

Master of Science in Computer Science (M.Sc. (CS))

Program Outcomes (POs):

PO 1.	Apply knowledge of computing fundamentals, mathematics, and domain knowledge for solving different problems
PO 2.	Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
PO 3.	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO 4.	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations
PO 5.	Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice
PO 6.	Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional
PO 7.	Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO 8.	Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions
PO 9	Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice
PO10	Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments
PO11	Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large

M. Sc. (CS) I Semester

MSCS 1.1	Discrete Mathematical Structures
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Course Outcomes (CO)

CO	Description
CO1	Ability to apply the rules and laws of propositional logic on statements.
CO2	Understands the basic principles and operations on sets.
CO3	Attains capability to solve recursive functions and permutations and combinations.
CO4	Ability to understand graph theory and its applications.
CO5	Obtains knowledge in applications of trees.

MSCS 1.2	Data Structures & File Structures
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Course Outcomes (CO)

CO	Description
CO1	Ability to select the data structures that efficiently model the information in a problem.
CO2	Ability to assess efficiency trade-offs among different data structure implementations or combinations.
CO3	Implement and know the application of algorithms for sorting and pattern matching.
CO4	Design programs using a variety of data structures, including hash tables, binary and general tree structures, search trees, tries, heaps, graphs, and AVL-trees.

MSCS1.3	Computer Organization & Architecture
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Course Outcomes (CO)

CO	Description
CO1	Understands about data representation and computer arithmetic.
CO2	Acquires knowledge on Boolean Algebra and 8085 instruction set architecture.
CO3	Understands the basics of computer organization.
CO4	Ability to understand and design CPU of a computer.
CO5	Ability to analyze the input and output organization of a computer.

MSCS 1.4	Object oriented Programming Using C++ & JAVA
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Course Outcomes (CO)

CO	Description
CO1	Able to develop programs with reusability
CO2	Develop programs for file handling
CO3	Handle exceptions in programming
CO4	Develop applications for a range of problems using object-oriented programming techniques
CO5	Able to solve real world problems using OOP techniques.
CO6	Able to understand the use of abstract classes.
CO7	Able to solve problems using java collection framework and I/o classes.

MSCS 1.5	Advanced Computer Networks
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Course Outcomes (CO)

CO	Description
CO1	Understands the overview of Data Communications and Networks.
CO2	Performs a thorough study of physical and data link layers.
CO3	Familiarizes with frame formats of data link layer.
CO4	Gains knowledge about network and transport layer functionalities.
CO5	Learns practical applications of networks.

M. Sc. (CS) II Semester

MSCS 2.1	FORMAL LANGUAGES & AUTOMATA THEORY
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Course Outcomes (CO)

CO	Description
CO1	Familiarizes with various types of Finite Automata.
CO2	Understand the types of Grammar and Regular expressions.
CO3	Learn the concepts of Context Free Language, Normal Forms and Pushdown Automata.
CO4	Ability to construct Turing machines and apply on its applications.
CO5	Optimize computability using Recursive functions and Time Complexity using P & NP Completeness.

MSCS 2.2	RELATIONAL DATA BASE MANAGEMENT SYSTEMS
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Course Outcomes (CO)

CO	Description
CO1	Understands various database models.
CO2	Obtain querying techniques in Entity Relation model.
CO3	Learn optimization of database design with Normalization.
CO4	Familiarizes with the concepts of Serializability, Concurrency control and crash recovery.
CO5	Gain an overview of storage and indexing structures

MSCS 2.3	ADVANCED OPERATING SYSTEMS
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Course Outcomes (CO)

CO	Description
CO1	Familiarizes with the fundamentals and different types of operating systems.
CO2	Ability to learn Process Scheduling and synchronization.
CO3	Acquaint knowledge about Deadlocks.
CO4	Learns about memory management and CPU scheduling techniques.
CO5	Studies about Disk Scheduling, Disk Management and Security issues

MSCS 2.4	Elective I EMBEDDED SYSTEMS
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Course Outcomes (CO)

CO	Description
CO1	Understands the basics of Embedded systems, Microprocessors and Microcontrollers.
CO2	Develops ability to write programs using 8051 Assembly Language instructions.
CO3	Learns about various Interrupts and Software Architecture.
CO4	Analyzes various design issues of RTOS.
CO5	Familiarizes with embedded software development tools and debugging techniques.

MSCS 2.5	Elective II WEB TECHNOLOGIES
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Course Outcomes (CO)

CO	Description
CO1	Ability to construct web-based applications using Java script and XML.
CO2	Learns to design application using java Servlets.
CO3	Develops competency to design sophisticated Java Server Pages.
CO4	Understands the concepts of JDBC connectivity.
CO5	Gains knowledge on designing applications using PHP.

M. Sc. (CS) III Semester

MSCS 3.1	Data Warehousing & Data Mining
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Course Outcomes (CO)

CO	Description
CO1	Learns about data mining concepts and functionalities.
CO2	Familiarizes with various data preprocessing techniques.
CO3	Gains knowledge about association rule mining techniques.
CO4	Understands Classification and Prediction techniques.
CO5	Analyzes Clustering techniques.

MSCS 3.2	Object Oriented Software Engineering
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Course Outcomes (CO)

CO	Description
CO1	Ability to translate end-user requirements into system and software requirements, using e.g.UML, and structure the requirements in a Software Requirements Document (SRD).
CO2	Identify and apply appropriate software architectures and patterns to carry out high level design of a system and be able to critically compare alternative choices.
CO3	Will have experience and/or awareness of testing problems and will be able to develop a simple testing report.

MSCS 3.3	NETWORK SECURITY & CRYPTOGRAPHY
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Course Outcomes (CO)

CO	Description
CO1	Learns and understands the importance of cryptography.
CO2	Familiarizes with the algorithms of various security services.
CO3	Ability to understand various key management and authentication techniques.
CO4	Understands various cryptographic algorithms for e-mail security and transport-level security.
CO5	Gains knowledge about IP-security, malicious software and related attacks

MSCS 3.4	Elective-III ARTIFICIAL INTELLIGENCE
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Course Outcomes (CO)

CO	Description
CO1	Understands the history of Artificial Intelligence and its foundations.
CO2	Familiarizes with knowledge representation issues and concepts.
CO3	Obtains the knowledge to represent the language sentences using predicate logic.
CO4	Gains awareness about expert system.
CO5	Develops awareness on neural networks models

MSCS 3.4	Elective-III BIGDATA ANALYTICS
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Course Outcomes (CO)

CO	Description
CO1	Gain conceptual understanding of analytics concepts, algorithms and statistical tests
CO2	Students will be able to look at the core projects used for both batch and real time data processing such as Hadoop
CO3	Students will be able to look at wider range of problems and data science based solutions

MSCS 3.8	Seminar on Advanced Topics
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Course Outcomes (CO)

CO	Description
CO	Student is expected to learn how to make a presentation, how to write a report and group discussions.