Department of Computer Science and Engineering
Program – M. Tech
(PEO/PO/PSO/CO)

Program Educational Objectives (PEO)

The post graduates of Computer Science and Engineering will

- **Technical Competence:** Graduates will have a strong foundation in the core concepts and theories of computer science and engineering, and the ability to apply this knowledge to solve complex problems in the field. They will be able to design, implement, test and maintain software and hardware systems that meet industry standards and user requirements.
- **Professionalism:** Graduates will be prepared to work effectively in multidisciplinary teams, communicate technical ideas clearly and effectively to both technical and non-technical audiences, and adhere to ethical and professional standards of conduct. They will be equipped with the skills necessary to manage projects, work in diverse settings, and engage in lifelong learning.
- **Innovation and Entrepreneurship:** Graduates will be able to identify and pursue opportunities to develop new products, services, and applications using emerging technologies. They will be equipped with the knowledge and skills necessary to create and manage startups, develop intellectual property, and foster innovation within existing organizations.
- **Research and Development:** Graduates of will be prepared to pursue further studies and research in computer science and engineering, or related fields. They will be able to apply research methods, conduct experiments, and analyze data to advance the state-of-the-art in the field. They will be equipped with the skills necessary to publish research papers, secure funding, and collaborate with peers in academia and industry.
- **Social Responsibility:** Graduates will recognize the social, cultural, and environmental impact of technology and take responsibility for the consequences of their actions. They will be able to design and develop technology solutions that are accessible, equitable, and sustainable. They will be able to engage with stakeholders to understand and address the ethical, legal, and social implications of technology.

Programme Outcomes (PO)

Engineering Graduates will be able to:

- **Problem Solving Skills:** Graduates should be able to analyze, design and develop software solutions to complex problems using advanced computing techniques.

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- **Knowledge of Advanced Computing Technologies:** Graduates should have an in-depth understanding of advanced computing technologies such as Artificial Intelligence, Machine Learning, Data Mining, Computer Networks, and Cloud Computing.
- **Research Skills:** Graduates should be capable of conducting research in computer science and engineering domains and be able to contribute to the existing body of knowledge in their field.
- **Ethical and Professional behavior:** Graduates should adhere to ethical and professional standards of behavior and demonstrate responsibility towards society and the environment.
- **Lifelong Learning:** Graduates should be able to continue their education and learn new technologies throughout their career.
- **Employability:** Graduates should be able to secure employment in the technology sector, including research and development, software engineering, data science, and management positions.

Programme Specific Outcomes (PSOs)

Students of Computer Science and Engineering Program will demonstrate:

- Graduates of the M.Tech program in CSE will be able to apply advanced knowledge and skills in computer science and engineering to solve complex real-world problems.
- Graduates of the M.Tech program in CSE will be able to demonstrate effective communication skills, teamwork, and ethical values in professional and societal contexts.

COURSE OUTCOMES (COs)

COURSE OUTCOMES 2021 BATCH ONWARDS				
Program	**Course Code**	**Course**	**CO No.**	**Course Outcomes After completing the course, the student will be able to**
M.Tech (Computer Science and Engineering)	MCSCE1-101	MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE	MCSCE1-101.CO1	understand the basic notions of discrete and continuous probability.
			MCSCE1-101.CO2	understand the methods of statistical inference, and the role that sampling distributions play in those methods.
			MCSCE1-101.CO3	perform correct and meaningful statistical analyses of simple to moderate complexity.
M.Tech (Computer Science and	MCSCE1-102	ADVANCED DATA STRUCTURES	MCSCE1-102 .CO1	understand the implementation of symbol table using hashing techniques
			MCSCE1-102 .CO2	develop and analyze algorithms for red-black trees, B-trees and Splay trees.

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Engineering)			MCSCE1-102 .CO3	develop algorithms for text processing applications
			MCSCE1-102 .CO4	identify suitable data structures and develop algorithms for computational geometry problems
M.Tech (Computer Science and Engineering)	MRMIP0-101	RESEARCH METHODOLOGY AND IPR	MRMIP0-101 .CO1	understand research problem formulation, analyze research related information, Follow research ethics
			MRMIP0-101 .CO2	understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
			MRMIP0-101 .CO3	understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
			MRMIP0-101 .CO4	understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.
M.Tech (Computer Science and Engineering)	MCSCE1-156	MACHINE LEARNING	MCSCE1-156 .CO1	extract features that can be used for a particular machine learning approach in various IOT applications.
			MCSCE1-156 .CO2	compare and contrast pros and cons of various machine learning techniques and to get an insight of when to apply a particular machine learning approach.
			MCSCE1-156 .CO3	mathematically analyze various machine learning approaches and paradigms.
M.Tech (Computer Science and Engineering)	MCSCE1-160	DISTRIBUTED SYSTEMS	MCSCE1-160 .CO1	design trends in distributed systems.
M.Tech (Computer Science and Engineering)	MCSCE1-162	MACHINE LEARNING LAB	MCSCE1-162 .CO1	perform different supervised machine learning algorithms on available dataset.
			MCSCE1-162 .CO2	implement unsupervised machine learning algorithms on accesible dataset.
			MCSCE1-162.CO3	extract optimal features using dimensionality reduction algorithm.
			MCSCE1-162.CO4	compare and contrast the performance of various machine learning techniques.
M.Tech (Computer Science and	MCSCE1-103	Lab.-I (Advanced Data Structures Lab)	MCSCE1-103.CO1	implement list ADT and their operations.
			MCSCE1-103.CO2	develop programs for sorting.

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Engineering)			MCSCE1-103.CO3	develop programs for implementing trees and their traversal operations
			MCSCE1-103.CO4	implement graph traversal operations
			MCSCE1-103.CO5	apply algorithm design techniques.
M.Tech (Computer Science and Engineering)	MHUMA 0-104	Constitution of India	MHUMA0-104.CO1	discuss the growth of the demand for civil rights in India for the bulk of Indians before thearrival of Gandhi in Indian politics.
			MHUMA0-104.CO2	discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
M.Tech (Computer Science and Engineering)	MCSCE1 -204	ADVANCED ALGORITHMS	MCSCE1-204.CO1	analyze the complexity/performance of different algorithms.
			MCSCE1-204.CO1	determine the appropriate data structure for solving a particular set of problems
			MCSCE1-204.CO2	categorize the different problems in various classes according to their complexity.
			MCSCE1-204.CO3	get knowledge of recent activities in the field of the advanced data structure.
M.Tech (Computer Science and Engineering)	MCSCE1 -205	SOFT COMPUTING	MCSCE1-205.CO1	identify and describe soft computing techniques and their roles in building intelligent machines
			MCSCE1-205.CO2	apply fuzzy logic and reasoning to handle uncertainty and solve various engineering problems.
			MCSCE1-205.CO3	apply genetic algorithms to combinatorial optimization problems.
			MCSCE1-205.CO4	evaluate and compare solutions by various soft computing approaches for a given problem.
M.Tech (Computer Science and Engineering)	MCSCE1 -271	SECURE SOFTWARE DESIGN AND ENTERPRISE COMPUTING	MCSCE1-271.CO1	differentiate between various software vulnerabilities
			MCSCE1-271.CO2	software process vulnerabilities for an organization.
			MCSCE1-271.CO3	monitor resources consumption in a software.
			MCSCE1-271.CO4	interrelate security and software development process
M.Tech (Computer Science and Engineering)	MCSCE1 -273	HUMAN AND COMPUTER INTERACTION	MCSCE1-273 .CO1	understand the structure of models and theories of human computer interaction and vision.
			MCSCE1-273 .CO2	design an interactive web interface on the basis of models studied.
M.Tech (Computer Science and Engineering)	MCSCE1 -277	Secure Software Design & Enterprise Computing Lab	MCSCE1-277.CO1	learn various authentication methods
			MCSCE1-277.CO2	practice on debugging.
			MCSCE1-277.CO3	set up their own Private cloud storage

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			MCSCE1-277.CO4	learn Rhapsody Tool.
M.Tech (Computer Science and Engineering)	MCSCE1-269	SOFT COMPUTING LAB	MCSCE1-269.CO1	recognize the feasibility of applying a soft computing methodology for a particular problem
			MCSCE1-269.CO2	apply fuzzy logic and reasoning to handle uncertainty and solve engineering problem
			MCSCE1-269.CO3	apply genetic algorithms to combinatorial optimization problems
			MCSCE1-269.CO4	apply neural networks to pattern classification and regression problem
M.Tech (Computer Science and Engineering)	MHUMA0-103	Value Education	MHUMA0-103 .CO1	knowledge of self-development
			MHUMA0-103 .CO2	learn the importance of Human values
			MHUMA0-103.CO3	developing the overall personality
M.Tech (Computer Science and Engineering)	MCSCE1-382	Mobile Applications and Services	MCSCE1-382 .CO1	identify the target platform and users and be able to define and sketch a mobile application
			MCSCE1-382 .CO2	understand the fundamentals, frameworks, and development lifecycle of mobile application platforms including iOS, Android, and PhoneGap
			MCSCE1-382.CO3	design and develop a mobile application prototype in one of the platform (challenge project)
M.Tech (Computer Science and Engineering)	MMECE0-F91	INDUSTRIAL SAFETY	MMECE0-F91.CO1	understand relational database management systems, normalization to make efficient retrieval from database and query.

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