M.Sc. COMPUTER SCIENCE

PROGRAMME SPECIFIC OUTCOME

PSO1: Enhance the ability to understand, analyse and develop numerical methods, computer programs in the areas related to algorithm.

PSO2: Apply standard software engineering practices and strategies in software project development using open source programming environment to deliver a quality of product for business success and thereby innovate new ideas and solutions to existing problems.

PSO3: Ability to know various issues, latest trends in technology development. Understand system software, web design, architecture and networking for efficient design of computer based system.

PSO4: Explore technical knowledge in diverse areas of Computer Science and experience an environment conducive in cultivating skills for successful career, Entrepreneurship, higher studies and research.

COURSE OUTCOME

SJCSS1C02 : ADVANCED DATA STRUCTURES

SJCSS1C02.1	Able to introduce the fundamental concept of data structures and to emphasize the importance of data structures in developing and implementing efficient algorithms
SJCSS1C02.2	Describe how array records, linked structures, stacks, queues are represented in memory and used by algorithms, Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data and Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack
SJCSS1C02.3	Evaluate Boolean functions Lattices and simplify expression using the properties of Boolean algebra.
SJCSS1C02.4	Describe the hash function and concepts of collision and its resolution methods And Understand the basics of Heap data structure
SJCSS1C02.5	Understand different Solutions and methods involving heaps using list out the rules and its operations

SJCSS1C03 : THEORY OF COMPUTATION

SJCSS1C03.1	To understand formal proofs, central concepts of Automaton, DFA, NFA and designing of DFA and NFA.
SJCSS1C03.2	Understand regular expressions, properties of regular languages and minimization of DFA
SJCSS1C03.3	Understand CFG ,properties of Context free languages ,PDA and design PDA
SJCSS1C03.4	Understand TM , Variants of TM and design Turing Machines
SJCSS1C03.5	Understand the notions for computation, such as computability, decidability, reducibility and complexity .

SJCSS1C04 : THE ART OF PROGRAMMING METHODOLOGY

SJCSS1C04.1	Understand the problem and identify the tools and programming structure to logically solve the problem.
SJCSS1C04.2	Understand the basic concepts of programming language C including variables and operators.
SJCSS1C04.3	Choose appropriate conditional and iteration constructs for a given programming task.
SJCSS1C04.4	Apply the techniques of structured (functional) decomposition to break a program into smaller pieces.
SJCSS1C04.5	Understand memory management using pointers,File I/O and Macros

SJCSS1C05 : COMPUTER ORGANIZATION ARCHITECTURE

SJCSS1C05.1	Identify number systems, boolean algebra, combinational and sequential circuits.
SJCSS1C05.2	To understand basic computer organization.
SJCSS1C05.3	To learn the operations of arithmetic and logic units.
SJCSS1C05.4	To understand about memory and input-output organization
SJCSS1C05.5	To learn about the architecture of 8085 and 8086 microprocessor and 8051 microcontroller.

SJCSS2C06 : DESIGN AND ANALYSIS OF ALGORITHMS

SJCSS2C06.1	To understand algorithm design and different models of computation.
SJCSS2C06.2	To learn about basic technique for design of efficient algorithm.
SJCSS2C06.3	To know about algorithm analysis and different methods to solve recurrence
SJCSS2C06.4	To identify complexity and complexity classes
SJCSS2C06.5	To understand about analyzing parallel algorithms.

SJCSS2C07 : OPERATING SYSTEM CONCEPTS

SJCSS2C07.1	Analyse the structure of OS and basic architectural components involved in OS design.
SJCSS2C07.2	Define, restate and expalin the policies for deadlocks and concurrency mechanisms.
SJCSS2C07.3	Able to explain memory management and memory allocation policies.
SJCSS2C07.4	Famillarize different types sheduling.
SJCSS2C07.5	Describe client server architecture.

SJCSS2C08 : COMPUTER NETWORKS

SJCSS2C08.1	Describe the functions of each layer in OSI and TCP/IP model and Describe how computer networks are organized with the concept of layered approach.
SJCSS2C08.2	Able to Describe Application Layer Protocols and Understand socket programming
SJCSS2C08.3	Understand the purpose of Transport and Network Layer
SJCSS2C08.4	Familiarity with the basic protocols of Link Layer Services.
SJCSS2C08.5	Learn fundamentals of cryptography and its application to network security. Understand network security threats, security services, and countermeasures

SJCSS2C09 : COMPUTATIONAL INTELLIGENCE

SJCSS2C09.1	Identify Artificial intelligence problems, scope and applications and understand state space search.
SJCSS2C09.2	Understand and compare various heuristic search techniques
SJCSS2C09.3	Identify knowledge representation issues and mappings and techniques
SJCSS2C09.4	Implement and execute alpha-beta search.Understand good evaluation functions and strategies for game playing and expert systems.
SJCSS2C09.5	Understand machine learning and genetic algorithm

SJCSS2C10 : PRINCIPLES OF SOFTWARE ENGINEERING

SJCSS2C10.1	Understand Software engineering Challenges and different models of SDLC
SJCSS2C10.2	Understanding of software requirements , Software design and Software design Techniques.
SJCSS2C10.3	Understanding of UI design, Cost Estimation and software testing approaches .
SJCSS2C10.4	Understanding of the role of project management , Literature survey and techniques for generating ideas.
SJCSS2C10.5	Understanding Project story preparation and different forms of communication.

SJCSS1L01 : PRACTICAL I

SJCSS1L01.1	Understand the problem and identify the tools and programming structure to logically solve the problem
SJCSS1L01.2	Understand the basic concepts of programming language C including variables and operators
SJCSS1L01.3	Choose appropriate conditional and iteration constructs for a given programming task.
SJCSS1L01.4	Apply the techniques of structured (functional) decomposition to break a program into smaller pieces
SJCSS1L01.5	Understand memory management using pointers.

SJCSS2L02 : PRACTICAL II

SJCSS2L02.1	Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation
SJCSS2L02.2	Identify the different types of network devices and their functions within a network
SJCSS2L02.3	Understand and building the skills of subletting and routing mechanisms.
SJCSS2L02.4	Understand the concept of reliable and unreliable transfer protocol of data and how TCP and UDP implement these concepts
SJCSS2L02.5	Interpret the mechanisms adopted for file sharing indistributed
SJCSS2L02.6	Applications
SJCSS2L02.7	Describe and explain the fundamental components of a computer operating system.
SJCSS2L02.8	Describe and analyze the memory management and its allocation policies.
SJCSS2L02.9	Evaluate the requirement for process synchronization and coordination handled by operating system.

SJCSS3C11 : ADVANCED DATABASE MANAGEMENT SYSTEM

SJCSS3C11.1	To understand basics of database management systems, different data models, keys and constraints.
SJCSS3C11.2	To learn about relational database design and different normal forms.
SJCSS3C11.3	To understand relational database query languages.
SJCSS3C11.4	To know about transaction management
SJCSS3C11.5	To understand about object oriented database management systems.

SJCSS3C12 : OBJECT ORIENTED PROGRAMMING CONCEPTS

SJCSS3C12.1	Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
SJCSS3C12.2	Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
SJCSS3C12.3	Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development
SJCSS3C12.4	Identify and describe common abstract user interface components to design GUI in Java using Applet , AWT and SWING along with response to events

SJCSS3C12.5	Implement Database connecticity using JDBC and Understand various UML diagrams

SJCSS3C13 : PRINCIPLES OF COMPILERS

SJCSS3C13.1	Fluency in describing the theory and practice of compilation, in particular, the lexical analysis, syntax, and semantic analysis, code generation and optimization phases of compilation
SJCSS3C13.2	Ability to create lexical rules and grammars for a programming language
SJCSS3C13.3	Develop the parsers and experiment the knowledge of different parsers design without automated tools.
SJCSS3C13.4	Construct the intermediate code representations and generation.
SJCSS3C13.5	Convert source code for a novel language into machine code for a novel computer.
SJCSS3C13.6	Apply for various optimization techniques for dataflow analysis.

SJCSS3E01C : WEB TECHNOLOGY

SJCSS3E01C.1	Understand the concept of web programming, SGML,HTML,XHTML,XML. Analyse the features of HTML.
SJCSS3E01C.2	Understand the concepts of client side programming through JavaScript
SJCSS3E01C.3	Analyse the features of Apache web server, LAMP and WAMP installations, Security featuring with Apache
SJCSS3E01C.4	Understand server side programming through PHP and Managing Database using PHP
SJCSS3E01C.5	Understand the features of content management system and its applications and create website.

SJCSS3E02C : CRYPTOGRAPHY AND NETWORK SECURITY

SJCSS3E02C.1	Understand with classical and modern encryption and decryption techniques and apply in the security system.
SJCSS3E02C.2	Understand various aspects of network security standards.
SJCSS3E02C.3	Understand various Network security applications
SJCSS3E02C.4	Understand and implement transport level and IP security
SJCSS3E02C.5	Recognize intruders and malicious software's and implement firewall

SJCSS4E03E : FUNDAMENTALS OF BIG DATA

SJCSS4E03E.1	Student must be Able to understand the building blocks of Big Data
SJCSS4E03E.2	Student must be able to articulate the programming aspects of cloud computing(map Reduce etc)
SJCSS4E03E.3	Student must be able to understand the specialized aspects of big data with the help of different big data applications
SJCSS4E03E.4	Student must be able to represent the analytical aspects of Big Data
SJCSS4E03E.5	Student must be know the recent research trends related to Hadoop File System, MapReduce and Google File System etc

SJCSS4E04A : DIGITAL IMAGE PROCESSING

SJCSS4E04A.1	Review the fundamental concepts of a digital image processing system.
SJCSS4E04A.2	Analyze images in the frequency domain using various transforms.
SJCSS4E04A.3	Evaluate the techniques for image enhancement and image restoration.
SJCSS4E04A.4	Categorize various compression techniques.
SJCSS4E04A.5	Interpret image segmentation and representation techniques

SJCSS4P01 : PROJECT WORK

SJCSS4P01.1	Give a practical exposure to the process of software development life cycle
SJCSS4P01.2	Develop a quality software solution by following the software engineering principles and practices
SJCSS4P01.3	Students are also encouraged to take up a research oriented work to formulate a research problem and produce results based on its implimentation /simulation/experimental analysis.

SJCSS1C01 : DISCRETE MATHEMATICAL STRUCTURES

SJCSS1C01.1	Understand mathematical logic and basic principles of sets and their properties
SJCSS1C01.2	Understand functions and relations with their properties
SJCSS1C01.3	Evaluate Boolean functions Lattices and simplify expression using the properties of Boolean algebra.
SJCSS1C01.4	Understand basics of group and different properties
SJCSS1C01.5	Understand the basics of graphs and different types of graphs. Demonstrate different traversal methods for trees and graphs.