

MSc Computer Science

Programme Specific Outcomes (PSO)

1. PSO1: 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, information security
2. PSO2: Demonstrate the ability to recognize, design and implement efficient software solutions to problems, communicate the outcome effectively
3. PSO3: Demonstrate the ability to conduct research or applied Computer Science projects, requiring writing and presentation skills which exemplify their skills in Computer Science and work in a team
4. PSO4: Write programs utilizing modern software tools, apply programming principles effectively and write procedural code to solve complex problems
5. PSO5: Able to learn and adapt to new technologies and use it effectively for analyzing complex real-world problems and devise computer-based solutions

I Semester

MCS1FSCC-01:FILE STRUCTURES

Course Outcomes (CO)

- CO1:** Analyze the need for optimized algorithm
- CO2:** Understand the need for Data Structures when building application
- CO3:** Understand and analyse the different searching and sorting techniques
- CO4:** Ability to understand insertion and deletion of data for different data structures
- CO5:** Understand the efficient implementation of sorting and searching techniques

MCS1TCCC-02: THEORY OF COMPUTATION

Course Outcomes (CO)

- 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.

MCS1ADBMS-03 :ADVANCED DATABASE MANAGEMENT SYSTEMS
Course Outcomes (CO)

- CO1:** Understand the underlying principles of Relational Database Management System
- CO2:** Analyze and understand Database storage
- CO3:** Understand Query processing on XML Data model
- CO4:** Understand the importance of transaction processing and concurrency control
- CO5:** To implement and maintain an efficient database system using emerging tools

MCS1AJPC-04:ADVANCED JAVA PROGRAMMING

Course Outcomes (CO)

- 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

MCS1TCSAC-02: TECHNICAL WRITING AND COMMUNICATION SKILLS

Course Outcomes (CO)

- 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
- CO4:** To guide in making technical presentations
- CO5:** Practice group discussions and improve official communication

II Semester

MCS2DMTCC-05: DATA MINING TECHNIQUES

Course Outcomes (CO)

- 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
- CO5:** Understand the trends and research areas in the field of Data Mining

MCS2AICC-06: ARTIFICIAL INTELLIGENCE

Course Outcomes (CO)

- 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

MCS2AACC-07: ADVANCED ALGORITHMS

Course Outcomes (CO)

- 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

MCS2WTCC-08: WEB TECHNOLOGY

Course Outcomes (CO)

- 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

MCS2RMAC-04: RESEARCH METHODOLOGY

Course Outcomes (CO)

- CO1:** Understand the methodology of research/ principles and techniques
- CO2:** Students can select and define appropriate research problem, organize and conduct research in a structured manner
- CO3:** Understand the importance of measurements and scaling techniques for analysis
- CO4:** Enable students to identify the overall process of designing a research study from its inception to its report
- CO5:** Develop skill in conducting research from planning to report writing

III Semester

MCS3SDSEC-01: STATISTICS FOR DATA SCIENCE

Course Outcomes (CO)

- 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:** To understand probability distribution
- CO4:** Infer the concept of correlation and regression for relating two or more related variables
- CO5:** Demonstrate the probabilities for various events

MCS3MLEC-02: MACHINE LEARNING

Course Outcomes (CO)

- 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 un-supervised learning
- CO4:** Understand and apply Artificial Neural Networks for machine learning
- CO5:** Understand representation learning

MCS3CCDEC-03: CLOUD COMPUTING FOR DATA SCIENCE

Course Outcomes (CO)

- CO1:** To understand the common terms and definitions of virtualization and cloud computing
- CO2:** To 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

MCS3BDAEC-04: BIG DATA ANALYTICS

Course Outcomes (CO)

- 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
- CO5:** Understand and manage Hadoop

MCS3DVTAC-05: DATA VISUALIZATION TECHNIQUES

Course Outcomes (CO)

- 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 Semester

MCS4AMLEC-05: ADVANCED MACHINE LEARNING

Course Outcomes (CO)

- 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

MCS4OTEC-06: OPTIMIZATION TECHNIQUES

Course Outcomes (CO)

- 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.

MCS4IOTEC-07: INTERNET OF THINGS

Course Outcomes (CO)

- 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