PROGRAMME OUTCOMES AND COURSE OUTCOMES

2023 – 2024

Name of the Programme: M.Sc Computer Science **Programme Code: PSCS**

Programme Outcomes:

PEO1	Our graduates will be academic, digital and information literates, creative, inquisitive, innovative and desirous for the "more" in all aspects.
PEO 2	They will be efficient individual and team performers who would deliver excellent professional service exhibiting progress, flexibility, transparency and accountability in their professional work.
PEO 3	The graduates will be effective managers of all sorts of real–life and professional circumstances, making ethical decisions, pursuing excellence within the time framework and demonstrating aptleadership skills.
PEO 4	They will engage locally and globally evincing social and environmental stewardship demonstrating civic responsibilities and employing right skills at the right moment.

Course Outcomes:

Course Code	Course Title	Course Outcomes
23PG1B1	Analysis & Design of Algorithms	CO1: Get knowledge about algorithms and determines their time complexity. Demonstrate specific search and sort algorithms using divide and conquer technique. CO 2: Gain good understanding of Greedy method and its algorithm. CO 3: Able to describe about graphs using dynamic programming technique. CO 4: Demonstrate the concept of back tracking & branch and bound technique. CO 5: Explore the traversal and searching technique and apply it for trees and graphs.
23PG1B2	Python Programming	CO 1: Understand the basic concepts of Python Programming CO 2: Understand File operations, Classes and Objects CO 3: Acquire Object Oriented Skills in Python CO 4:Develop web applications using Python CO5: Develop Client Server Networking applications
23PG1B3	Python	CO1:To know the basics of algorithmic problem solving

	Programming Lab	CO 2: To execute Python programs CO3:To develop algorithmic solutions to simple computational problems CO 4: To represent compound data using Python lists, tuples, dictionaries CO 5: To implement input/output with files in Python
23PG1BE1	Elective I: Advanced Software Engineering	CO 1: Understand about Software Engineering process CO 2: Understand about Software project management skills , design and quality management CO 3: Analyze on Software Requirements and Specification CO 4: Analyze on Software Testing, Maintenance and Software Re-Engineering CO 5: Design and conduct various types and levels of software quality for a software project
23PG1BE2	Elective I: Advanced Computer Graphics	CO 1: Explain the basic concepts in computer graphics. CO 2: Analyze various algorithms and to convert the basic geometrical primitives. CO 3: Demonstrate the importance of viewing and clipping. CO 4: Discuss the fundamentals of animation CO 5: Describe Interpolation-Based Animation

23PG1BE3	Elective II: Advanced Database Systems	CO 1: Demonstrate Database operations using SQL Procedures Functions and Triggers. CO 2: Identify approaches for accessing SQL from general purpose Programming Languages. CO 3: Analyse different types of Normalisation techniques. CO 4: Apply the concepts of Transaction Mechanism using PL/SQL CO 5: Understand the concept of Parallel and Distributed Databases.
23PG1BE4	Elective II: Object Oriented Analysis and Design & C++	CO 1: Understand the concept of Object-Oriented development and modelling techniques CO 2: Gain knowledge about the various steps performed during object design CO 3: Abstract object-based views for generic software systems CO 4: Link OOAD with C++ language CO 5: Apply the basic concept of OOPs and familiarize to write C++ program
23PG1BAE	Web Development	CO 1: Define various tags of HTML CO 2: Design a web page with attractive display CO 3: Create a Layout for a webpage using Block tags CO 4: Explain how and where to apply CSS

		CO 5: Analyze content to design website
23PG2B4	Advanced Java Programming	CO 1: Describe client/server applications, TCP/IP socket programming and distributed applications using RMI. CO 2: Analyze and design Window based applications using Swing Objects. CO 3: Develop and design Java programs using Swing components CO 4: Discuss the various JDBC drivers and demonstrate J2EE application using JDBC connection and server side programs with Servlets. CO 5: Write component-based Java programs using. Java Beans.
23PG2B5	Data Mining and Warehousing	CO 1: Explain the fundamental concept of Data Mining andanalyze and evaluate the data cleaning, integration , transformation and reduction techniques CO 2: Design multidimensional data using Data Warehouse architecture. CO 3: Design and evaluate Classification algorithms CO 4: Identify the types of data in Cluster Analysis and categorize the Cluster Methods CO 5: Utilize the Data Mining techniques in various real applications and in major issues

23PG2B6	Advanced Java Programming Lab	CO 1: Implementation of java applications that illustrate professionally acceptable coding and performance standards. CO 2: Develop distributed applications using RMI. CO 3: Design and development-driven programming and graphical user interfaces using Swing-based GUI. CO 4: Design and develop Java programs using JDBC connection for data access and also Develop server side programs with Servlets. CO 5: Design and develop component-based Java programs using Java Beans.
23PG2BE5	Elective - III : Data Mining Lab using R	CO 1: Utilize Weka tool to evaluate Data Mining algorithms. CO 2: Demonstrate pre-processing steps involved in different datasets. CO 3: Develop the decision tree algorithm using different datasets CO 4: Demonstrate the classification and clusters algorithms using large datasets. CO 5: Analyse Data Mining techniques for realistic data.
23PG2BE6	Elective - III : Operating System Lab	CO 1: Utilize basic LINUX Utilities. CO 2: Write different LINUX shell scripts and execute various shell programs. CO 3: Apply LINUX system calls.

		CO 4: Compute various file permissions and have a basic understanding of system security. CO 5: Demonstrate the basic knowledge of Linux commands and file handling utilities by using Linux shell environment.
23PG2BE7	Elective –IV : Advanced Operating System	CO 1: Understand the design issues associated with operating systems CO 2: Master various process management concepts including scheduling, deadlocks and distributed file systems CO 3: Prepare Real Time Task Scheduling CO 4: Analyze Operating Systems for Handheld Systems CO 5: Analyze Operating Systems like LINUX and iOS
23PG2BE8	Elective –IV : Multimedia Technologies	CO 1: Understand the basic concept of multimedia. CO 2: Understand the concept behind the text and images, sound. CO 3: Understand the concept behind the animation and video. CO 4: Understand the concept behind the creation of multimedia applications CO 5: Understand the applications of multimedia in media
23PG2BAE	WEB Designing using CSS & JavaScript	CO 1: Define various tags of HTML CO 2: Design a web page with attractive display

		CO 3: Create a Layout for a web page using Block tags and java script CO 4: Explain how and where to apply CSS CO 5: Analyze content to design website
22PG3B12	Machine Learning	CO1: Explain the fundamental concept of Machine Learning. CO2: Analyse the decision tree and explain the Bayesian learning. CO3: Discuss the genetic algorithms CO4: Apply the learning set of rules and discuss the learning features CO5: Explain the Reinforcement learning and analyse the relationships to dynamic programming.
19PG3B13	Data Mining And Data Warehousing	CO1: Explain the fundamental concept of Data Mining andanalyze and evaluate the data cleaning, integration , transformation and reduction techniques. CO2:Design multidimensional data using Data Warehouse architecture. CO3:Design and evaluate Classification algorithms. CO4:Identify the types of data in Cluster Analysis and categorize the Cluster Methods. CO5: Utilize the Data Mining techniques in various real applications and in major issues

22PG3B14	Lab V- Machine Learning With Python	CO1: Design web applications using python programming CO2: Manipulate data using different queries. CO3: Extract features from the data set CO4: Implement Machine learning Algorithms CO5: Build data pipeline using machine learning in python.
19PG3B15	Lab-VI- Data Mining And Data Warehousing	CO1: Utilize Weka tool to evaluate Data Mining algorithms. CO2: Demonstrate preprocessing steps involved in different datasets. CO3: Analyze Data Mining techniques for realistic data. CO4: Develop the decision tree algorithm using different datasets. CO5: Demonstrate the classification and clusters algorithms using large datasets
19PG3BSI	Summer Internship/ Training/ Online Certification	CO1: Identify employment contacts leading directly to a full-time job following course completion CO2: Create communication, interpersonal and other soft skills essential for the job interview process. CO3: Analyse the project requirements and engages in continuing professional development. CO4: Analyze a problem and identify the computing requirements appropriate to its solution.

		CO5: Utilizing a new software tool.
19PG3BE5	Python Programming	CO1: Determine solutions using problem solving principles, logic and systematic methodologies. CO2: Evaluate the architecture and principles of operation of computer systems and networks. CO3: Synthesize principles and theories of computer science and software engineering for application to different computing paradigms. CO4: Design and develop software systems for various application domains. CO5: Manage the development of software systems through a variety of development processes and methodologies.
19PG3BE6	Cryptography And Network Security	CO1: Explain the various symmetric encryption techniques and demonstrate the functionalities of DES algorithm. CO2: Analyze public key algorithms. CO3: Evaluate the authentication concept and hash algorithms. CO4: Apply the concepts of key management techniques. CO5: Analyze the vulnerabilities in data communication through networks.
19PG3BE7	Distributed Database Management	CO1: Compare normal and distributed DBMS and to explain various approaches of DDBMS.

	System	CO2: Formulate various kinds of retrieving statements to retrieve information from DDB. CO3: Explain multiple processes dealing with distributed database system without clash CO4: Describe the set of protocols used in DDBMS to make effective communication. CO5: Discuss object concepts and object models.
19PG3BE8	Compiler Design	CO1: Describe the phases of Compiler. CO2: Explain the role and type of Parser CO3: Analyze and use Intermediate languages CO4: Describe the design of code generation with register utilization. CO5: Demonstrate code optimization techniques.
19PG3BE9	Cloud Computing	CO1: Identify and use different cloud computing services. CO2: Explain the basic principles of cloud virtualization. CO3: Prepare the appropriate cloud computing solutions to meet the requirement of specific applications. CO4: Design application by utilizing cloud platforms such as Google app Engine and Amazon Web Services. CO5: Analyze different cloud programming models.

19PG3BE10	Advanced Computer Graphics & Animation	CO1: Explain the basic concepts in computer graphics. CO2: Analyze various algorithms and to convert the basic geometrical primitives. CO3: Demonstrate the importance of viewing and clipping. CO4: Discuss the fundamentals of animation CO5: Describe Interpolation-Based Animation
19PG3BE11	Big Data Analytics	CO1: Explain Characteristics and challenges of Big Data CO2: Describe Big Data Analytics CO3: Utilize Hadoop for Big Data Technologies CO4: Demonstrate MAP REDUCE Programming CO5: Describe types of Recommendation Systems using Big Data Analytics.
22PG3BE12	Cyber Forensics	CO1: Predict the forensics fundamentals and the various technologies used to avoid computer crimes CO2: Illustrate different methods to collect and preserve digital evidence and Digital Crime Scene. CO3: Identify and Analyze Forensic Technical Surveillance Devices. CO4: Evaluate the Various tools and tactics followed in military.

		CO5: Demonstrate the Usage of surveillance tools for tracking cyber criminals
22PG3BE13	Mobile Communication	CO1: Identify, Predict and Evaluate MAC, SDMA, TDMA, FDMA, CDMA CO2: Demonstrate the architectures, challenges and solutions of Wireless communication CO3: Assess the role of Wireless Networks in shaping the future internet. CO4: Design Mobile IP to support seamless and continuous Internet connectivity CO5: Design SIP to create, modify, and terminate a multimedia session over the Internet Protocol.
19PG4B16	Principles Of Internet Of Things (Self Study)	CO1: Explain the basic concepts of IoT. CO2: Discuss physical and logical design of IoT enabled technologies. CO3: Analyze how and where IoT can be applied. CO4: Compare M2M and IoT. CO5: Describe the features of Python used for IoT implementation.
19PG4BPR	Project	CO1: Discuss project development and the associated business processes. CO2: Analyse problems and formulate solutions.

		CO3: Communicate with engineers and the community at large in written and oral forms. CO4: Create effective communication skills for presentation. CO5: Plan as an individual or in a team in development of technical projects.