Guru Nanak Dev Engineering College, Ludhiana

Department of Computer Science & Engineering

COURSE OUTCOMES

M.Tech. Computer Science and Engineering

(2019 Batch Onwards)

Subject Code: MCS-101
Subject Name: MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

CO#	COURSE OUTCOMES
C01	Develop mathematical thinking and problem solving skills associated with research and writing proofs.
CO2	Get exposure to a wide variety of mathematical concepts used in computer science discipline like probability.
CO3	Use Graph Theory for solving problems.
CO4	Acquire basic knowledge of sampling and estimation.
CO5	Understand basic concepts of hypothesis.
CO6	Understand the mathematical fundamentals that are prerequisites for a variety of courses like Data Mining, Network protocols, analysis of Web traffic, Computer security, Bioinformatics and Machine Learning.

Subject Code: MCS-102
Subject Name: ADVANCED DATA STRUCTURES

CO#	COURSE OUTCOMES
C01	Describe the hash function and concepts of collision and its resolution methods
CO2	Develop and analyze algorithms for skip lists and various types of trees.
CO3	Develop and analyze algorithms for various variations of Heaps.
CO4	Able to select a proper pattern matching algorithm for given problem.
CO5	Identify suitable data structures and develop algorithms for Multidimensional Searching
CO6	Choose appropriate data structures and algorithms, understand the ADT/libraries, and use it to design algorithms for a specific problem.

Subject Code: MRM-101

Subject Name: RESEARCH METHODOLOGY AND IPR

CO#	COURSE OUTCOMES
CO1	Understand research problem formulation.
CO2	Analyze research related information
CO3	Follow research ethics
CO4	Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruledby ideas, concept, and creativity.
CO5	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. Field
CO6	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.

Subject Code: MCS-111
Subject Name: MACHINE LEARNING

CO#	COURSE OUTCOMES
CO1	Learn the basics of learning problems with hypothesis and version spaces
CO2	Understand the features of machine learning to apply on real world problems
CO3	Characterize the machine learning algorithms as supervised learning and unsupervised learning and Apply and analyzethe various algorithms of supervised and unsupervised learning
CO4	Analyze the concept of neural networks for learning linear and non-linear activation functions
CO5	Learn the concepts in Bayesian analysis from probability models and methods
CO6	Understand the fundamental concepts of Genetic Algorithm and Analyze and design the genetic algorithms for optimization engineering problems

Subject Code: MCS-112
Subject Name: ADVANCES IN ARTIFICIAL INTELLIGENCE

CO#	COURSE OUTCOMES
CO1	Understand the informed and uninformed problem types and apply search strategies to solve them.
CO2	Apply difficult real life problems in a state space representation so as to solve them using AI techniques like searching and game playing.
CO3	Design and evaluate intelligent expert models for perception and prediction from intelligent environment.
CO4	Formulate valid solutions for problems involving uncertain inputs or outcomes by using decision making techniques.
CO5	Demonstrate and enrich knowledge to select and apply AI tools to synthesize information and develop models within constraints of application area.
CO6	Examine the issues involved in knowledge bases, reasoning systems and planning

Subject Code: MCS-113
Subject Name: WIRELESS & MOBILE NETWORKS

CO#	COURSE OUTCOMES
CO1	To get aware of historical development of different wireless technologies
CO2	To get familiar with key concepts of wireless networks, standards, technologies and their basic operations
CO3	To learn about various wireless local area network standard, design and analyse various medium access
CO4	To learn how to evaluate MAC and network protocols using network simulation software tools.
CO5	The students should get familiar with the wireless/mobile market and the future needs and challenges
CO6	Understand the concepts, applications of wireless sensor networks, Bluetooth and Zigbee

Subject Code: MCS-114

Subject Name: ADVANCES IN COMPUTER NETWORKS

CO#	COURSE OUTCOMES
C01	To develop the understanding various IEEE standards for computer networks
CO2	Understanding the Internet protocol in multicasting routing protocols and routing algorithms.
CO3	To learn mechanism for overlay networks and various routing protocols
CO4	To know the multicasting and routing algorithms.
CO5	To acquire the basic network security principle including encryption algorithms
CO6	Examine the issues related to security in computer networks

Subject Code: MCS-115

Subject Name: ADVANCED OPERATING SYSTEM

CO#	COURSE OUTCOMES
C01	List the principles of distributed systems and describe the problems and challenges associated with these principles.
CO2	Understand Distributed Computing techniques, Synchronous and Processes
CO3	Apply Shared Data access and Files concepts
CO4	Design a distributed system that fulfills requirements with regards to key distributed systems properties.
CO5	Understand Distributed File Systems and Distributed Shared Memory.
CO6	Apply Distributed web-based system.

Subject Code: MCS-121

Subject Name: DATA WAREHOUSING AND DATA MINING

CO#	COURSE OUTCOMES
CO1	Understand the evolutionary path that has led to the purpose of adapting to Data Warehouse and Data Mining techniques in various domains
CO2	Identify the need of Data Warehouse tools and techniques for designing and developing different types of databases
CO3	Compare and evaluate different Data Mining techniques for knowledge discovery
CO4	Comprehend the importance and role that Data Warehouse and Data Mining play in various fields
CO5	Describe the use of Online Analytical Processing to analyze and interpret data
CO6	Discuss various case studies to identify the needs and patterns for business domains

Subject Code: MCS-122

Subject Name: ADVANCE DATA BASE SYSTEM CONCEPTS

CO#	COURSE OUTCOMES
CO1	Understand and analyze transaction processing and concurrency control
CO2	Describe how XML query are being processed and executed.
CO3	Explain the concept of distributed database architecture & design and web technology using databases.
CO4	Summarize the concepts of data warehousing, OLAP, Data mining and physical database design.
CO5	To understand the concepts of multimedia databases with the emerging technologies.
CO6	To make use of online analytical systems for the knowledge discovery.

Subject Code: MCS-123

Subject Name: SOFTWARE ENGINEERING METHODOLOGIES

CO#	COURSE OUTCOMES
CO1	Demonstrate knowledge of the wider software engineering context, software engineering processes and their applicability.
CO2	Understand a problem domain and to elicit, analyze, and specify the requirements of a software system solution.
CO3	Describe and formulate test cases to perform different levels of testing
CO4	Identify and outline specific components of a software design that can be targeted for reuse.
CO5	Use the Agile process to develop a quality software product.
CO6	Analyze the engineering problems encountered in system and software development

Subject Code: MCS-124

Subject Name: CLOUD COMPUTING AND SECURITY

CO#	COURSE OUTCOMES
C01	To develop an understanding of computing paradigms and compare them.
CO2	To be able to choose a particular deployment model according to scenario.
CO3	Design and develop cloud and implement various services on cloud.
CO4	To develop an understating of virtualization technology and its different dimensions.
CO5	Investigate the issues and challenges in implementing cloud security and mobile cloud security.
CO6	Compare and contrast various open and proprietary cloud platforms.

Subject Code: MCS-125

Subject Name: DIGITAL IMAGE PROCESSING

CO#	COURSE OUTCOMES
CO1	Review the fundamental concepts of a digital image processing system.
CO2	Evaluate the techniques for image enhancement and image restoration.
CO3	Analyze the utility of wavelet decompositions and their role in image processing systems.
CO4	Elucidate the mathematical modelling of image morphology.
CO5	Interpret image segmentation and representation techniques.
CO6	Design algorithms to solve image processing problems and meet design specifications.

Subject Code: MAC-105

Subject Name: CONSTITUTION OF INDIA

CO#	COURSE OUTCOMES
CO1	Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
CO2	Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
CO3	Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
CO4	Discuss the passage of the Hindu Code Bill of 1956.

Subject Code: LMCS-102

Subject Name: ADVANCED DATA STRUCTURES LABORATORY

CO#	COURSE OUTCOMES
CO1	The student should be able to choose appropriate data structures, understand the ADT/libraries, and use it to design algorithms for a specific problem.
CO2	Students should be able to understand the necessary mathematical abstraction to solve problems.
CO3	To familiarize students with advanced paradigms and data structure used to solve algorithmic problems.
CO4	Student should be able to come up with analysis of efficiency and proofs of correctness.

Subject Code: LMCS-111

Subject Name: MACHINE LEARNING LABORATORY

CO#	COURSE OUTCOMES
CO1	Effectively use the various machine learning tools
CO2	Understand and implement the procedures for machine learning algorithms
CO3	Design Python programs for various machine learning algorithms
CO4	Apply appropriate datasets to the Machine Learning algorithms
CO5	Analyze the graphical outcomes of learning algorithms with specific datasets

Subject Code: LMCS-112

Subject Name: **ADVANCES IN ARTIFICIAL INTELLIGENCE LABORATORY**

CO#	COURSE OUTCOMES
CO1	Apply the good programming skills to formulate the solutions for computational problems.
CO2	Design and develop solutions for informed and uninformed search problems in AI.
CO3	Utilize advanced package like NLTK for implementing artificial intelligence.
CO4	Demonstrate and enrich knowledge to select and apply AI tools to synthesize information and develop models within constraints of application area
CO5	Develop a minor project in multidisciplinary areas to demonstrate team work through reports and presentation.
CO6	Design and develop an Expert System that operates in a realistic problem domain and communicate effectively in a team or individual and prepare reports.

Subject Code: LMCS-113

Subject Name: WIRELESS AND MOBILE NETWORKS LAB

CO#	COURSE OUTCOMES
CO1	Demonstrate the working of Open BGPD Routing Protocol.
CO2	Analyze various channel Assignment strategies for wireless cellular network.
CO3	Implement various Protocols used for AdHoc Routing and TCP/IP.
CO4	Predict the functionality of tools like WiMax, Open BGPD etc.
CO5	Configure a variety of protocols for secured transmission of packets over a network.
CO6	Design a secured wireless private virtual network.

Subject Code: LMCS -114

Subject Name: ADVANCES IN COMPUTER NETWORKS LAB

CO#	COURSE OUTCOMES
CO1	Working on real time environment.
CO2	To calculate the latency related issue easily.
CO3	Troubleshoot the security issues of computer networks.
CO4	To configure and debug various routing algorithms.
CO5	Familiarize the student with the taxonomy and terminology of the computer networking area.

Subject Code: LMCS-115

Subject Name: ADVANCED OPERATING SYSTEM LABORATORY

CO#	COURSE OUTCOMES
CO1	Understand concept of distributed computing and Construct distributed applications using concept of client-server & RMI
CO2	Develop distributed application using concept of multithreading
CO3	Build the program to demonstrate concept of distributed mutual exclusion and process synchronization
CO4	Construct the program to demonstrate concept of centralized and distributed deadlock.
CO5	Build distributed application to illustrate the concept of shared memory and fault tolerance

Subject Code: LMCS-121

Subject Name: DATA WAREHOUSING AND DATA MINING LABORATORY

CO#	COURSE OUTCOMES
CO1	Design Data Warehouses to solve real world problems
CO2	Assess the raw input data, and process it to provide suitable input for a range of data mining algorithms
CO3	Discover and measure interesting patterns from different kinds of databases
CO4	Evaluate and select appropriate data mining algorithms and apply, and interpret and report the output appropriately
CO5	Understand and deploy appropriate classification and clustering techniques
CO6	Implement the Data Mining techniques to conceptualize a Data Mining solution to a practical problem

Subject Code: LMCS-122
Subject Name: ADVANCE DATA BASE CONCEPTS LABORATORY

CO#	COURSE OUTCOMES
CO1	Describe the use of locking protocols.
CO2	Use object oriented and advanced xml queries on database.
CO3	Understand the distributed and parallel database management systems through various case studies.
CO4	Describe the usage of open source data mining tools.
CO5	Develop a project using above learned tools and concepts

Subject Code: LMCS-123
Subject Name: SOFTWARE ENGINEERING METHODOLOGY LABORATORY

CO#	COURSE OUTCOMES
CO1	Demonstrate knowledge of the wider software engineering context, software engineering processes and their applicability.
CO2	Understand a problem domain and to elicit, analyze, and specify the requirements of a software system solution.
CO3	Describe and formulate test cases to perform different levels of testing.
CO4	Identify and outline specific components of a software design that can be targeted for reuse.
CO5	Use the Agile process to develop a quality software product.
CO6	Analyze the engineering problems encountered in system and software development

Subject Code: LMCS-124
Subject Name: CLOUD COMPUTING AND SECURITY

CO#	COURSE OUTCOMES
CO1	To explore the working of open source and commercial cloud computing platforms.
CO2	Selection of a particular deployment model according to scenario.
CO3	To be able to implement various services on cloud.
CO4	Design and develop cloud using various cloud platforms.
CO5	Explore the usage of cloud simulation tools and techniques.
CO6	Compare and contrast various open and commercial cloud platforms.

Subject Code: LMCS-125
Subject Name: DIGITAL IMAGE PROCESSING LABORATORY

CO#	COURSE OUTCOMES
CO1	Analyze the problem and convert the image into the desired domain for analysis.
CO2	Analyze the need of image enhancement in spatial and Fourier domain.
CO3	Frame the design according to the type of image domain.
CO4	Integrate various algorithms to find a best fit solution as per the problem among various image processing techniques.
CO5	Develop image processing applications for solving real world problems

Subject Code: MCS-103
Subject Name: ADVANCE ALGORITHMS

CO#	COURSE OUTCOMES
CO1	Develop a sound theoretical understanding of advanced algorithms and practical problem solving skills.
CO2	Explore wide range of advanced algorithm design techniques including dynamic programming, greedy methods, flow networks and approximation algorithms.
CO3	Analyze various complexity measures (e.g., running time, disk space) to compute the complexity/performance of different algorithms.
CO4	Investigate advanced issues related to design and analysis techniques of algorithms and their relation to NP-complete problems.
CO5	Determine the most suitable algorithm for any given task and then apply it to the given problem.

Subject Code: MCS-104
Subject Name: SOFT COMPUTING

CO#	COURSE OUTCOMES
CO1	Develop intelligent systems leveraging the paradigm of soft computing techniques.
CO2	Implement, evaluate and compare solutions by various soft computing approaches for finding the optimal solutions.
CO3	Recognize the feasibility of applying a soft computing methodology for a particular problem
CO4	Design the methodology to solve optimization problems using fuzzy logic, genetic algorithms and neural networks.
CO5	Design hybrid system to revise the principles of soft computing in various applications

Subject Code: LMCS-103
Subject Name: ADVANCE ALGORITHMS LABORATORY

CO#	COURSE OUTCOMES
CO1	Identify the problem given and find its solution using various algorithm design techniques.
CO2	Compute time and space complexities of various algorithms.
CO3	Implement algorithm design techniques such as Greedy approach, Dynamic programming to solve shortest path problems.
CO4	Implement string matching algorithm for various applications like search engine queries, matching DNA sequences etc.
CO5	Compare and contrast the performance of various algorithms for same problem.

Subject Code: LMCS-104
Subject Name: SOFT COMPUTING LABORATORY

CO#	COURSE OUTCOMES
CO1	Recognize the feasibility of applying a soft computing methodology for a particular problem
CO2	Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems
CO3	Apply genetic algorithms to combinatorial optimization problems
CO4	Apply neural networks to pattern classification and regression problems
CO5	Effectively use existing software tools to solve real problems using a soft computing approach

Subject Code: MCS - 131
Subject Name: CRYPTOGRAPHY

CO#	COURSE OUTCOMES
CO1	Identify and analyze network security attacks and counter measures to prevent those attacks.
CO2	Analyze the applications of discrete mathematics and understand their implementation in cryptography.
CO3	Apply the knowledge of existing encryption and decryption techniques to provide security solutions.
CO4	Assess impact of public key cryptosystems and key management to ensure secure exchange of information.
CO5	Investigate the security requirements and solutions for maintaining Data integrity using modern techniques for data transmission.

Subject Code: MCS – 132
Subject Name: WIRELESS SENSOR NETWORKS

CO#	COURSE OUTCOMES
CO1	Know the basics of Ad hoc networks and Wireless Sensor Networks
CO2	Analyze the sensor node architecture, and its operating
CO3	Apply the knowledge to identify appropriate physical and MAC layer protocols
CO4	Design and apply suitable routing algorithm based on the network and user requirement
CO5	Be familiar with the transport layer protocols sensor networks.

Subject Code: MCS-133
Subject Name: NETWORK SECURITY

CO#	COURSE OUTCOMES
CO1	Examine the concepts related to fundamentals of cryptography including symmetric cryptography, asymmetric cryptography, and digital signatures.
CO2	Identify the Authentication requirements and functions for security over the network.
CO3	Design and Analyse various Algorithms for ensuring Authentication.
CO4	Predict various TCP/IP security mechanisms to maintain wireless network Security.
CO5	Analysis Email security, Web security and Predict various recent trends of security protection over the network.

Subject Code: MCS-134
Subject Name: DATA SCIENCE

CO#	COURSE OUTCOMES
CO1	Use the core concepts and technologies of data science for data collection, management and data storage
CO2	To be able to apply various data analysis techniques on data sets.
CO3	To examine the various data visualization types and identify the type to be applied.
CO4	To investigate the applications of data science in various domains.
CO5	To examine recent trends in data collection and analysis techniques.

Subject Code: MCS-135
Subject Name: WEB CRAWLER AND SEARCH ENGINES

CO#	COURSE OUTCOMES
CO1	Explain fundamental concepts related to architecture of search engines and web crawlers.
CO2	Identify and explain the output of search engines in the context of web searching.
CO3	Categorize ranking and indexing algorithms and their limitations.
CO4	Design a search engine architecture based on input design requirements.
CO5	Prioritize the use of high performance computing in the design of a Web search infrastructure.

Subject Code: MCS-136
Subject Name: SOFTWARE TESTING AND QUALITY ASSURANCE

CO#	COURSE OUTCOMES
CO1	Test the software by applying testing techniques to deliver a product free from bugs.
CO2	Inspect the scenario and to select the proper testing technique.
CO3	Compare and Contrast the various activities of Quality Assurance, Quality planning and Quality Control.
CO4	Conduct formal inspections, record and evaluate results of inspections.
CO5	Demonstrate various software evaluation techniques and interpret the relationship of SQA to software life cycle.

Subject Code: LMCS - 131
Subject Name: CRYPTOGRAPHY LABORATORY

CO#	COURSE OUTCOMES
CO1	Implement encryption and decryption techniques for providing security solutions.
CO2	Analyze the impact of public key cryptosystems for secure exchange of information.
CO3	Analyze and design Network Security protocols for information exchange over unsecure network.
CO4	Apply security principles for implementing authentication applications.
CO5	Justify the use of hashing and authentication for implementing data integrity.

Subject Code: LMCS-132
Subject Name: WIRELESS SENSOR NETWORKS LABORATORY

CO#	COURSE OUTCOMES
CO1	Know the basics of Ad hoc networks and Wireless Sensor Networks
CO2	Apply the knowledge to configure various network topologies.
CO3	Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement
CO4	Apply the knowledge to identify appropriate performance parameter of MAC and Routing protocols.
CO5	Understand the key features of Ad hoc and sensor networks.
CO6	Be familiar with the features, merits and demerits of Wireless Sensor Network Tools.

Subject Code: LMCS-133
Subject Name: NETWORK SECURITY LABORATORY

CO#	COURSE OUTCOMES
CO1	Demonstrate the working of Open SSL in various domains.
CO2	Predict the concept of Authentication and Encryption to secure the network transmission.
CO3	Implement the wireless audit and decryption strategy for Routing a packet over the network.
CO4	Analyze the functionality of various e-commerce services along with various issues associated with it.
CO5	Design a Honey Pot over the network for secured transmission of packets.

Subject Code: LMCS-134
Subject Name: DATA SCIENCE LABORATORY

CO#	COURSE OUTCOMES
CO1	Use the various data collection and data analysis techniques.
CO2	Use R tool for data analytics science.
CO3	Implement K-means clustering, Linear Regression, and Logistic Regression.
CO4	Implement Naïve Bayesian classifier and Decision Trees.
CO5	Use Simulation tools for Data science and analysis.

Subject Code: LMCS-135

Subject Name: WEB CRAWLER AND SEARCH ENGINES LABORATORY

CO#	COURSE OUTCOMES
CO1	Analyze the basic concepts of the Internet, the Web and online communication.
CO2	Design a search engine architecture based on input design requirements.
CO3	Apply different ranking algorithms and Classify the characteristics of web crawling and document fetching.
CO4	Evaluation of search engines through W3C standards.
CO5	Compare, and contrast different clustering methods

Subject Code: LMCS-136
Subject Name: SOFTWARE TESTING AND QUALITY ASSURANCE LABORATORY

CO#	COURSE OUTCOMES
CO1	Design and construct the manual test cases for different software module.
CO2	Construct the test cases in automation testing tool.
CO3	Create test strategies and plans, design test cases, prioritize and execute them.
CO4	Implement real world applications using various software paradigms
CO5	Contribute to efficient delivery of software solutions and implement improvements in the software development processes.

Subject Code: MCS-141
Subject Name: AGILE SOFTWARE DEVELOPMENT APPROACHES

CO#	COURSE OUTCOMES
CO1	Demonstrate the ability to participate effectively in agile practices/process for software development.
CO2	Explain the purpose behind common agile practices.
CO3	Ability to identify and address most common problems encountered in adopting Agile methods.
CO4	Ability to identify and address most common problems encountered in adopting Agile methods.
CO5	Apply agile principles and values to a given situation.
CO6	Judge and craft appropriate adaptations to existing practices or processes depending upon analysis of typical problems

Subject Code: MCS-142

Subject Name: HUMAN COMPUTER INTERACTION

CO#	COURSE OUTCOMES
CO1	Examine the capabilities of both humans and computers from the viewpoint of human information processing.
CO2	Create the structure of human computer interaction models.
CO3	Apply an interactive design process and universal design principles to design HCI systems.
CO4	Depict and use HCI design principles, standards and guidelines.
CO5	Analyze and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems.

Subject Code: MCS-143

Subject Name: NATURAL LANGUAGE PROCESSING

CO#	COURSE OUTCOMES
CO1	Apply the computational knowledge for Natural Language Processing to understand the properties of natural languages, its algorithms for processing linguistic information in various tasks such as Machine translation, Information extraction and retrieval, and Speech Technology.
CO2	Understand the concepts of linguistic foundations that underlie natural language processing, which would provide the knowledge for building components of NLP systems.
CO3	Discover the capabilities, analyze them and explore the limitations of current natural language technologies, and some of the algorithms and techniques that underline these technologies to take up various research challenges in the field.
CO4	monstrate the concepts of morphology, syntactic analysis, semantic interpretation and pragmatics of the language, and understanding them to apply in different research areas.
CO5	cognize the significance of research in natural language processing for common NLP tasks such as text classification, spam filtering, spell checking, machine learning, etc. to engage in lifelong learning.

Subject Code: MCS-144

Subject Name: INFORMATION STORAGE AND MANAGEMENT

CO#	COURSE OUTCOMES
CO1	Explain the storage architectures, RAID and Intelligent storage systems.
CO2	Illustrate the information security, and storage security domains.
CO3	Identify different storage technologies and their benefits.
CO4	Justify the parameters of managing and monitoring storage infrastructure; describe common storage management activities and solutions.
CO5	Access the information security requirements and solutions.

Subject Code: MCS-145

Subject Name: INTRODUCTION TO INTELLIGENT SYSTEMS

CO#	COURSE OUTCOMES
CO1	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation and learning.
CO2	Compare intelligent system with human intelligence and traditional information processing and discuss its strengths and limitations as well as its application to complex and human-centred problems.
CO3	Acquire the knowledge of real world Knowledge representation.
CO4	Analyze the structures and algorithms of a selection of techniques related to searching, reasoning and learning.
CO5	Use classical Artificial Intelligence techniques, such as search algorithms, minimax algorithm, neural networks.

Subject Code: MCS-146

Subject Name: COMPUTER VISION

CO#	COURSE OUTCOMES
CO1	Identify basic terminology, theories and models in the field of Computer Vision.
CO2	Analyze different methods of Computer Vision related to multi-scale representation, edge detection and detection of other primitives, stereo, motion and object recognition.
CO3	Use and apply appropriate image processing methods for image filtering, image restoration, image reconstruction, segmentation, classification and representation.
CO4	Assess which methods to use for solving a given problem, and analyze the accuracy of the methods.
CO5	Design of Computer Vision system for a specific problem.

Subject Code: MCS-151

Subject Name: OPTIMIZATION TECHNIQUES

CO#	COURSE OUTCOMES
CO1	To develop optimization thinking and problem solving methods for solving different types of problems.
CO2	To examine the optimization principle and its application in formulation of engineering optimization problems.
CO3	To optimize the mathematical problems using nature based algorithms.
CO4	To solve various constrained and unconstrained problems in Single variable as well as multivariable.
CO5	To understand the advanced optimization methods and apply it on real world problems.

Subject Code: MCS-152

Subject Name: SOCIAL NETWORK ANALYSIS

CO#	COURSE OUTCOMES
CO1	To obtain the Historical background, basic concepts, applications of Social networks analysis
CO2	Analyze the behavior of social media clusters, graphs, data, and various community measures
CO3	Modal and conduct basic social network analysis to include centrality, subgroup analysis, social theory, and statistical analysis of networks
CO4	Apply the knowledge on over-time network analysis including statistical change detection, exponential random graph modelling, and stochastic actor oriented modeling
CO5	Mine the behaviour of user in the social network

Subject Code: MCS-153

Subject Name: DISTRIBUTED SYSTEMS

CO#	COURSE OUTCOMES
CO1	Classify distributed systems in various system models with its characteristics, working and applications
CO2	Examine communication methodologies with characteristics of Operating System and Virtualization concept
CO3	Illustrate the concept of distributed file system, directory services and name services with case studies
CO4	Explain distributed transaction and concurrency control mechanisms with deadlocks and recovery concepts
CO5	Investigate and plan designing of distributed systems with the consideration of case studies and distributed services

Subject Code: MCS-154

Subject Name: NEURAL NETWORKS AND FUZZY LOGIC

CO#	COURSE OUTCOMES
CO1	Comprehend the fuzzy logic control and adaptive fuzzy logic.
CO2	Identify and describe Fuzzy Logic and Artificial Neural Network techniques in building intelligent machines.
CO3	Apply Artificial Neural Network & Fuzzy Logic models to handle uncertainty and solve engineering problems.
CO4	Recognize the feasibility of applying a Neuro-Fuzzy model for a particular problem.
CO5	Integrate neural network and fuzzy logic to extend the capabilities for efficient and effective problem solving methodologies.

Subject Code: MCS-155

Subject Name: DATA PREPARATION AND ANALYSIS

CO#	COURSE OUTCOMES
CO1	Solve the real world problems using the concept of data analysis and hypothesis testing procedures to retrieve data and solve problems.
CO2	Apply knowledge of measurement & scaling techniques as well as the quantitative data analysis to process raw data.
CO3	Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining.
CO4	Evaluate and select appropriate data-mining algorithms and apply, interpret and report the output appropriately.
CO5	Identify suitable data preprocessing technique to apply on raw data to provide suitable input to various algorithms used for different purposes.

Subject Code: MCS-156

Subject Name: SMART SENSORS AND INTERNET OF THINGS

CO#	COURSE OUTCOMES
CO1	Understand the working of smart sensors in IOT context.
CO2	Apply knowledge in usage of smart devices, Gateways and Data Management in IoT.
CO3	Understand the vision of IoT from a local as well as global context.
CO4	Apply IoT to resolve many Industrial cum Commercial Building Automation and Real World Design Constraints.
CO5	Determine the Market trends of IoT in smart sensing.

Subject Code: MOCS-101

Subject Name: SIMULATION AND MODELLING

CO#	COURSE OUTCOMES
CO1	Construct a model for a given set of data and analyse output produced to test validity of the model
CO2	Apply numerical methods to interpret, extract, analyse and present simulation result.
CO3	Develop simulation programs to design a system that meets industrial requirements and solves real world problems based on client server communication
CO4	Test modern simulation tools and resources to measure the performance of different simulation models
CO5	Make use of problem solving approaches to work challenges and make decisions in teams

Subject Code: MOCS-102

Subject Name: PROJECT MANAGEMENT

CO#	COURSE OUTCOMES
CO1	Relate the scope, cost, timing, and quality of the project, at all times focused on project success as defined by project stakeholders.
CO2	Outline the project to the organization's strategic plans and business justification throughout its life-cycle.
CO3	Illustrate project goals, constraints, deliverables and performance criteria in consultation with stakeholders.
CO4	Examine the tools and techniques in order to achieve project success.
CO5	Justify general business concepts, practices, and tools to facilitate project success.

Subject Code: MOCS-103

Subject Name: BUSINESS INFORMATION SYSTEM

CO#	COURSE OUTCOMES
CO1	To enrich the knowledge of Information System, its application and role in Modern Business and to analyze the impact of technology on development track.
CO2	To elicit, analyze and architect the Data and to adapt Data Resource management approach.
CO3	To analyze Integration of business and technology skills in a sector context**.**
CO4	To use different business development methodologies and design a business strategy.
CO5	To identify the various threats and security issues in Business Information System.

Subject Code: MOCS-104

Subject Name: HUMAN RESOURCES DEVELOPMENT AND TRAINING METHODS

CO#	COURSE OUTCOMES
CO1	To develop and understanding the concept of human resource development and to understand its relevance in organizations
CO2	To analyse the strategic issues and strategies required to select and develop manpower resources.
CO3	To integrate the knowledge of HR concepts to take correct business decisions.
CO4	To develop necessary skill set for application of various HR issues.
CO5	To understand the Globalization Impact on HRD and how to reduce work force.

Subject Code: MOCS-105

Subject Name: MULTIMEDIA COMMUNICATIONS

CO#	COURSE OUTCOMES
CO1	Analyze and use various multimedia communication models.
CO2	Apply QoS to multimedia network applications.
CO3	Identify the various audio video formats and compression techniques for better transformation of media over the network.
CO4	Implement the concepts of multimedia to develop the real-time multimedia network applications.
CO5	Explain the technical characteristics and performance of multimedia system and terminal.