

MASTER OF
SCIENCE
(COMPUTER SCI-
ENCE)

COURSE OUTCOMES

SEMESTER 1

16MCS21C1 DISCRETE MATHEMATICS

- CO1: Identify and apply basic concepts of set theory, arithmetic, logic, proof techniques, binary relation, graphs and trees
- CO2: Write an argument using logical notation and discriminate between valid and invalid arguments.
- CO3: Demonstrate an understanding of relations and functions and be able to determine their properties and able to determine when a function is one to one, onto, many to many and so on.
- CO4: Identify different types of matrices and able add, subtract, multiply matrices. Also able to calculate determinant, minors and cofactors of the matrices.
- CO5: Identify different types of grammars used in automata and able to convert NFA to DFA and mealy to more machines.

16MCS21C2 COMPUTER FUNDAMENTALS AND PROGRAMMING IN C

- CO1: Understand the Computer fundamentals.
- CO2: Use of various problem solving techniques.
- CO3: Understand the C programming fundamentals.
- CO4: Understand C by using arrays, functions, structures and union.
- CO5: Develop the Programs in C using its advance features.

16MCS21C3 DATABASE MANAGEMENT SYSTEM

- CO1: Understand the database concepts and structures.
- CO2: Understand data modeling and database development process.
- CO3: Construct and normalise conceptual data models. Implement a relational database into a database management system.
- CO4: Use database management systems (Oracle SQL Plus).
- CO5: Become proficient in using database query language (SQL)

16MCS21C4 COMPUTER ORGANISATION AND ARCHITECTURE

- CO1: Design a circuit for any digital function

- CO2: Use K-map for simplification of Boolean expressions
- CO3: Identify the addressing modes of instructions and calculation of effective address
- CO4: Determine which hardware blocks and control lines are used for different instructions.
- CO5: Classify the parallel processors.

16MCS21CL: PRACTICAL-I (BASED ON 16MCS21C2 & 16MCS21C3)

- CO1: Knowledge of Basic fundamentals and their implementation syntax of programming.
- CO2: Able to develop basic programs of in C language and Use various problem solving techniques.
- CO3: Able to implement arrays in C Programming.
- CO4: Programming in C by using functions, structures and union.
- CO5: Able to solve various problems using C language on small scale.

SEMESTER-II

16MCS22C1 DATA STRUCTURES USING C

- CO1: Knowledge of programming fundamentals including structured and efficient programming.
- CO2: Use various problem solving techniques using C.
- CO3: Knowledge of stacks, queues, recursion and linked lists and their implementation in C.
- CO4: Knowledge of trees and file structures.
- CO5: Knowledge and Development of Programs in C for searching and sorting techniques.

**16MCS22C1 OBJECT ORIENTED
PROGRAMMING USING C++**

- CO1: Use the characteristics of an object-oriented programming language in a program.
- CO2: Use the basic object-oriented design principles in computer problem solving.
- CO3: Apply C++ features to program design and implementation.
- CO4: Design and implementation programs of Constructor, Destructor, and Inheritance.
- CO5: Design and implementation programs of Polymorphism, Exception handling, Templates and Working with files.

16MCS22C3 SOFTWARE ENGINEERING

- CO1: Analyse and resolve software crisis through the use of systematic and scientific approaches in the development of software system.
- CO2: Helps to develop the software system with low cost, high quality and within the given time frame.
- CO3: Use a variety of scripting tools and languages to automate routine tasks such as analysis, design, coding and testing tasks, security issues to the implementation of software systems.
- CO4: Install, configure, troubleshoot, maintain, and upgrade components of computer systems.
- CO5: Provide efficient and effective technical support to clients in a manner that promotes safe computing practices and reduces the risk of the issue recurring.

16MCS22C4 COMPUTER-NETWORKS

- CO1: Independently understand basic computer network technology.
- CO2: Understand and explain Data Communications System and its components, different types of network topologies and protocols.
- CO3: Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer, different types of network devices and their functions within a network .
- CO4: Understand and building the skills of sub-netting and routing mechanisms.
- CO5: Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

16MCS22CL PRACTICAL-II (BASED ON 16MCS22C1 & 16MCS22C2)

- CO1: Demonstrate use of copy constructor and class member functions with suitable example.
- CO2: Elaborate on inheritance and virtual functions with suitable example.
- CO3: Learn how to use basic principles of Exception Handling with Multiple Catch in programs.
- CO4: Elaborate on Virtual Base Class in application with suitable example.
- CO5: Demonstrate on Function Overloading with suitable example.

SEMESTER-III

17MCS23DA3 COMPUTER GRAPHICS

- CO1: Explain the concepts used in various computer graphic devices.
- CO2: Draw different primitive drawing objects and apply transformations.
- CO3: Apply clipping on points, lines and closed objects with respect to given rectangular window.
- CO4: Explain the concepts of interactive computer graphics.
- CO5: Implement the algorithms learnt in some programming language.

17MCS23DB1 MANAGEMENT INFORMATION SYSTEM

- CO1: Identify with the usage of Information Systems in management.
- CO2: To be aware of the activities that are undertaken in acquiring an Information System in an organisation.
- CO3: Aware of various Information System solutions like ERP, CRM, SCM and the issues in successful implementation of these technology solutions in any organisation.
- CO4: Learn about the importance of managing organisational change associated with information systems implementation.
- CO5: Understand the process of developing and implementing information systems.

17MCS23C1 OPERATING SYSTEM AND UNIX

- CO1: Design the structure of an Operating system as per requirements.
- CO2: Perform CPU scheduling to achieve maximum throughput from the system.
- CO3: Manage the memory space more effectively and efficiently by implementing paging, segmentation.
- CO4: Compare the performance of any system in terms of different performance evaluators.
- CO5: Design the Shell scripts in UNIX environment.

17MCS23C2 VISUAL PROGRAMMING

- CO1: Design, create, build, and debug Visual Basic applications and explore Visual Basic's Integrated Development Environment (IDE).
- CO2: Implement syntax rules in Visual Basic programs. And explain variables and data types used in program development and apply arithmetic operations for displaying numeric output.
- CO3: Write and apply decision structures for determining different operations, loop structures to per-

- form repetitive tasks, procedures, sub-procedures, and functions to create manageable code.
- CO4: Create one and two-dimensional arrays for sorting, calculating, and displaying of data and to write Visual Basic programs using object-oriented programming techniques including classes, objects, methods, instance variables, composition, and inheritance, and polymorphism.
- CO5: Design Windows applications using forms, controls, and events.

17MCS23CL PRACTICAL-III (BASED ON 17MCS23C1,17MCS23C2,17MCS23DA3)

- CO1: Explain the concepts used in various computer graphic devices.
- CO2: Draw different primitive drawing objects and apply transformations.
- CO3: Apply clipping on points, lines and closed objects with respect to given rectangular window.
- CO4: Explain the concepts of interactive computer graphics.
- CO5: Implement the algorithms learnt in some programming language.

SEMESTER-IV

17MCS24C1 JAVA PROGRAMMING

- CO1: Use the characteristics of Java language in a program, variables and data types in program development.
- CO2: Identify and implement arrays, String and Selection Statements.
- CO3: Write Java programs using object-oriented programming techniques including classes, objects, methods, instance variables, and interface. Apply Java features to design and implementation of Packages
- CO4: Design and implementation programs of Exception handling, Packages.
- CO5: Design and implementation programs of Multithreading Programming, Window based programs.

17MCS24DA3 MULTIMEDIA AND ITS APPLICATIONS

- CO1: Design Multimedia by incorporating different components of multimedia effectively.
- CO2: Identify different 3D technologies including HDTV, UDTV and Hyper speech.
- CO3: Perform dithering on 24 bit colour and 8 bit colour and 8 bit grey images.
- CO4: Compress the photographs and videos by applying lossy as well as loss less techniques.
- CO5: Make an animated multimedia by incorporating different enhanced features.

**17MCS24DB1 INTERNET AND WEB
DESIGNING PAPER CODE**

- CO1: Review the current topics in Web & Internet technologies and describe the basic concepts for website and internet implementation.
- CO2: Learn the basic working scheme of the Internet and World Wide Web and understand fundamental tools and technologies for web design.

- CO3: Comprehend the technologies for Hypertext Mark-up Language (HTML), XML and specify design rules in constructing web pages and sites. Effectively deal with programming issues relating to VB Script, JavaScript, Java, ASP, Front Page and Flash. Create and Design websites.
- CO4: Figure out the various security hazards on the Internet and need of security measures.
- CO5: Create and use Cascading Style Sheet (CSS) and Information architecture document for a web site and construct a web site that conforms to the web standards of today and includes e-commerce and web marketing.

17MCS24CL PRACTICAL-IV (BASED ON 17MCS24C1, 17MCS24DB1)

- CO1: Clarify the overloading concept with suitable example.
- CO2: Demonstrate in detailed on multilevel inheritance with suitable example.
- CO3: Demonstrate on multiple Thread class and use setPriority method with suitable example.
- CO4: Elaborate on runtime polymorphism with suitable example.
- CO5: Demonstrate on applet with differentiate between main () method using suitable example.

17MCS24DB1

- CO1: Learn the basic working scheme of the Internet and World Wide Web and understand fundamental tools and technologies for web design.
- CO2: Comprehend the technologies for Hypertext Mark-up Language (HTML), XML and specify design rules in constructing web pages and sites. Effectively deal with programming issues relating to VB Script, JavaScript, Java, ASP, Front Page and Flash.
- CO3: Create and Design websites.
- CO4: Figure out the various security hazards on the Internet and need of security measures.
- CO5: Create and use Cascading Style Sheet (CSS) and Information Architecture document for a web site and construct a web site that conforms to the web standards of today and includes e-commerce and web marketing.

17MCS24C3 Project Report

- CO1: Use of various software engineering principles used in developing programming solutions to a system.
- CO2: Identify the programming technologies: languages and database etc to be used for developing a software solution.
- CO3: Understand and analyse the work schedule and its phases to develop a Project.
- CO4: Implement the software design in the chosen programming languages/database etc.
- CO5: Test the code for validation and verification of user requirements of the software. Work in a team for software development.

PROGRAMME OUTCOMES

- PO1: **COMMUNICATION:** Communicate computer science concepts, designs and solutions effectively and professionally.
- PO2: **DESIGN/DEVELOPMENT OF SOLUTIONS:** Apply knowledge of computing with an understanding of limitations.
- PO3: **PROBLEM ANALYSIS:** Identify, analyse and synthesise scholarly literature relating to the field of computer.
- PO4: **MODERN TOOLS USED:** Use software development tools, software system and modern computing platforms.
- PO5: **THE SOFTWARE ENGINEER AND SOCIETY:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional practice.
- PO6: **INDIVIDUAL AND TEAM WORK:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO7: **ENVIRONMENT AND SUSTAINABILITY:** Understand the impact of the professional software engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO8: **PROJECT MANAGEMENT:** Demonstrate knowledge understanding of the scientific and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PROGRAMME SPECIFIC OUT- COMES

- PSO1: To have the practical and theoretical knowledge of computer science and software development sufficient for subsistence and to contribute to the economic development of the region, the country and the nation.
- PSO2: Understand and analyse a given global problem and suggest possible computer solutions.
- PSO3: Analyses customer needs, creates high-quality design, uses and writes robust and reliable software systems
- PSO4: Utilise modern techniques, skills and tools and software tools needed to discover new software solutions and to identify the social, technical, cultural and ethical issues involved in the use of computer technology and give them appropriate consideration in software development.
- PSO5: To prepare for higher education in computer science and related fields, and then pursue research in the relevant areas of computer science.
- PSO6: Understanding and respecting the ethical standards expected of computer scientists and software engineers and appreciating the social impact of computer.
- PSO7: Recognise the value and have the skills needed for lifelong learning in the environment.
- PSO8: To work collaboratively as a member or leader in various teams and to be able to choose the teaching / software engineer as their job after obtaining the required competency requirement.