College of Computing Sciences & IT
Teerthanker Mahaveer University

M.Tech. (Computer Sciences and Engineering)

Programme Specific Outcome

PSO-1	**:**	Understanding and Analyzing the real time problems and to develop solutions by applying appropriate mathematical logic and algorithms.
PSO-2	**:**	Applying knowledge in various domains to identify research gaps and hence to provide solution to new ideas and innovations.
PSO-3	**:**	Applying skills acquired for retrieving, analyzing and managing large data leading to effective decision making and application development using suitable engineering tools.

Course Outcomes

MCS 107	**CO-1**	Understanding and applying the concepts of various data warehousing and data mining models.
	CO-2	Understanding and applying the concepts of classification and clustering algorithms.
	CO-3	Understanding and applying the concepts of Data Cube Technology.
	CO-4	Understanding and applying the concepts of Association Rules in Large Databases
	CO-5	Applying the concepts of Mining the World Wide Web.
	CO-6	Applying the concepts of Mining Time-Series and Sequence Data.
MCS 111	**CO-1**	Understanding the concepts of DBMS architectures.
	CO-2	Understanding and applying the concepts of Normalization techniques.
	CO-3	Understanding and applying the concepts of DB2, MySQL,SQLJ, JDBC and related Java capabilities in Oracle.
	CO-4	Understanding and applying the concepts of Distributed Databases.
	CO-5	Understanding and applying the concepts of Database Administration tools
	CO-6	Understanding and applying the concepts of Transaction Processing & Locking techniques.
MCS 112	**CO-1**	Understanding the concepts of advanced data structures.
	CO-2	Understanding and applying the concepts of designing an algorithm.
	CO-3	Understanding and applying the concepts of advanced tree and graph algorithms.
	CO-4	Understanding and applying the concepts of shortest path algorithms.
	CO-5	Understanding and applying the concepts of minimum spanning tree algorithms.
	CO-6	Understanding and applying the concepts of Approximation algorithms and Randomized Algorithm.
MCS 102	**CO-1**	Understanding the concepts of Instruction set principles, ILP Techniques.
	CO-2	Understanding the concepts of VLIW approach

	CO-3	Understanding and applying the concepts of symmetric shared and distributed shared memory architecture.
	CO-4	Understanding and applying the concepts of RAID- errors and failures.
	CO-5	Applying and analyzing the performance of different ILP techniques.
MCS 104	**CO-1**	Understanding the concepts of advanced process models.
	CO-2	Understanding, applying and analyzing the concepts of Context Models, Behavioral models, Data models.
	CO-3	Understanding, applying and analyzing the concepts of Object-Oriented Design and User inter face design.
	CO-4	Understanding, applying and analyzing the role of design patterns in software development.
	CO-5	Understanding, applying and analyzing testing techniques on developed software.
	CO-6	Understanding, applying and analyzing modern engineering tools for software Development.
MCS 106	**CO-1**	Understanding the Structure of real time system
	CO-2	Understanding the concepts of embedded software architectures and Scheduling algorithms
	CO-3	Understanding the concepts of Interrupt basic system design using an RT
	CO-4	Understanding and Analyzing the Real time v/s general purpose
	CO-5	Understanding and Analyzing Disk scheduling algorithms.
	CO-6	Understanding and analyzing Fault Tolerance Techniques.
MCS 153	**CO-1**	Understanding the concepts of WEKA Tool.
	CO-2	Applying various Data Mining techniques available in WEKA.
	CO-3	Analyzing Data Preprocessing tasks and performing association rule mining on data sets.
	CO-4	Analyzing classification algorithms on data set.
	CO-5	Analyzing clustering algorithms on data sets.
MCS 154	**CO-1**	Applying and Analyzing mySQL statements to perform different operations.
	CO-2	Applying and Analyzing various Normalization techniques.
	CO-3	Applying and Analyzing various queries related to Transaction Processing.
	CO-4	Applying recovery techniques for database recovery
	CO-5	Applying various Locking Protocols and Techniques to control the concurrency for Database Management System.
	CO-6	Creating an index.
MCS 155	**CO-1**	Applying and Analyzing Algorithms for solving problems like sorting, searching, insertion and deletion of data.
	CO-2	Applying and Analyzing BFS and DFS for a given graph.
	CO-3	Applying and Analyzing Shortest-path Algorithms
	CO-4	Applying and Analyzing Minimum Spanning Tree algorithms
	CO-5	Applying and Analyzing B-Tree, AVL Tree Operations.
MCS 202	**CO-1**	Understanding and analyzing the concepts of network models.
	CO-2	Understanding and analyzing the concepts of LAN and WAN standards.
	CO-3	Understanding and Analyzing the concepts of IPV4, IPV6, Routing Protocols.
	CO-4	Understanding and analyzing the concepts of Transmission Control

		Protocol, User Datagram Protocol.
	CO-5	Understanding and analyzing the concepts of DNS, SNMP, RMON
MCS 204	**CO-1**	Understanding the concepts of Data Visualization, Correlation, and Regression.
	CO-2	Understanding and Applying the concepts of Big Data Architecture and Big data warehouses.
	CO-3	Analyzing the concepts of BI Framework, BI Project Life Cycle.
	CO-4	Analyzing the concepts of Business Intelligence and Business Analytics.
	CO-5	Understanding, Applying and Analyzing the concepts of Hadoop Ecosystem, HDFS, Map-Reduce.
MCS 205	**CO-1**	Understanding the concepts of AI and their role in the semantic web
	CO-2	Understanding and analyzing the concepts of Ontology's languages.
	CO-3	Understanding and analyzing the concepts of Ontology Engineering, Ontology Methods.
	CO-4	Understanding and Analyzing the concepts of Semantic Web and Semantic Search Technology
	CO-5	Applying and analyzing the concepts of social networks analysis.
MCS 231	**CO-1**	Understanding and applying the concepts of Machine perception, pattern recognition and Bayesian Decision Theory.
	CO-2	Understanding, applying and analyzing Un-supervised learning Algorithms.
	CO-3	Understanding, applying and analyzing the concepts of Pattern recognition using discrete hidden Markov models.
	CO-4	Understanding and analyzing the concepts of sampling and quantization.
	CO-5	Understanding and analyzing the Image Segmentation and Edge Detection.
MCS 232	**CO-1**	Understanding the concepts of neural network, Knowledge Representation and Artificial Intelligence
	CO-2	Understanding the concepts of SOM algorithm.
	CO-3	Understanding, Applying and analyzing the concept of Single Layer and Multi Layer Perceptrons.
	CO-4	Understanding, Applying and analyzing the concepts of back propagation and differentiation.
	CO-5	Applying the appropriate learning technique to pattern classification.
MCS 235	**CO-1**	Understanding the concepts of Genetic Algorithms
	CO-2	Understanding the concept of Two-Armed and k-armed problem
	CO-3	Understanding the concepts of crossover & mutation
	CO-4	Understanding and applying the concepts of advanced operators such as Dominance, duplicity, & abeyance
	CO-5	Analyzing the techniques in genetic search.
MCS 238	**CO-1**	Understanding the concepts of Natural Language Processing.
	CO-2	Understanding the concepts of Semantic Roles
	CO-3	Understanding and applying the concept of Finite State Machine Based Morphology and Automatic Morphology Learning
	CO-4	Understanding, applying and analyzing the concept of Rule-Based Machine Translation and Knowledge Based MT System
	CO-5	Understanding and analyzing the techniques in Speech Recognition.

MCS 240	**CO-1**	Understanding the concepts of Testing Process and Graph Theory.
	CO-2	Understanding the role of Test Planning and Policy development.
	CO-3	Understanding, Applying and Analyzing the concepts of Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause Effect Graphing Technique.
	CO-4	Understanding and Analyzing test cases from use cases.
	CO-5	Understanding, applying and analyzing the concepts of Software Testing Tools.
	CO-6	Understanding, Applying and Analyzing Object oriented Testing.
MCS 252	**CO-1**	Applying and analyzing the concepts of various network simulators.
	CO-2	Applying and Analyzing various networking protocols.
	CO-3	Applying and Analyzing Socket Programming.
	CO-4	Applying and Analyzing Routing Protocols.
	CO-5	Applying and Analyzing Application Layer protocol.
MCS 253	**CO-1**	Applying and analyzing Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data Analytics.
	CO-2	Applying and analyzing clustering algorithms.
	CO-3	Applying and analyzing algorithms for large Datasets using Map Reduce techniques.
	CO-4	Applying and analyzing Page Rank Computation.
	CO-5	Creating NoSQL query with API.
MCS 291	**CO-1**	Understanding the factual knowledge of current areas of research.
	CO-2	Applying gained knowledge in thinking, problem solving, or decisions making process.
	CO-3	Analyzing problems after doing research literature survey
	CO-4	Analyzing the applicability of modern software tools and technology.
	CO-5	Creating Seminar Report.
MCS 303	**CO-1**	Understanding, Applying and analyzing various protocols for network security to protect against the threats in the networks.
	CO-2	Understanding, Applying and analyzing different encryption and decryption techniques.
	CO-3	Applying the knowledge of cryptographic checksums and Analyzing the performance of different message digest algorithms for verifying the integrity of varying message sizes.
	CO-4	Applying different digital signature algorithms to achieve authentication and create secure applications
	CO-5	Analyzing different attacks on networks.
	CO-6	Analyzing the performance of firewalls and security protocols like SSL.
MCS 304	**CO-1**	Understanding the concepts of state space and its searching strategies.
	CO-2	Understanding the concepts of knowledge representation and predicate logic.
	CO-3	Understanding the concepts of Supervised and Unsupervised learning
	CO-4	Applying the concepts of Unsupervised learning, Neural Network.
	CO-5	Applying the k-Means Algorithm.
MCS 339	**CO-1**	Understanding the concepts of Cloud Computing and its applications.
	CO-2	Understanding and analyzing the Concepts of Cloud Infrastructure Model including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.

	CO-3	Understanding and applying the importance of virtualization along with their technologies and Analyzing the comparative advantages and disadvantages of Virtualization technology.
	CO-4	Understanding and analyzing the concepts of Cloud Computing Architecture.
	CO-5	Understanding, Applying and Analyzing the concepts of Map-Reduce for Simplified data processing on Large clusters
MCS 337	**CO-1**	Understanding the concepts of Architectural models for distributed and mobile computing systems
	CO-2	Understanding and analyzing the concepts of Middleware, client/server model, common layer application protocols such as RPC, RMI, streams
	CO-3	Understanding and analyzing the Model for Simulations.
	CO-4	Understanding and analyzing the concepts of Grid Computing and its applications.
	CO-5	Understanding and analyzing the concepts of Processor organization such as Static and dynamic interconnections.
MCS 344	**CO-1**	Understanding the concepts of MATLAB.
	CO-2	Understanding, applying and analyzing Linear Equations, Inverse Matrix, Decomposition,Iterative Methods to Solve Equations .
	CO-3	Understanding, applying and analyzing Nonlinear Equations such as Bisection Method, Regula Falsi Method.
	CO-4	Understanding, applying and analyzing Differential Equations such as Euler's Method, Runge–Kutta Method
	CO-5	Understanding, applying and analyzing Eigenvalues and Eigenvectors, Power Method, Jacobi Method
	C06	Understanding, applying and analyzing Partial Differential Equations such as Elliptic, Hyperbolic, and Parabolic PDE
MCS 345	**CO-1**	Understanding the fundamental concepts of a digital image processing system.
	CO-2	Understanding and Analyzing images in the frequency domain using various transforms, image enhancement and restoration techniques.
	CO-3	Understanding, applying and analyzing a suitable technique in frequency domain to perform image enhancement, perform basic processing on color images.
	CO-4	Understanding, applying and analyzing the concepts of image segmentation.
	CO-5	Understanding, applying and Analyzing the image compression techniques in spatial and frequency domains.
MCS 353	**CO-1**	Applying and Analyzing various Classification Techniques.
	CO-2	Applying and Analyzing various Clustering Techniques.
	CO-3	Applying and Analyzing different machine learning techniques for real world problems.
	CO-4	Applying and Analyzing various Regression Techniques.
	CO-5	Implementing clustering of patterns
MCS 392	**CO-1**	Understanding an independent learning in the identified area of computer science and engineering.
	CO-2	Understanding the process of research and the ethical issues related to it.

	CO-3	Applying the process of research.
	CO-4	Applying knowledge about emerging trends and the scope for research and development by publishing the review or survey paper in the identified area.
	CO-5	Applying ideas into the form of a research synopsis/proposal.
MCS 491	**CO-1**	Understanding the objectives of the dissertation by grasping and analyzing through an extensive literature review in the significant area of study.
	CO-2	Applying the methodology and execute the study through conduct of analytical/experimental work to achieve the objectives.
	CO-3	Analyzing and review the existing literature on a research question.
	CO-4	Analyzing and Evaluating the dissertation work as per appropriate standards of documentation and presentation.
	CO-5	Designing solutions to the problem and publish research papers.