC-ODBC, TCP/IP, RMI.
	5. Implement Servlet and JSP.

Course Contents:

Unit	Contents	Hours
I	**Java and Internet, Features of java** security, portability, multithreading, etc, Bytecode, Datatypes, variables and Arrays, Operators, Classes : declaring objects, methods, constructor, overloading constructor, garbage collection, finalize() method, static variable and method, final variable, command line argument. Inheritance: super keyword, final with inheritance. Packages and Interfaces.	8
II	**Exception handling** Overview, types, Uncaught exception, try -catch block, multiple catch, nested try, throw, throws, finally, bulit-in and user- defined exception. Multithreading : Life Cycle, Thread class and Runnable Interface, isAlive(), join(),Priorites, Synchronization : sleep() , run(). Interthread communication : wait(), notify(), notifyAll(), deadlock. String Handling.	8
III	**Wrapper classes, Applet** Applet Class, Architecture, Life Cycle, Display methods, HTML APPLET Tag, Passing parameter to Applet AWT : working with Windows, Controls, Layout Manager, Menus. Swings. Event handling	12
IV	**JDBC** Architecture, JDBC-ODBC bridge driver, SQL Package, ResultSet and its methods. Networking : Socket, Reserve socket, Internet Addressing, InetAddress, TCP/IP client socket, TCP/IP server socket, URL, URL Connection, Datagram. RMI : Introduction, Architecture, Remote Interface, java.rmi. server package, class naming, creating Rmi server and client ,transmitting files using rmi, client side callback, RMISECURITYMANAGER class, RMI Exception, Stub and Skeleton	8
V	**Servlet** Life Cycle, Tomcat, javax. servlet package, reading servlet parameter, javax.servlet.http package, handling http request and response with HTTPGET and HTTPPOST, cookies,session tracking. JSP : Introduction, Types of JSP tags, Application using JSP and Servlet. JavaBeans : Advantages of Beans, BDK, JAR files, Introspection, Developing Beans using BDK.	6

Text Books	**1.** Complete Reference by Herbert Schildt (TMH)
	2. Programming with Java By C Muthu (McGraw Hill)
	3. Black Book on java.
	4. E. Balguruswamy
Reference Books	1. Java for Programmers, P. J. Deitel and H. M. Deitel, 10th Edition Pearson education.
	2. Thinking in Java, Bruce Eckel, Pearson Education
On-line TL Material	

Sr. No.	Name of Experiments
1	Write a program in Java to create a class for employee record with two constructor, first default constructor to initialize all variables, second constructor to accept the employee details and a method to display employee details.
2	Write a program in Java that has Boolean function returning a string to display whether it is a leap year or not.
3	Write a program in Java that has overloaded methods. The first methods should have no arguments. The second method should accept one string argument and the third method should accept one string and one integer argument. The first method should display “Delhi is an Important City” twice. The second method should display “Bombay is a beautiful city” thrice and third method should display “Chennai is a peaceful city” four times.
4	Write a program in Java that creates an abstract class called Shape. Create subclasses that calculate and displays area of rectangle and triangle.
5	Write a program in Java to accept values for multithread.
6	Write a Program to demonstrate multiple inheritance through interface.
7	Write a Program to illustrate exception using multiple catch statement.
8	Write a Java Program to create Lamp using applet.
9	Write a Program to create an application which shows the menu.
10	Write a Java Program for creation of input dialog box.
11	Create an application to retrieve information(author id, name, address, city) about the author who living in the city where the city name begins with the letter “n”.
12	Write a Program to Delete Record from Employee Table Whose Salary is greater than 20000.
13	Write a program to reading servlet parameter.
14	Write a program in java to insert product information in product table using html and jsp. Following is Product.html : *Enter the Product Details* Product Id Description Quantity Rate register reset
15	Write a program to creating a application using JavaBeans.
16	a) Write a server application which read the message from client & returns it after Prefacing (prefix) it with text “the server got this”. b) Write a client program sends the message “Hello” the server & read what the Servers send back.

AEMC1TI 106: Technical Writing & Drafting										
Teaching Scheme				Credits	Continuous Evaluation Scheme					
					Theory			Practical		Total
Th.	Tu	Pr.	Total Hours		TAE	CAE	ESE	Int	Ext	
1	-	-	1	1	10	15	-	-	-	25

Course Objectives	1. To develop skills that will enable to produce clear and effective scientific and technical documents.
	2. To help the students to develop skills needed to successfully communicate in a modern world through written materials.
	3. To enable the students with the confidence to use written communication in their workplace and personal experience beyond college.
Course Outcomes	1. Students will understand how to follow the stages of writing process and apply them to technical and workplace writing tasks.
	2. Students will understand the basic components and forms of technical writing.
	3. Students will be able to read understand and interpret material on technology.
	4. Students will be familiar with basic technical writing, concepts and terms.
	5. Students will be able to produce effective scientific and technical documents at their workplace

Course Contents:

Unit	Contents	Hours
I	Technical and Scientific writing, Scientific writing, technical writing purpose, form and style, web sites and tools used, types of technical documents.	3
II	Technical report writing Types of technical reports, format of technical reports, fonts, pagination, spacing and margins. Formatting, proofreading and finalizing report	3
III	Proposals Purpose, types of proposals, style and format of project proposal, sample proposal template, types of research proposal, format of research proposal. Research papers/articles, Manuals, White papers.	4

Text Books	1. Dr.Pratibha Mahato and Dr. Dora Thompson ,Functional English for Technical students ,Himalaya Publishing House
	2. S. D. Sharma, A textbook of Scientific and Technical Communication Writing for Engineers and Professionals.
Reference Books	1.Technical Communication, 9th edition by Mike Markel.
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On-line TL Material	-

AEMC1TI107: Soft Skills										
Teaching Scheme				Credits	Continuous Evaluation Scheme					
					Theory			Practical		Total
Th.	Tu	Pr.	Total Hours		TAE	CAE	ESE	Int	Ext	
1	-	-	1	1	10	15	-	-	-	25

Course Objectives	4. To equip students with effective speaking and listening skills in English.
	5. To help them develop their soft skills and people skills, which will make the transition from college to workplace smoother and help them to excel in their jobs.
	6. To enhance students' performance at Placement Interviews, Group Discussions and other recruitment exercises.
Course Outcomes	6. Develop their personal traits.
	7. Understand and converse with their higher authorities/ subordinates/ other / persons concerned.
	8. Expose their personality effectively.
	9. Develop good relations/ contacts with different types of persons concerned.
	10. Develop skill of impromptu speech as well public speech.

Course Contents:

Unit	Contents	Hours
I	**Communication & Team Management** Importance of Communication, Non Verbal Communication, Personal Appearance, Posture, Gestures, Facial Expressions, Eye Contact, Space Distancing. Decision Making, Problem Solving, Negotiation Skills.	3
II	**Time Management & Group Discussions :** Types of Time, Identifying Time Wasters, Time Management Skills. Purpose (Intellectual "ability, Creativity, Approach to a problem, Solving, Tolerance, Qualities of a leader), Group Behavior, Analyzing Performance.	3
III	**Job Interviews:** Identifying job openings, Preparing Resumes & CV, Covering Letter, Interview (Opening, Body-Answer Q, and Close-Ask Q), and Types of Questions.	3

Text Books	1. Rizvi, M Ashraf. Effective Technical Communication. McGraw - Hill.
	2. Mohan Krishna & Meera Banerji. Developing Communication Skills. Macmillan.
Reference Books	1. Krishnaswami,N and Sriraman, T., Creative English for Communication, Macmillan.
On-line TL Material	

VSMC1PI108: Non-Relational Database (MongoDB)										
Teaching Scheme				Credits	Continuous Evaluation Scheme					
					Theory			Practical		Total
Th.	Tu	Pr.	Total Hours		TAE	CAE	ESE	Int	Ext	
-	-	2	2	1	-	-	-	25	-	25

Course Objectives	1. To understand the concepts and functions of Non-Relational Database i.e., MongoDB
	2. To understand CRUD operation and different operator used in database.
	3. To import and export data from non-relational database.
Course Outcomes	1. Describe the principles of NoSQL databases and the advantages of MongoDB over relational databases. Able to do CRUD operations: create, read, update, and delete data in MongoDBs.
	2. Use different methods in MongoDB with various operators and create model data for MongoDB.
	3. Describe the Import and Export data from the Database.

Course Contents:

Unit	Contents	Hours
I	Introduction, Installation Basics of MongoDB: Database, Collection and Document, Cursor, Data Types, MongoDB Query, MongoDB CRUD Operation, MongoDB Methods, Create Database using Mongo Shell.	3
II	MongoDB – Comparison Query Operators, $cmp Operator, $gt Operator, $lt, $eq, $lte, $gte, $ne, $in, $nin Logical Operator, Arithmetic Operators, Array Expression Operators, String Expression Operators, Model data.	3
III	Indexing in MongoDB MongoSB- Index Types, Compound Indexes, Text Indexes, Multikey Indexes. Export data from MongoDB, Import Data from MongoDB.	3

Text Books	1. Practical MongoDB Aggregations, Paul Done | Published Sept. 2023, Developer Professional Book.
	2. MongoDB Complete Guide by Manu Sharma
Reference Books	https://www.mongodb.com/company/what-is-mongodb
	https://www.geeksforgeeks.org/mongodb-an-introduction/
On-line TL Material	

Practical

Sr. No.	Name of Experiments
1.	Create database using MongoDB name Employee and performed following operations: a. Add a column Emp_name to the Employee table. b. Insert any five records into the table. c. Update the column details of job. d. Rename the column of Employee_sal with Emp_sal table using alter command.
2.	Create database using Department table and performed following CRUD operations: a. Create Operations b. Read Operations c. Update Operations d. Delete Operations
3.	Create with given database and performed with following operators: ***Database:*** *Student* ***Collection:*** *example* ***Document:*** *two documents that contain the details of the shapes in the form of field-value pairs.* a. **$cmp** b. $gt c. $lt d. $eq e. $lte f. $gte
4.	Create database using Department table and performed following CRUD operations: Create Operations, Read Operations, Update Operations, Delete Operations
5.	Create table called Customer Table. a. Insert records into the table. b. Add salary column to the table. c. Alter the table column domain. d. Drop salary column of the customer table. Delete the rows of customer table whose cust_city is „hyd".

VSMC1PI109: Web Development										
Teaching Scheme				**Credits**	**Continuous Evaluation Scheme**					
					Theory			**Practical**		**Total**
Th.	**Tu**	**Pr.**	**Total Hours**		**TAE**	**CAE**	**ESE**	**Int**	**Ext**	
-	-	2	2	1	-	-	-	25	-	25

Course Objectives	1. To describe common terminologies related to HTML and recognize Correct HTML syntax.
	2. To define the styling and layout of web pages, making them more visually Appealing, user-friendly, and accessible.
	3. To develop skills to add interactivity to web pages with JavaScript.
Course Outcomes	1. The student be able to create a static Web Pages for developing web applications.
	2. The student will be able to style web pages effectively.
	3. The student will be able to create their own interactive and dynamic website.

Course Contents:

Unit	Contents	Hours
I	**HTML Basics**: Intro to HTML Syntax The HTML, head, title, & body tags Headings, paragraphs, & marquee tag, formatting tag, href tag The break tag The image tag & source attribute, create table using height, & alt attributes, list creation, create form using HTML.	10
II	**CSS Basics:** Introduction, syntax, comments, color, margin. Border, Height, Width, font, icon, link, list, table.	10
III	**JavaScript Basics :** Introduction , add java script in html , statement , syntax , output, comment, data types, operator, variables, conditional statement, looping statement , function, array, functions.	10

Text Books	1. Web Designing and Publishing by prof. Satish Jain (BPB publication)
	2. Brian P. Hogan, HTML5 and CSS3, Shroff Publishers.
	3. Learning Web Design: A beginner's Guide to HTML, CSS, JavaScript, and Web Graphics. Jennifer Robbins
Online Reference	www.w3school.com
	www.geeksforgeeks.org
	www.javpoint.com

Practical

1	Write a program in HTML to illustrate the use of Formatting tags => BOLD, ITALIC, UNDERLINE, SUPERSCRIPT, SUBSCRIPT, AND STRIKETHROUGH
2	Write a paragraph centrally aligned and change the color of text to BLUE and Background to YELLOW. The size of the font should be 6.
3	Write a program in HTML to illustrate the below given formats. a) The page should contain a paragraph which is centrally aligned. b) FIRST line of the paragraph should be BOLD and ITALIC. c) STRIKEOUT the Second Line. d) Underline and change the color to RED, of the third line. e) Change the font size of the fourth Line to 5. f) Change the color of the text to GREEN. g) Two horizontal lines below the paragraph.
4	Write a program in HTML to link two files. a) The name of the first file is LINK1.HTML and that of second file is LINK2.HTML. b) LINK2.HTML should contain a Back link also.
5	Write a program in html to create a registration form using form tag
6	Write a program in Java Script which should prompt the user to enter the result of Question- What is the result of 10+10? If entered data is correct raise a message- Congratulations‖. If the answer is wrong then the program should display Sorry, try next time, and the program should exit. Note – Make use of If- Else.
7	Write a program in Java Script which raises a Message: Welcome To Our Website‖ as soon as the Site is loaded. It should also display a message: -Thank You ― when the user switch over from the page
8	Write a program using CSS to create a table and demonstrate how to use different font

VSMC1PI 110: DATA WAREHOUSE										
Teaching Scheme				**Credits**	**Continuous Evaluation Scheme**					
					Theory			**Practical**		**Total**
Th.	**Tu**	**Pr.**	**Total Hours**		**TAE**	**CAE**	**ESE**	**Int**	**Ext**	
-	-	2	2	1	-	-	-	25	-	25

Course Objectives	1. To understand data warehouse concepts, architecture, business analysis and tools.
	2. To understand data warehouse building and architecture
	3. To be familiar with the OLAP models & Tools.
Course Outcomes	1. Design a Data Mart, Schema and Data Warehouse for any organization.
	2. Solve basic statistical calculations on data and describe the aspect of data warehouse Building & Architectures.
	3. Apply fundamental knowledge of On-Line Analytical Processing suitable for data warehousing.

Course Contents:

Unit	Contents	Hours
I	Introduction to Data Warehousing: What is Data Warehousing?, Operational Database, Data Warehouse Development Life Cycle Models, Data warehouses versus Data Marts, systems, Data warehousing Marts and Metadata, Data Cude.	10
II	Data Warehouse Design, Benefit of Data Warehousing, Relational Database technology for Data Warehouse:- Type of Parallelism, Data Partitioning, Database Architecture For Parallel Processing, Share Memory, Share Disk & Share-Nothing Architecture.	10
III	Need for OLAP, Multidimensional Data Model, Schemas for Multidimensional Data Model, OLAP Guideline, OLAP Operations, Data Cube Computations, OLAP Servers, major, OLAP models- ROLAP and MOLAP.	10

Text Books	1 . Data Warehouse, Data mining & OLAP, by Alex Bareson Stephen J. Smith by McGraw Hill Education.
Reference Books	1. Data Warehouse, Data mining & OLAP, by Alex Bareson Stephen J. Smith by McGraw Hill Education.

VSMC1PI111: Advance Excel											
Teaching Scheme				Credits	Continuous Evaluation Scheme						Exam Hours
					Theory			Practical		Total	
Th.	Tu	Pr.	Total Hours		TAE	CAE	ESE	Int	Ext		
-	-	2	2	1	-	-	-	25	-	25	

Course Objectives	1. Mastering Excel Functions: understanding of essential Excel functions.
	2. Data Management: Learn techniques for importing, cleaning, and organizing data efficiently.
	3. Advanced Data Analysis: Develop skills in statistical analysis, pivot tables, and data summarization to derive meaningful insights.
	4. Data Visualization: Create sophisticated charts and graphs to present data clearly and effectively.
Course Outcomes	1. Describe how to effectively use formulas, functions, and data analysis tools.
	2. Able to create powerful charts: Develop skills in creating visually appealing and informative charts and graphs.
	3. Manage data efficiently: Gain knowledge in sorting, filtering, and managing data sets for better organization.

Course Contents:

Unit	Contents	Hours
I	**UNIT – I** Introduction and Importance of Microsoft Excel, Microsoft Excel Fundamentals: Excel Layout, copy paste special, working with numbers, basic functions, add, insert, hide, unhide advance fill, customize views, comparing data from different sheets.	10
II	**UNIT – II** Microsoft Excel Basic & Advance Functions: Basic functions: Sum, Average, count, Min, Max, Conditional Formatting, Filter table, sorting, conditional sorting, , Advance Table, Advance Filter, Sort & Subtotal.	10
III	**UNIT – III** Formulas & Function: Date function, Text Function, Logical & statistical functions, Illustrations (Pictures, Shapes, SmartArt), Working with Charts (Graphs), Pivot table, import & export, shortcut Keys in Microsoft Excel.	10

Text Books	1. Excel 2019 All in one
	2. Microsoft Excel 2019 Bible
Reference Books	1. Quick start guide from Beginners to Experts
	2. Excel 2019: Pivot table data crunching
On-line TL Material	https://www.excel-easy.com/basics.html
	https://trumpexcel.com/best-excel-books/

VSMC1PI112: Natural Language Processing										
Teaching Scheme				Credits	Continuous Evaluation Scheme					
					Theory			Practical		Total
Th.	Tu	Pr.	Total Hours		TAE	CAE	ESE	Int	Ext	
-	-	2	2	1	-	-	-	25	-	25

Course Objectives	1. To learn about common terminologies related to NLP.
	2. To learn about models for Sequential tagging and parsing
	3.To learn about Sentimental Analysis
Course Outcomes	1.The student will be able to do Language Modeling
	2. The student will be able to do Parsing
	3.The student will be able to do Sentiment Analysis

Unit	Contents	Hours
I	Introduction and Basic Text Processing, Spelling Correction, Language Modeling, Advanced smoothing for language modeling, POS tagging.	10
II	Models for Sequential tagging – MaxEnt, CRF, Syntax – Constituency Parsing, Dependency Parsing, Distributional Semantics, Lexical Semantics	10
III	Topic Models, Entity Linking, Information Extraction, Text Summarization, Text Classification, Sentiment Analysis and Opinion Mining	10

Text Books	1. Dan Jurafsky and James Martin. Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition. Prentice Hall, Second Edition, 2009.
	2. Chris Manning and Hinrich Schütze. Foundations of Statistical Natural Language Processing. MIT Press, Cambridge, MA: May 1999.
	3. Steven Bird, Ewan Klein, Edward Loper: Natural Language Processing with Python. O'Reilly Media, Inc. June 2009
Online Reference	www.w3school.com
	www.geeksforgeeks.org
	www.javpoint.com

Practical List

1	Write a program in python for text processing
2	Write a program in python for Language Modeling
3	Write a program for Text Summarization
4	Write a program for Text Classification
5	Write a program for Sentimental Analysis