

**Department Name** Computer Science & Engineering

**PG Program Name:** M.Tech in Computer Science & Engineering

**Vision and Mission :-**

**Vision:**

To excel in the computer science engineering discipline through continuous research, innovation and industry-oriented curriculum leading to responsible IT professionals.

**Mission:**

1. To inculcate teaching and learning process promoting state-of-the-art IT industry practices in computer science engineering and technology to address global challenges.
2. To integrate academics, research and entrepreneurship skills to address present and future challenges of the society and industry.
3. To develop professionalism with strong foundations adapting to changing technology.

<b>Sr. No.</b>	<b>Program Outcomes</b>
1.	An understanding of the theoretical foundations and the limits of computing.
2.	An ability to adapt existing models, techniques, algorithms, data structures, etc. for efficiently solving problems.
3.	An ability to design, develop and evaluate new computer-based systems for novel applications which meet the desired needs of industry and society.
4.	Understanding and ability to use advanced computing techniques and tools.
5.	An ability to undertake original research at the cutting edge of computer science & its related areas.
6.	An ability to function effectively individually or as a part of a team to accomplish a stated goal.
7.	An understanding of professional and ethical responsibility.
8.	An ability to communicate effectively with a wide range of audience.
9.	An ability to learn independently and engage in lifelong learning.
10.	An understanding of the impact of IT related solutions in an economic, social and environment context.

<b>Sr. No.</b>	<b>Semester</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Course Outcome</b>
1.	I	CSE1013	Advanced Algorithm	<ol style="list-style-type: none"> <li>1. Select appropriate algorithm design techniques such as divide and conquer, greedy method, dynamic programming and approximation algorithms.</li> <li>2. Implement and evaluate graph based algorithms</li> <li>3. Solve linear programming problems.</li> <li>4. Explore NP problems. Compare traditional and meta heuristic algorithms.</li> <li>5. Identify the new trends and research directions in algorithms.</li> </ol>
		CSE1023	Advanced Programming Concepts	<ol style="list-style-type: none"> <li>1. Solve miscellaneous problems on advanced concepts in c programming.</li> <li>2. Appreciate object oriented programming usefulness in solving real world problems using C++.</li> <li>3. Implement programs as per given requirements using various approaches.</li> <li>4. Use appropriate data structures and algorithms while designing the solution for given problem.</li> <li>5. Explore and implement programs for different problems related with software designs.</li> </ol>
		CSE1053	Cloud Computing	<ol style="list-style-type: none"> <li>1. Describe fundamental and core concepts of cloud computing.</li> <li>2. Investigate the system virtualization and outline its role in enabling the cloud computing system model.</li> <li>3. Develop scientific applications, business and consumer applications on cloud platforms.</li> <li>4. Analyze various cloud programming models and apply them to solve problems on the cloud.</li> <li>5. Configure and experiment iaas and paas service models.</li> </ol>
		CSE1083	Python Programming for Scientific Application	<ol style="list-style-type: none"> <li>1. To conceptualize basics knowledge of programming language like python.</li> </ol>

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				<ol style="list-style-type: none"> <li>2. Identified different built –in object and object oriented features for python programming</li> <li>3. To build comprehensive knowledge of python libraries</li> <li>4. Design and solve scientific application using python.</li> </ol>
		CSE1103	Advanced Algorithm Lab	<ol style="list-style-type: none"> <li>1. Select appropriate algorithm design techniques such as divide and conquer, greedy method, dynamic programming and approximation algorithms.</li> <li>2. Implement and evaluate graph based algorithms.</li> <li>3. Solve linear programming problems.</li> <li>4. Explore np problems. compare traditional and metaheuristic algorithms.</li> <li>5. Identify the new trends and research directions in algorithms.</li> </ol>
		CSE1133	Programming for Scientific Application Lab	<ol style="list-style-type: none"> <li>1. To conceptualize basics knowledge of programming language like python.</li> <li>2. Identified different built –in object and object oriented features for python programming</li> <li>3. To build comprehensive knowledge of python libraries.</li> <li>4. design and solve scientific application using python.</li> </ol>
2.	II	CSE2013	Soft Computing	<ol style="list-style-type: none"> <li>1. Gain understanding of various soft computing techniques.</li> <li>2. Identify and design fuzzy based systems.</li> <li>3. Design neural network for real world application</li> <li>4. Identify and compare evolutionary techniques with traditional techniques</li> <li>5. Explore different selection, crossover and mutation operators of generic algorithms</li> <li>6. Apply evolutionary computation techniques to optimization, forecasting etc</li> </ol>

Sr. No.	Semester	Course Code	Course Name	Course Outcome
		CSE2023	Machine Learning	<ol style="list-style-type: none"> <li>1. Understand mathematical background for analyzing machine learning concepts</li> <li>2. Recognize and appreciate need of machine learning in various applications</li> <li>3. Apply classification and regression techniques for decision making</li> <li>4. Use probabilistic graphical models to represent given problems</li> <li>5. Apply sequential data processing algorithms to solve problems</li> </ol>
		CSE2073	Cryptology and Network Forensics	<ol style="list-style-type: none"> <li>1. Describe different methods of data encryption and decryption; their advantages &amp; limitations.</li> <li>2. Apply different key distribution methods for distribution of public/private &amp; secret keys.</li> <li>3. Apply message authentications techniques for implementing security during message communication.</li> <li>4. Demonstrate the use of digital signature.</li> <li>5. Analyze different security attacks &amp; security solutions for e-mail &amp; web applications.</li> </ol>
		CSE2093	Soft Computing Lab	<ol style="list-style-type: none"> <li>1. Gain understanding of various soft computing techniques</li> <li>2. Identify and design fuzzy based systems.</li> <li>3. Design neural network for real world application</li> <li>4. Identify and compare evolutionary techniques with traditional techniques</li> <li>5. Explore different selection, crossover and mutation operators of generic algorithms</li> <li>6. Apply evolutionary computation techniques to optimization, forecasting etc</li> </ol>
		CSE2103	Machine Learning Lab	<ol style="list-style-type: none"> <li>1. Understand mathematical background for analyzing machine learning concepts</li> <li>2. Recognize and appreciate need of machine learning in various applications</li> <li>3. Apply classification and regression techniques for decision making</li> <li>4. Use probabilistic graphical models to represent given problems</li> </ol>

Sr. No.	Semester	Course Code	Course Name	Course Outcome
				5. Apply sequential data processing algorithms to solve problems
		SHP5152	Numerical Computation Techniques	<ol style="list-style-type: none"> <li>1. Apply the concepts of probability, random variables, probability distribution and continuous probability distribution.</li> <li>2. Apply the notions of vector spaces and linear algebra in engineering fields.</li> </ol>
	III	CSE3032	Dissertation-I	<ol style="list-style-type: none"> <li>1. Identify domain, sub-domain and problem statement for the Study.</li> <li>2. Perform a literature survey and identify possible gaps in the existing work in context with identified problem statement.</li> <li>3. Formulate the problem statement and its objectives of project.</li> <li>4. Selection of suitable methodology, techniques and dataset for the research work.</li> <li>5. Write synopsis using standard format with technical aspects and language.</li> </ol>
		CSE3042	Dissertation-II	<ol style="list-style-type: none"> <li>1. Design and develop bench-marking system which compiles expectations and technical specifications mentioned in the Synopsis.</li> <li>2. Perform experimental observation and analysis of the bench-marking system.</li> <li>3. Identify gap and propose possible improvements in the implemented bench-marking system.</li> <li>4. Submit an research article to reputed international conference which should be based on work done till Dissertation Phase 2.</li> <li>5. Prepare a comprehensive, technically and grammatically correct Dissertation Phase 2 report describing the work done.</li> </ol>
	IV	CSE4012	Dissertation-III	<ol style="list-style-type: none"> <li>1. Identify research gap or opportunities for novel work in selected problem statement or domain.</li> <li>2. Define the problem based on identified research gap.</li> </ol>

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				3. Develop algorithm/ methodology to address the identified research gap/ provide solution to the selected problem. 4. Write pseudo code/develop flow-chart/ develop working flow of proposed system. 5. Implement the proposed approach using required tools.
		CSE4022	Dissertation-IV	1. Develop / simulate / implement the proposed system by complying with desired technical specifications. 2. Compare working and experimental results of the proposed system with the existing system. 3. Analyze and synthesize obtained results in theoretical and practical context. 4. Present findings in logical order and write Dissertation Report on basis of work done, results and observations, findings, and contributions. 5. Submit a research article to reputed international conference which should be based on work done.