DEPARTMENT OF

MCA

P.G.

DEPARTMENT OF MCA

Programme Code: MC **Programme Name: MCA**

Programme Outcomes

1. Apply knowledge of computing fundamentals and domain facts. (Local)
2. Identify, formulate and solve complex computing problems reaching substantiated conclusions. (National)
3. Design and evaluate solutions for complex computing problems with appropriate consideration. (Global)
4. Use research-based knowledge and research methods for analysis and interpretation of data, and synthesis of the information to provide valid conclusion. (National)
5. Apply computing, management principles to manage Multidisciplinary projects (Global)
6. Commit to professional ethics and cyber regulations for professional computing practices. (Global)

Programme Specific Outcomes

On completion of the MCA Programme, students will be able to

1. Develop an ability to apply knowledge in the computing discipline (Local)
2. Develop ability to design and conduct experiments, as well as interpret data. (National)
3. Develop ability to use current technologies, skills and models for computing practice (Global)
4. Develop techniques to enhance ability for lifelong learning (Global)
5. Make graduates understand cross cultural, societal, professional, legal and ethical issues prevailing in industry (National)

Course Outcomes

SEMESTER - I

Subject Code: 18MC11
Course Name: MATHEMATICAL FOUNDATION OF COMPUTER APPLICATION

Upon completion of the course, the students will be able to

1. Understand the complexity of computational problems
2. Address any real time problem and improve the working flow of computational models.
3. Solve real time problems using tree and graph algorithms
4. Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra
5. Apply various methods of mathematical proof and communicate solutions in writing.

Subject Code: 18MC12
Course Name: DIGITAL PRINCIPLES & COMPUTER ORGANIZATION

Upon completion of the course, the students will be able to

1. Understand The Processing Of Computer And The Function Of Memory And Its Types
2. Know The Functions And Organization Of Input Output Devices
3. Interpret The Digital Representation Of Data In a Computer System
4. Identify , Understand And Apply Different Number Systems And Codes
5. Understand Computer Arithmetic Formulate And Solve Problems

Subject Code: 18MC13
Course Name: PROGRAMMING IN C

Upon completion of the course, the students will be able to

1. Create algorithms to solve simple programming problems.
2. Design, implement, test and debug programs that use calculations and selections.
3. Design, implement, test and debug programs that use loops and arrays.
4. Design, implement, test and debug programs that use functions.
5. Design, implement, test and debug programs that use arrays for character strings and that use pointers for character strings.

Subject Code: 18MC14
Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEMS

Upon completion of the course, the students will be able to

1. Understand the use of Structured Query Language (SQL)
2. Create E/R models from application descriptions.
3. Apply normalization techniques to standardize the database
4. Design and implement a database system for real time problem
5. Create databases in an RDBMS and enforce data integrity constraints and queries using SQL

Subject Code: 18MC11P
Course Name: PROGRAMMING IN C LAB

Upon completion of the course, the students will be able to

1. Understand and trace the execution of programs written in C language.
2. Write program in C code for an algorithm.
3. Implement programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.
4. Write programs that perform operations using derived data types.
5. Write a program which copies the contents of one file to another file using command line arguments.

Subject Code: 18MC12P
Course Name: RDBMS LAB

Upon completion of the course, the students will be able to

1. Utilize a data definition language and/or utilities to implement the schema using a DBMS.
2. Use an SQL interface of a multi-user relational DBMS package to create, secure, populate, maintain, and query a database.
3. Formulate query, using SQL, solutions to a broad range of query and data update problems..
4. Create a desktop database package to populate, maintain, and query a database.
5. Demonstrate a rudimentary understanding of programmatic interfaces to a database and be able to use the basic functions of one such interface.

SEMESTER – II

Subject Code: 18MC21
Course Name: OBJECT ORIENTED PROGRAMMING USING C++

Upon completion of the course, the students will be able to

1. Understand the difference between the top-down and bottom-up approach
2. Describe the object-oriented programming approach in connection with C++
3. Utilize the concepts of object-oriented programming
4. Illustrate the process of data file manipulations using C++
5. Apply virtual and pure virtual function & complex programming situations

Subject Code: 18MC22
Course Name: DATA STRUCTURES AND ALGORITHMS

Upon completion of the course, the students will be able to

1. Describe how Arrays, Records, Linked structures, Stacks ,Queues concepts can be implemented.
2. Analyze the concept of Binary Tree , Binary Search Tree and Graph Traversal.
3. Compare and contrast the benefits of dynamic and static data structures implementations
4. Apply the concept of recursion with example and describe how it is implemented using Stack
5. Design and implement an appropriate hashing function for an application.

Subject Code: 18MC23
Course Name: OPERATING SYSTEMS

Upon completion of the course, the students will be able to

1. Identify the concept of System Calls and various types of Processor.
2. Apply the basic structure of Operating Systems.
3. Understand concurrent Process , Thread , Memory Management and Deadlocks
4. Apply concept of creating new process from parent process.
5. Acquire Knowledge in Scheduling and File System.

Subject Code: 18MC24
Course Name: COMPUTER GRAPHICS & MULTIMEDIA

Upon completion of the course, the students will be able to

1. Understand the various graphics systems and applications of computer graphics.
2. Discuss the 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.

Subject Code: 18MC21P
Course Name: DATA STRUCTURES & ALGORITHMS USING C++ LAB

Upon completion of the course, the students will be able to

1. Understand the linear and non-linear data structures, Sorting and searching operations,
2. Examine the performance of Stack, Queue, and Lists.
3. Analyze the performance of Trees, Graphs, Searching and Sorting techniques.
4. Implement all the applications of Data structures in a high-level language.
5. Design and apply appropriate data structures for solving computing problems

Subject Code: 18MC22P
Course Name: COMPUTER GRAPHICS MULTIMEDIA LAB

Upon completion of the course, the students will be able to

1. Understand the basic concepts of computer graphics
2. Design the scan conversion problems using C++ programming.
3. Apply clipping and filling techniques for modifying an object.
4. Evaluate the concepts of various geometric transformation of objects in 2D and 3D.
5. Comprehend the practical implementation of modeling, rendering, viewing of objects in 2D

SEMESTER - III

Subject Code: 18MC31
Course Name: OPTIMIZATION TECHNIQUES

Upon completion of the course, the students will be able to

1. Formulate and solve Mathematical Models for the real world problems.
2. Understand the Transportation Model, Traveling Salesman and able to find Optimal Solution.
3. Interpret the Major Limitations and Capabilities of deterministic Operations Research Modeling as Applied to Problems in industry or government.
4. Deal with real world problems in Network Analysis, Project Management, for their Optimal Solutions
5. Solve the various Non- Linear Programming Problems.

Subject Code: 18MC32
Course Name: PROGRAMMING IN JAVA

Upon completion of the course, the students will be able to

1. Understand the use of OOPs concepts.
2. Solve real world problems using OOPs techniques.
3. Understand the use of Abstraction, Packages and Interface in Java.
4. Develop and understand Exception handling, Multithreaded applications with synchronization.
5. Design GUI based applications and develop applets for web applications.

Subject Code: 18MC33
Course Name: DATA COMMUNICATIONS AND NETWORKING
Upon completion of the course, the students will be able to

1. Understand basic computer network technology.
2. Explain Data Communications System and its components.
3. Identify the different types of network topologies and protocols.
4. Enumerate the layers of the OSI model and TCP/IP. Explain the functions of each layer.
5. Differentiate the types of network devices and their functions within a network.

Subject Code: 18MC34
Course Name: SOFTWARE ENGINEERING

Upon completion of the course, the students will be able to

1. Understand the analysis and design of complex systems.
2. Apply software engineering principles and techniques to develop, maintain and evaluate large-scale software systems.
3. Produce efficient, reliable, robust and cost-effective software solutions.
4. Perform independent research and analysis and to work as an effective member or leader of software engineering teams.
5. Manage time, processes and resources effectively by prioritizing competing demands to Achieve personal and team goals

Subject Code: 18MC31P
Course Name: PROGRAMMING IN JAVA LAB

Upon completion of the course, the students will be able to

1. Implement Object Oriented programming concept using basic syntaxes of control Structures, Strings and Function for developing skills of logic building activity.
2. Identify Classes, Objects, Members of a Class and the relationships among them .
3. Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved and the use of different exception handling mechanisms.
4. Describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events
5. Design and develop complex Graphical user interfaces using principal Java Swing classes based on MVC architecture

Subject Code: 18MC32P
Course Name: LINUX PROGRAMMING LAB

Upon completion of the course, the students will be able to

1. Implement the basic commands of Linux Operating System and can write shell scripts
2. Apply and change the Ownership and file Permissions using advance Linux Commands.
3. Create File Systems and Directories and operate them .
4 Set Processes Background and foreground Etc..by Fork() system Calls.
5. Evaluate Shared Memory Segments, Pipes ,Message Queues and can exercise Interprocess Communication.

SEMESTER - IV

Subject Code: 18MC41
Course Name: OPEN SOURCE TECHNOLOGY

Upon completion of the course, the students will be able to

1. Understand the concept of server-side scripting, variables, control structures in PHP.
2. To study the details of functions, string handling and arrays in PHP.
3. Illustrate the concept of number handling, learning sql and data base administration and design.
4. To perform database queries, integrating web forms and databases
5. Write session control PHP code for a website and coding for cookies.

Subject Code: 18MC42
Course Name: MOBILE COMPUTING

Upon completion of the course, the students will be able to

1. Understand cellular concepts like frequency reuse, hand-off and Interference.
2. Apply knowledge of reflection, diffraction and scattering to calculate link budget using path loss models.
3. Present the importance of Equalization and different diversity techniques.
4. Analyze the concepts of GSM. , channels, coding techniques, data transmission, services.
5. Apply the fundamentals of CDMA., channels, coding techniques, data transmission, services.

Subject Code: 18MC43
Course Name: PRINCIPLES OF COMPILER DESIGN

Upon completion of the course, the students will be able to

1. Acquire knowledge about various system software and role in programming environment.
2. Apply lexical analyzer using NFA and DFA.
3. Implement various parsing techniques.
4. Understand the basic issues of Code optimization, Register allocation and Assignment methods their limitations and benefits.
5. Create a Compiler for a small programming language.

Subject Code: 18MCE4A
Course Name: CLOUD COMPUTING

Upon completion of the course, the students will be able to

1. Define Cloud Computing and memorize the different Cloud service and deployment models
2. Describe the importance of virtualization along with their technologies.
3. Use and examine different cloud computing services and analyze the components of open stack &and Google Cloud platform and understand Mobile cloud Computing .
4. Understand components of Amazon web service.
5. Design and develop backup strategies for cloud data based on features.

Subject Code: 18MCE4B
Course Name: SOFT COMPUTING

Upon completion of the course, the students will be able to

1. Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory.
2. Understand the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic
3. Apply the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations
4. Infer appropriate learning rules for each of the architectures and learn several neural network paradigms and its applications
5. Reveal different applications of these models to solve engineering and other problems.

Subject Code: 18MCE4
Course Name: ENTERPRISE RESOURCE PLANNING

Upon completion of the course, the students will be able to
1. Make basic use of Enterprise software, and its role in integrating business functions
2. Analyze the strategic options for ERP identification and adoption.
3. Understand and apply the concepts of ERP Manufacturing Perspective and ERP Modules.
4. Design the ERP implementation strategies.
5. Create re engineered business processes for successful ERP implementation

Subject Code: 18MC41P
Course Name: OPEN SOURCE TECHNOLOGY LAB

Upon completion of the course, the students will be able to

1. Implement various applications using build systems
2 .Understand the installation of various packages in open source operating systems
3. Explore different open source technology like Linux, PHP & MySQL with different packages.
4. Execute Linux commands for programming.
5. Write PHP programs with MySQL connection

Subject Code: 18MC42P
Course Name: MOBILE COMPUTING LAB

Upon completion of the course, the students will be able to

1. Experiment on Integrated development environment for Android application development.
2. Design and Implement User Interfaces and Layouts of Android app.
3. Use Intents for activity and broadcasting data in Android app.
4. Design and Implement Database Application and content providers.
5. Develop Android App with security feature

SEMESTER – V

Subject Code: 18MC51
Course Name: WEB TECHNOLOGIES

Upon completion of the course, the students will be able to

1. Develop a dynamic web page by the use of JavaScript and DHTML.
2. Create simple websites using HTML, JavaScript and CSS.
3. Write a well formed and valid XML documents
4. Develop server-side Java application called JSP to catch form data sent from from client and store it on database
5. Programming web pages with JavaScript

Subject Code: 18MC52
Course Name: CRYPTOGRAPHY& NETWORK SECURITY

Upon completion of the course, the students will be able to

1. Provide security of the data over the network.
2. Do research in the emerging areas of cryptography and network security.
3. Implement various networking protocols.
4. Protect any network from the threats in the world.
5. Analyze and implement public key algorithms like RSA, Diffie-Hellman Key Exchange mechanism, the message digest of a text using the SHA-1 algorithm.

Subject Code: 18MC53
Course Name: DATA MINING & DATA WAREHOUSING

Upon completion of the course, the students will be able to
1. Understand various steps in KDD Process ,major issues in Data Mining
2. Preprocess the data for mining applications
3. Apply the association rules for mining the data
4. Design and deploy appropriate classification techniques
5. Cluster the high dimensional data for better organization of the data

Subject Code: 18MCE5A
Course Name: BIG DATA ANALYTICS

Upon completion of the course, the students will be able to

1. Understand the key issues in big data management and its associated applications in intelligent business and scientific computing.
2. Acquire fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce and NO SQL in Big Data analytics
3. Interpret business models and scientific computing paradigms, and apply software tools for Big Data analytics.
4. Achieve adequate perspectives of Big Data analytics in various applications like Recommender Systems, social media applications etc.
5. Demonstrate the understanding of storing and managing Big Data using HDFS, Pig and Hive tools

Subject Code: 18MCE5B
Course Name: DIGITAL IMAGE PROCESSING

Upon completion of the course, the students will be able to

1. Review the fundamental concepts of digital image processing system.
2. Analyze images in the frequency domain using various transforms.
3. Evaluate the techniques for image enhancement and image restoration.
4. Categorize various compression techniques and interpret Image compression standards.
5. Interpret image segmentation and representation techniques.

Subject Code: 18MCE5C
Course Name: INTERNET OF THINGS

Upon completion of the course, the students will be able to
1. Identify the requirements for the real world problems.
2. Conduct a survey of several available literatures in the preferred field of study.
3. Study and enhance software/ hardware skills.
4. To report and present the findings of the study conducted in the preferred domain.
5. Demonstrate an ability to work in teams and manage the conduct of the research study.

Subject Code: 18MC51P
Course Name: WEB TECHNOLOGY LAB

Upon completion of the course, the students will be able to
1. Develop a dynamic webpage by the use of JavaScript and DHTML
2. Write a Well Formed / Valid XML Document.
3. Format and Languages used in model web pages such as HTML, XHTML, CSS and XML.
4. Design a Serve-Side Java Application called Servlet to catch form data sent from Client, Process it and store it on database.
5. Compose a Server-Side Java aapplication called JSP to catch form Data sent from Client and store it on Database.

Subject Code: 18MC52P
Course Name: DATA MINING & DATA WAREHOUSING LAB USING OPEN SOURCE TOOLS

Upon completion of the course, the students will be able to

1. Understand the functionality of the various data mining and data warehousing component.
2. Apply the various data mining and data warehousing models .
3. Explain the analyzing techniques of various data.
4. Describe different methodologies used in data mining and data ware housing.
5. Compare different approaches of data ware housing and data mining with various technologies.

SEMESTER – VI

Subject Code: 18MCPR6
Course Name: PROJECT - VIVA VOCE

Upon completion of the course, the students will be able to

1. Understand and analyse the project.
2. Apply the knowledge of latest trends in design/simulation and fabrication of the project.
3. Relate the ideas while executing the project.
4. Conduct test to examine the performance of the project.
5. Prepare Project Report and power point presentation for seminar in team to enhance his writing skills and oral communication.