PROGRAMME OUTCOMES AND COURSE OUTCOMES

2022 – 2023

NAME OF THE PROGRAMME: M.Sc Computer Science **PROGRAMME CODE: PSCS**

Programme Outcomes:

PO1	Our graduates will be academic, digital and information literates, creative, inquisitive, innovative and desirous for the "more" in all aspects.
PO 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.
PO 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.
PO 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
19PG1B1	Advanced ProgrammingIn Java	CO1: Describe client/server applications, TCP/IP socket programming and distributed applications using RMI. CO2: Analyzeand design Window based applications using Swing Objects. CO3: Develop and design Java programs using Swing components. CO4: Discuss the various JDBC drivers and demonstrate J2EE application using JDBC connectionand server side programs with Servlets. CO5: Write component-based Java programs using JavaBeans.
19PG1B2	Distributed Operating Systems	CO1:Discuss the core concepts of distributed systems. CO2:Analyze various message passing mechanisms with its model. CO3:Identify the inherent difficulties that arise due to distribution of computing resources. CO4:Explain migration with the process management policies. CO5:Explain the basic concepts, design and structure of the LINUX operating system.
19PG1B3	Object Oriented Software	CO1: Differentiate traditional and object oriented software engineering

	Engineering	CO2: Explain various SDLC methods of OOSE CO3: Describe techniques used in OOSE CO4: Explain OOSE testing methods CO5: Analyze and choose necessary method for a particular project
19PG1B4	Theory Of Computation	CO1: Demonstrate an in-depth understanding of theories, concepts and techniques in automata and their link to computation. CO2: Develop abstract machines that demonstrate the properties of physical machines and be able to specify the possible inputs, processes and outputs of these machines. CO3: Analyze the computational strengths and weaknesses of these machines. CO4: Explain Context-Free Grammar. CO5: Apply automata concepts and techniques in designing systems that address real world problems.
19PG1B5	Lab-I-Advanced Programming In Java	CO1: Implementation of java applications that illustrate professionally acceptable coding and performance standards. CO2: Develop distributed applications using RMI.

		CO3: Design and develop event-driven programming and graphical user interfaces using Swing-based GUI. CO4: Design and develop Java programs using JDBC connection for data access and also Develop server side programs with Servlets. CO5: Design and develop component-based Java programs using JavaBeans.
19PG1B6	Lab-II-Operating System	CO1: Utilize basic LINUX Utilities. CO2: Write different LINUX shell scripts and execute various shell programs. CO3: Apply LINUX system calls. CO4: Compute various file permissions and have a basic understanding of system security. CO5: Demonstrate the basic knowledge of Linux commands and file handling utilities by using Linux shell environment.
19B1EDC	Web Development	CO1: Define various tags of HTML CO2: Design a web page with attractive display CO3: Create a Layout for a webpage using Block tags CO4: Explain how and where to apply CSS CO5: Design own website
19PG2B7	Extreme	CO1: Explain the important facts of ASP.NET 3.5, analyze and evaluate Web

	Programming – ASP.NET	Form processing stages. CO2: Demonstrate web application using different types of Server Controls with input validation. Analysis and Identify state management techniques. CO3: Discuss Data Access Technology using ADO.NET architecture. CO4: Formulate Data Sources using SQL Data Source, Object Data Source and process data with rich data controls. CO5: Discuss and demonstrate Themes and Master pages of Web site.
22PG2B8	Digital Image Processing	CO1: Explain the representation of digital image and its manipulations CO2: Analyze image sampling and quantization requirements and implications CO3: Describe various Transformation and Filtering Techniques CO4: Demonstrate Restoration And Reconstruction models CO5: Utilize Image Compression And Segmentation for efficient storage
19PG2B9	Design And Analysis Of Algorithms	CO1: Analyze the time and space complexity of given Algorithms. CO2: Demonstrate operations like searching, insertion, and deletion on various data structures.

		CO3: Identify appropriate sorting/searching technique for given problem. CO4: Apply the dynamic programming technique to solve the problems. CO5: Discuss advanced tree and graph applications.
19PG2B10	Lab-III- Extreme Programming – ASP.NET	CO1: Design and develop web applications using different Server Controls. CO2: Implement web applications with different state managements. CO3: Create Data Access Technology using ADO.NET architecture. CO4: Design and utilize Data Sources using SQL Data Source , Object Data Source for data manipulation operation. CO5: Design and develop web sites.
22PG2B11	LAB IV- DIGITAL IMAGE PROCESSING	CO1: Demonstrate Fundamental Steps involved in Digital Image Processing CO2: Analyze and use Mathematical Tools for Digital Image Processing CO3: Apply Intensity Transformation functions and Spatial filtering methods CO4: Utilize Color Image Processing with different Color Models CO5: Implement Image Segmentation Techniques and Image Compression Techniques using Huffman, Golomb and Arithmetic coding algorithms
19PG2BE1	Computational Intelligence	CO1: Demonstrate the fundamental concepts of soft computing and its applications. CO2: Explain the concepts of fuzzy sets, knowledge representation using

		fuzzy rules, and other machine intelligence applications of fuzzy logic. CO3: Discuss the basics of an evolutionary computing CO4: Explain genetic algorithms for practical problems. CO5: Discuss the performance of granular computing in solving specific problems.
19PG2BE2	Neural Networks	CO1: Explain the basic concepts of Neural Networks. CO2: Describe the various Neural Network models. CO3: Explain Learning Rules of Neural Network CO4: Distinguish Feedback and Feed forward networks CO5: Compare Special networks and discuss the applications of Neural Network.
19PG2BE3	Software Testing	CO1: Discuss various software application domains and different process model used in software development. CO2: Demonstrate the basics of software quality assurance and defect prevention. CO3: Compare different testing strategies and tactics. CO4: Describe the software testing techniques in different environments. CO5: Explain high performance testing using Jmeter.

19PG2BE4	Embedded Systems	CO1: Explain the concepts of embedded systems CO2: Analyze the architecture of embedded systems CO3: Describe about the processors and memory organization CO4: Distinguish when and where to apply embedded concepts CO5: Describe different embedded system design technologies
19B2EDC	Web Development	CO1: Define various tags of HTML CO2: Analyze information to provide attractive display CO3: Create clear webpage for given data CO4: Explain how and where to apply CSS CO5: Design own 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 and analyze 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 System	CO1: Compare normal and distributed DBMS and to explain various approaches of DDBMS. 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.