

	Program:	M.Sc		Subject: Computer Science
	PO Code	Programme Outcomes:		
	PO1	Able to demonstrate a broad knowledge of Computer Science which includes file structures, computer programming skills, computing skills, algorithm design, Theory of computation, Data mining, Artificial Intelligence and information security		
	PO2	Demonstrate the ability to recognize, design and implement efficient software solutions to problems, communicate effectively and to work as a team		
	PO3	Demonstrate the ability to conduct a research or applied Computer Science projects, requiring writing and presentation skills which exemplify their skills in Computer Science		
	PO4	Write programs utilizing modern software tools, Apply programming principles effectively and write procedural code to solve complex problems		
	PO5	Able to learn and adapt to new technologies and use it effectively for analyzing complex real-world problems and devise computer-based solutions		
	PO6	Retrieve, use and evaluate relevant professional information, apply research methods, techniques, and problem solving approaches in the specialization areas		
Sem ester	Course Code	Course Name	CO Code	Course Outcomes
I	MCS1FSCCC-01	File Structures	CO1	Understand the need for Data Structures when building application
			CO2	Analyze the need for optimized algorithm.
			CO3	Ability to understand insertion and deletion of data for different data structures. CO4: Understand the efficient implementation of sorting and searching techniques.
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I	MCS1TCCC-02	Theory Of Computation	CO1	Understand the importance of automata as a modelling tool of computational problems.
			CO2	Understand the role of regular languages and context-free languages and their limitations.
			CO3	Understand the role of key problems in defining classes of equivalent problems from a computational perspective- Push down automata and Turing machines.
			CO4	Be familiar with thinking analytically for problem-solving situations in related areas of computer science.
			CO5	Understand the limitations of computational procedures.
			CO1	Understand the underlying principles of Relational Database Management System

I	MCS1ADBM SCC-03	Advanced Database Management Systems	CO2	Analyze and understand Database storage.
			CO3	Understand Query processing on XML Data model
			CO4	To implement and maintain an efficient database system using emerging tools
I	MCS1AJPCC- 04	Advanced Java Programming	CO1	Understand the concept of client/server applications on the Internet and write TCP/UDP socket programs.
			CO2	Implement Core Java concepts and develop sophisticated, interactive user interfaces using Java Swing class
			CO3	Develop reusable software components using Java Beans.
			CO4	Implement JDBC concepts to communicate with database.
			CO5	Develop distributed application using RMI and web application using Servlets and JSP
I	MCS1TCSAC -02	Technical Writing And Communication Skills	CO1	To introduce the learners to the nuances of various genres of technical communication, both oral and written.
			CO2	To guide students through self-study and assignments, in performing their communicative tasks in real-life work environment.
			CO3	To enable them strengthen their oral and written communication skills so that they can achieve their professional goals more effectively
II	MCS2DMTC C-05	Data Mining Techniques	CO1	Use data preprocessing techniques to build data warehouse
			CO2	Analyze mining pattern associations rules on transaction databases.
			CO3	Evaluate and examine classification methods.
			CO4	Understand various clustering techniques for categorizing data

II	MCS2AICC-06	Artificial Intelligence	CO1	Understand the basics of AI, AI technique and Production characteristics, analyze the 8 puzzle problem and heuristic search techniques.
			CO2	Ability to apply knowledge representation, reasoning, game playing and planning
			CO3	Familiarize with natural language processing, grammars, parsing techniques, Semantic analysis and representation.
			CO4	Understand Expert systems, Rule-Based system architecture, knowledge acquisition and knowledge system.
			CO5	Familiarize with pattern recognition, classification and understanding speech
II	MCS2AACC-07	Advanced Algorithms	CO1	Understand the problem type, pick an appropriate algorithm design, analyze the worst-case running time of the algorithm using asymptotic analysis
			CO2	Be familiar with some approximation algorithms, including algorithms that are PTAS or FPTAS. Analyze the approximation factor of an algorithm
			CO3	Explain major string matching algorithms and their analyses. Employ it in various applications
			CO4	Explain the different ways to analyze randomized algorithms and demonstrate the difference between a randomized algorithm and an algorithm with probabilistic inputs
			CO5	Understand the need for parallel algorithm design, choose the necessary parameters for implementing parallel algorithms and deploy it in correct scenarios
II	MCS2WTCC-08	Web Technology	CO1	Understand the basics of internet technology, web system architecture and web services
			CO2	Develop static web pages using HTML and add dynamic content in web pages using JavaScript
			CO3	Create dynamic websites using PHP and understand the significance of cookies and sessions
			CO4	Understand the basic AJAX techniques and use JQuery to create dynamic web pages
			CO5	Develop dynamic websites by integrating mysql, JQuery, AJAX with PHP and explore various web services with AJAX

III	MCS3SDSEC-01	Statistics For Data Science	CO1	To differentiate among kinds of data and know various ways to present them
			CO2	To learn the distributions to perform analysis of various kinds of data
			CO3	Infer the concept of correlation and regression for relating two or more related variables
			CO4	Demonstrate the probabilities for various events
III	MCS3MLEC-02	Machine Learning	CO1	To have a good understanding of the fundamental issues and challenges of machine learning: data, model selection and model complexity
			CO2	To have an understanding of the strengths and weaknesses of machine learning approaches
			CO3	To appreciate the underlying relationships within and across Machine Learning algorithms and the paradigms of supervised and unsupervised learning.
III	MCS3CCDEC-03	Cloud Computing For Data Science	CO1	To understand the common terms and definitions of virtualization and cloud computing
			CO2	Analyze the technical capabilities and business benefits of virtualization and cloud computing
			CO3	To summarize the fundamental concepts of cloud storage and demonstrate their use in storage systems.
			CO4	To discuss system virtualization and outline its role in enabling the cloud computing system model
			CO5	To analyze various cloud programming models and apply them to solve problems on the cloud
III	MCS3BDAEC-04	Big Data Analytics	CO1	Understand the fundamentals of data analytics techniques and platforms
			CO2	Design and Apply data analytics ecosystem and visualization techniques to solve various problems
			CO3	Analyze the results of data analytics and visualization for various problems.
			CO4	Evaluate the solutions of data analytics ecosystems
III	MCS3DVTAC-05	Data Visualization Techniques	CO1	To design, create and interpret data visualizations
			CO2	To conduct exploratory data analysis using visualization
			CO3	To identify appropriate data visualization techniques given particular requirements imposed by the data

			CO4	To identify opportunities for application of data visualization in various domains.
IV	MCS4AMLEC-05	Advanced Machine Learning	CO1	To understand the definition of a range of neural network models
			CO2	To be able to derive and implement optimization algorithms for these models
			CO3	To know how to evaluate a learned model in practice
			CO4	To be able to design and implement various machine learning algorithms in a range of real-world applications
IV	MCS4OTEC-06	Optimization Techniques	CO1	To understand basic concepts of operation research and linear programming
			CO2	To comprehend the theory of optimization methods and algorithms developed for solving various types of optimization problems
			CO3	To apply the mathematical results and numerical techniques of optimization theory to solve problems
IV	MCS4IOTEC-07	Internet Of Things	CO1	Understand constraints and opportunities of wireless and mobile networks for Internet of Things
			CO2	Analyze the societal impact of IoT systems and its domains.
			CO3	Develop critical thinking skills
			CO4	Analyze, design or develop parts of an Internet of Things solution and map it toward selected business model(s)
			CO5	Evaluate the impact of cloud technology and its issues related to Internet of Things

