M.Sc Computer Science

PO, PSO & CO

M.Sc (COMPUTER SCIENCE)	
PROGRAMME OUTCOME	**PO1:** Aims to educate student to identify and analyze complex scientific, societal, industrial problems and reaching effective software solutions using principles of mathematics, appropriate software tools, programming languages. **P02:** It aims to provide technology-oriented students with the ability to design solutions for complex problems and design system components or processes that meet the specified needs with appropriate consideration for the societal and environmental considerations. **PO3**: This program develops human resource for government organizations, IT industries as well as equipped students to start their own business as a software developer, database administrator, programmer, system analyst, data scientist, web application developer, system programmer, software testing, expert system designer.

PROGRAMME SPECIFIC OUTCOME	**PSO1:** Students will be able to adapt the skills to implement effective solutions for need based problems by applying knowledge gained through different programming languages, tools and software covered in the syllabus of program. **PSO2:** Students will be able to handle network related problems by studying data communication network, network security courses. Students learn to troubleshoot fault detection in combinational switching circuits, learn and utilize the concepts of mobile communications. **PSO3:** Students will be able to handle network related problems by studying data communication network, network security courses. Students learn to troubleshoot fault detection in combinational switching circuits, learn and utilize the concepts of mobile communications. **PSO4:** Students are prepared for research oriented concepts of data mining and data warehousing. Student will learn the necessity and importance of data preprocessing, data integration, data discretization. Students learn the concepts of OLAP technology, data mining methods, various classification and prediction methods, accuracy and error measures, various methods of cluster analysis, graph mining and mining sequence patterns.

COURSE OUTCOMES	
MSC101T and MSC105P FILE STRUCTURE And FILE STRUCTURE LAB	**CO1:** Design and implement efficient file structure using improved programming skills **CO2:** To acquire the fundamental tools needed to design intelligent, cost-effective, and appropriate solutions to file structure problems with the fundamentals of file structures and their management. **CO3:** Effective use of files for storing and retrieving information by choosing appropriate file structure for storage representation. **CO4:** Understand the data coding technique,

	apply data compressing algorithms, use file systems interfaces and apply indexing and hashing to file structures. **CO5:** Select file structures techniques, including direct access I/O, buffer packing and unpacking, consequential processing, Btrees, and external hashing and to identify a suitable sorting technique to arrange the data.
MSC102T and MSC106P **ADVANCE DATABASE MANGEMENT SYSTEM** **And** **ADVANCE DATABASE MANGEMENT SYSTEM LAB**	**CO1:** Understand concepts of database system architecture. **CO2:** Able to understand relational model and perform SQL operations. **CO3:** Understand the importance of normal forms and learn query optimization. **CO4:** Learns the importance of transaction processing and concurrency control. **CO5:** Learn the concept of data warehousing and data mining.
MSC103T **THEORY OF COMPUTATION**	**CO1:** Use concepts of formal languages of finite automata techniques. **CO2:** Design Finite Automata's for different regular expressions and languages. **CO3:** Construct context free grammar for various languages. **CO4:** Solve various problems of applying normal form techniques, push down automata and Turing Machines.

MSC104T ADVANCED ARCHITECTURE	**CO1:** Understanding of digital system, its organization and architecture. **CO2:** Apply knowledge of digital electronics logic gate to combinational and sequential circuits. **CO3:** Knowledge of the basics of computer hardware and how software interacts with computer hardware. **CO4:** Apply concepts of assembly language in solving problems. **CO5:** Illustrate the concept of processing I/O organization and examine different ways of communicating with I/O devices and standard I/O interfaces.
MSC107T (Soft-core): QUANTITATIVE, TEACHING AND RESEARCH APTITUDE	**CO1:** Use concepts of Basic mathematical formulas. **CO2:** Solve various problems of applying formulas. **CO3:** Understand the Teaching, Research and Higher education Aptitude.
MSC201T & MSC205P OBJECT ORIENTED ANALYSIS AND DESIGN UML	**CO1:** Analyse the basic concepts of object modeling. **CO2:** Demonstrate various Basic Structural Modeling using the appropriate notation **CO3:** Demonstrate various Basic Behavioural Modelling using the appropriate notation **CO4**: Analyse various Advanced Behavioural Modelling using the appropriate notation **CO5**: Analyse Architectural Modeling using the appropriate notation CO6 Apply various uml diagrams for software development.

MSC202T & MSC206P **ADVANCE JAVA PROGRAMMING**	**CO1:** Learn Java programming language which can be utilized to develop windows and internet based software solutions. **CO2:** Able to understand and apply the knowledge of object-oriented principles, applets, graphical user-interface for scientific and business oriented applications.
MSC203T **ARTIFICAL INTELLIGENCE**	**CO1:** Learn the language for programming in logic (ProLog) which is based on 'inferring with heuristic learning', utilized for implementing artificial intelligence applications and design of expert systems of particular domain knowledge-base. **CO2:** Understand wide range of techniques to represent knowledge in machines and develop perspective towards variety of methodologies to solve a problem which otherwise would not be possible by procedural languages. **CO3:** Understand and able to implement game playing algorithms with minimax search procedure, predicate logic. **CO4:** Understand the process of natural language understanding, applications of artificial neural networks, learning by machines.
MSC204T **QUANTITATIVE TECHNIQUE**	**CO1:** Model a real-world problem as a mathematical programming model. **CO2:** Understand the theoretical workings of the simple method for linear programming and perform iterations of it by hand. **CO3:** Understand the relationship between a linear program and its dual, including strong duality. **CO4:** Solve specialized linear programming problems like: Transportation and Assignment Problems. **CO5:** Solve network models like the shortest path, minimum spanning tree and maximum flow problems.

MSC207T **SOFT CORE- SOFTSKILL AND PERSONALITY DEVELOPMENT**	**CO1:** Develop and exhibit and accurate sense of self **CO2:** Develop and nurture a deep understanding of personal motivation **CO3:** Develop an understanding of and practice personal and professional responsibility **CO4:** Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment
MSC301T **ADVANCED WEB PROGRAMMING**	**CO1:** Understand working of XML,CSS and XML parsers. **CO2:** Will learn to implement PHP framework for effective design of web application. **CO3:** Will use JavaScript to program the behavior of web pages. **CO4:** Will use AJAX to make our application more dynamic.
MSC302T **ADVANCED ALGORTHMS**	CO1: Learn to compute the time and space complexity of a given algorithm and analyse the efficiency of algorithms. • Learns the utilization of different prototypes of problem solving to solve a given problem. • Understand and analyse greedy algorithms, dynamic programming, concepts of tractable and intractable problems. • Understand the class of P, NP and NP-complete problems.

MSC303T **CRYPTOGRAPHY AND NETWORK SECURITY**	**CO1:** Develop basic skills of secure Network Architecture and explain the theory behind security **CO2:** Study the basic idea behind cryptography and design the algorithm to make a secure communication. **CO3:** Identify common Network vulnerabilities and attacks. **CO4:** Learn to find the mechanism against network attack **CO5:** Design the cryptographic protection mechanism. **CO6:** Knowledge about the authentication and various techniques used for the authentication.
MSC304T **CYBER SPACE- Open Elective**	**CO1:** Gain a comprehensive understanding of the E Commerce landscape, current and emerging business models, and the technology and infrastructure underpinnings of the business. **CO2:** Leverage the E-Commerce platforms to enhance current business or incubate new businesses. **CO3:** Gain an understanding on how innovative use of the Ecommerce can help developing competitive advantage. **CO4:** Develop an understanding on how internet can help business grow. **CO5:** Gain an understanding on the importance of security, privacy, and ethical issues as they relate to E-Commerce.
MSC401T **RESEARCH METHOLOGY**	**CO1:** Understand some basic concepts of research and its methodologies **CO2:** Identify appropriate research topics **CO3:** Select and define appropriate research problem and parameters.

ELECTIVE -1 **MOBILE COMPUTING**	**CO1:** Understand the concepts of mobile communication, signal propagation, modulation, medium access control. **CO2:** Learn concepts of telecommunication systems, satellite systems, and broadcast systems. **CO3:** Understand wireless LAN, mobile network layer, adhoc networks, mobile transport layer. **CO4:** Understand and analyse various supports for mobility such as file systems, www, WAP, i-mode, SyncML.
ELECTIVE 2 **CLOUD COMPUTING**	**CO1:** Analyse various cloud deployment models and their issues on the cloud. **CO2:** Identify the architecture and infrastructure of various cloud services including SaaS, PaaS, and IaaS and apply them to develop a applications. **CO3:** Analyse the implications of cloud collaboration with other applications. **CO4:** Design and develop various algorithms using tools for virtualization in cloud computing and acquire the knowledge of doing research. **CO5:** Assess cloud Storage systems and Cloud security, the risks involved, its impact and develop secure cloud applications. **CO6:** Develop and deploy cloud applications using modern tools and techniques based on the organizational needs.

MAIN PROJECT	**CO1:** Learn to apply the knowledge gained through various courses in solving a real life problem. **CO2:** Practice different phases of software/system development life cycle. **CO3:** To introduce the student to a professional environment and/or style typical of a global IT industry, **CO3:** To prepare for structured team work and project management. **CO4:** Able to prepare effective, real-life, technical documentation. **CO5:** To provide an opportunity to practice time, resource and person management.