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M.E. Computer Science and Engineering

SEMESTER I

MA5160 - Applied Probability and Statistics

C101.1	Apply the concept of random variable to find moments& moment generating functions of distributions
C101.2	Find marginal, conditional distribution, statistical average for the standard probability function.
C101.3	Find the M.L.E and use the principle of least squares for curve fitting and regression lines.
C101.4	Identify small, large samples and apply testing of hypothesis.
C101.5	Analyze the multivariate methods for normal density and principal components from standardized variables

CP5151 - Advanced Data Structures and Algorithms

C102 .1	Describe the usage of algorithms in computing.
C102 .2	Use hierarchical data structures.
C102.3	Explain non-linear data structures with its application
C102.4	Summarize the Dynamic Programming concepts
C102.5	Outline the NP Completeness of problem

CP5152 - Advanced Computer Architecture

C103.1	Identify the limitations of ILP and the need for multicore architectures
C103.2	Discuss the various techniques used for optimizing cache performance and design of hierarchical memory system
C103.3	Ability to discuss issues on multiprocessors, cache coherence and interconnection networks
C103.4	Ability to discuss the architecture and workloads for warehouse scale computers.
C103.5	Discuss the issues related to Vector Processing and how data level parallelism is exploited in architectures. GPU and software pipelining

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CP5153 - Operating System Internals

C104.1	Understand how the processes are implemented in Linux.
C104.2	Discuss the implementation of the Linux file system.
C104.3	Explain the Linux memory management data structures and algorithms.
C104.4	Outline the knowledge in the implementation of inter process communication.
C104.5	Summarize how program execution happens in Linux.

CP5154 - Advanced Software Engineering

C105.1	Outline software life cycle models and project management
C105.2	Explain the system analysis concepts
C105.3	Explain the system design concepts
C105.4	Outline the software testing approaches
C105.5	Outline the DevOps practices

CP5191 - Machine Learning Techniques

C106.1	Distinguish between, supervised, unsupervised and semi-supervised learning
C106.2	Apply the appropriate machine learning strategy for any given problem
C106.3	Suggest supervised, unsupervised or semi-supervised learning algorithms for any given problem
C106.4	Design systems that uses the appropriate graph models of machine learning
C106.5	Modify existing machine learning algorithms to improve classification efficiency

CP5161 - Data Structures Laboratory

C107.1	Design and implement basic data structures.
C107.2	Design and implement advanced data structures.
C107.3	Design and implement data structures using graphs.
C107.4	Design and develop Optimization Algorithms
C107.5	Design and develop Dynamic programming algorithms.

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SEMESTER II

CP5201 - NETWORK DESIGN AND TECHNOLOGIES

C108.1	Summarize Multiplexing Techniques and Wired & Wireless scenarios.
C108.2	Classify the types and functionality of Wireless Technologies
C108.3	Classify Mobility Management and Call Control of different Cellular Technologies.
C108.4	Explain the layers of 4G Network
C108.5	Infer functionalities of Software Defined Network

CP5291 - SECURITY PRACTICES

C109.1	Understand the core fundamentals of system security
C109.2	Apply the security concepts related to networks in wired and wireless scenario
C109.3	Implement and Manage the security essentials in IT Sector
C109.4	Explain the concepts of Cyber Security and encryption Concepts
C109.5	Attain a thorough knowledge in the area of Privacy and Storage security and related Issues

CP5292 & INTERNET OF THINGS

C110.1	Analyze various protocols for IoT
C110.2	Develop web services to access/control IoT devices.
C110.3	Design a portable IoT using Raspberry Pi
C110.4	Deploy an IoT application and connect to the cloud.
C110.5	Analyze applications of IoT in real time scenario

CP5293 - Big Data Analytics

C111.1	To understand the competitive advantages of big data analytics
C111.2	To understand the big data frameworks
C111.3	To learn data analysis methods
C111.4	To learn stream computing
C111.5	To gain knowledge on Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics

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Professional Elective – I

IF5191 - Advanced Databases

CE112.1	Outline database system architectures and explain parallel and distributed databases
CE112.2	Explain active, temporal and spatial databases
CE112.3	Experiment with XML database
CE112.4	Outline mobile databases
CE112.5	Outline multimedia databases

CP5001 - Principles of Programming Languages

CE112.1	Summarize syntax and semantics of programming languages.
CE112.2	Explain the attributes of data types, abstraction and encapsulation.
CE112.3	Examine functional programming features and design subprogram constructs
CE112.4	Design and develop logic programming using various constructs
CE112.5	Demonstrate concurrency through shared data and semantics

CP5071 - Image Processing and Analysis

CE112.1	Explain the basics of image acquisition and image operations.
CE112.2	Examine the methods for image enhancement in spatial and frequency domain.
CE112.3	Demonstrate image segmentation methods and texture analysis.
CE112.4	Explain feature extraction and image classification.
CE112.5	Summarize image registration and visualization methods.

CP5091 - Web Engineering

CE112.1	Understand the characteristics of web applications
CE112.2	Interpret various Model web applications
CE112.3	Explain the Systematic design methods
CE112.4	Demonstrate the testing techniques for web applications
CE112.5	Explain the Web Project Management

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CP5092 - Cloud Computing Technologies

CE112.1	Explain the concepts of storage virtualization, network virtualization and its management
CE112.2	Apply the different levels of virtualization and resource management
CE112.3	Summarize the architecture, infrastructure and delivery models of cloud computing
CE112.4	Develop applications using Hadoop framework
CE112.5	Infer the security models in the cloud environment

Professional Elective –II

CP5291 - Real Time Systems

CE113.1	Examine principles of real time system design techniques to develop real time applications.
CE113.2	Interpolate software requirement engineering.
CE113.3	Make use of architectures and principles of process communication and management
CE113.4	Discuss real time databases
CE113.5	Apply evaluation and synchronization techniques.

CP5093 - Mobile and Pervasive Computing

CE113.1	Summarize the architecture and concepts on generations of communication systems.
CE113.2	Explain the latest 4G Telecommunication System Principles.
CE113.3	Interpolate the pervasive concepts.
CE113.4	Examine HCI in Pervasive environment.
CE113.5	Design pervasive concepts in mobile environment.

CP5002 - Parallel Programming Paradigms

CE113.1	To Identify issues in parallel programming.
CE113.2	To design distributed memory programs using MPI framework.
CE113.3	To develop shared memory parallel programs using Pthreads.
CE113.4	To develop shared memory parallel programs using OpenM.
CE113.5	To Implement Graphical Processing OpenCL programs.

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CP5094/ Information Retrieval Techniques

CE113.1	Explain about the IR basic concepts and its components.
CE113.2	Interpret various information retrieval models.
CE113.3	Explain the indexing and query operations.
CE113.4	Demonstrate document text mining techniques and clustering Algorithms.
CE113.5	Explain the Web Search Engine Framework.

CP5072 - Software Architectures and Design

CE113.1	Illustrate the software architecture requirements and design guidelines
CE113.2	Demonstrate data centered and interaction oriented software architectures
CE113.3	Develop architectures for distributed heterogeneous system environment through brokerage interaction
CE113.4	Develop design knowledge on service oriented and model driven architectures
CE113.5	Make use of architecture and design patterns to develop appropriate architectures for semantic web services and supply chain cloud services

CP5261 - Data Analytics Laboratory

C114.1	To implement map Reduce programs for processing big data
C114.2	To realize storage of big data using H base, Mongo DB
C114.3	To analyze big data using linear models
C114.4	To analyze big data using machine learning techniques such as SVM / Decision tree
C114.5	To analyze big data using machine learning techniques such as classification and clustering

CP5281 - Term Paper Writing and Seminar

C115.1	Identify the Domain Specific Objective
C115.2	Summarize the Literature Survey
C115.3	Analyzing different Methodologies
C115.4	Produce final draft of the Research Paper
C115.5	Prepare presentation for the research undergone

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SEMESTER III

Professional Elective – III

CP5003 - Performance Analysis of Computer Systems

CE201.1	To understand the mathematical foundations needed for performance evaluation of computer systems
CE201.2	To understand the metrics used for performance evaluation
CE201.3	To understand the analytical modeling of computer systems
CE201.4	To enable the students to develop new queuing analysis for both simple and complex systems
CE201.5	To appreciate the use of smart scheduling and introduce the students to analytical techniques for evaluating scheduling policies

CP5004 - Language Technologies

CE201.1	Explain the fundamentals of natural language processing.
CE201.2	Explain the principles of automatic speech recognition and Synthesis.
CE201.3	Use a rule based system to tackle morphology/syntax of a language
CE201.4	Discuss the role of semantics and pragmatics.
CE201.5	Design an innovative application using NLP components

CP5095 - Computer Vision

CE201.1	Interpret the image processing techniques for computer vision.
CE201.2	Demonstrate the shape and region analysis.
CE201.3	Understand the Hough Transform and its applications to detect lines, circles, ellipses.
CE201.4	Develop the three-dimensional image analysis techniques and motion.
CE201.5	Understand the applications of computer vision algorithms.

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CP5096 - Speech Processing and Synthesis

CE201.1	To understand the mathematical foundations needed for speech processing
CE201.2	To familiarize the students with the various speech signal representation and coding
CE201.3	To understand various speech recognition techniques
CE201.4	To perform text analysis for Speech synthesis.
CE201.5	To understand the basic concepts and algorithms of speech processing and synthesis

CP5005 - Software Quality Assurance and Testing

CE201.1	Understand the basics of testing, test planning & design
CE201.2	Discuss the various types of tests
CE201.3	Explain the different categories of system test
CE201.4	Outline the software quality metrics and standards
CE201.5	Summarize the quality assurance techniques and activities

Professional Elective – IV

CP5006 - Formal models of software systems

CE202.1	Illustrate the specification activities and quality attributes
CE202.2	Understand the formal system and abstraction fundamentals
CE202.3	Use the temporal logic and propositional logic to models
CE202.4	Develop formal specification models based on set theory, calculus and algebra
CE202.5	Use Z, Object Z and B Specification languages

CP5073 - Embedded Software Development

CE202.1	Explain the different Embedded Processors
CE202.2	Summarize the Embedded computing platform
CE202.3	Explain the embedded Architecture and its networking systems.
CE202.4	Illustrate the Characteristics of the embedded system in the real time environment.
CE202.5	Can able to analyze and design the embedded system for different real time applications.

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CP5074 - Social Network Analysis

CE202.1	Understand the components of the social network
CE202.2	model and visualize the social network
CE202.3	Understand mine the users in the social network
CE202.4	understand the evolution of the social network
CE202.5	know the applications in real time systems

CP5007/ Bio-inspired Computing

CE202.1	Implement and apply bio-inspired algorithms.
CE202.2	Explain random walk and simulated annealing.
CE202.3	Implement and apply genetic algorithms and differential evolutions.
CE202.4	Explain swarm intelligence and ant colony for feature selection.
CE202.5	Apply bio-inspired techniques in image processing

CP5002/ Parallel Programming Paradigms

CE202.1	To be aware of different forms of intermediate languages and analyzing programs.
CE202.2	To understand optimizations techniques for simple program blocks.
CE202.3	To apply optimizations on procedures, control flow and parallelism.
CE202.4	To learn the inter procedural analysis and optimizations.
CE202.5	To explore the knowledge about resource utilization.

Professional Elective V

CP5009 - Data Visualization Techniques

CE203.1	Interpret the both design and critique visualizations for visual analysis.
CE203.2	Understand visualization for Time-Series, Ranking, And Deviation Analysis
CE203.3	Develop the various Distribution, Correlation, and Multivariate Analysis.
CE203.4	Develop the Information Dashboard Design.
CE203.5	Understand issues and best practices in information dashboard design.

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CP5002 - Reconfigurable Computing

CE203.1	To Identify the need for reconfigurable architectures and Discuss the architecture of FPGAs. .
CE203.2	To examine the various reconfigurable computing systems.
CE203.3	To understand the different types of computing models.
CE203.4	TO design the basic modules using any HDL and appropriate tools.
CE203.5	To design and build an SoPC for a particular application.

CP5097 - Mobile Application Development

CE203.1	Understand system requirements for mobile applications.
CE203.2	Generate suitable design using specific mobile development frameworks
CE203.3	Generate mobile application design.
CE203.4	Implement the design using specific mobile development frameworks
CE203.5	Deploy the mobile applications in marketplace for distribution.

CP5075 - Bio Informatics

CE203.1	Interpret the basic concept to get exposed to the fundamentals of bioinformatics
CE203.2	Apply the appropriate bio-informatics algorithm and phylogenetic Analysis
CE203.3	Apply the open problems and issues in replication and molecular clocks.
CE203.4	Develop and assemble genomes with corresponding theorem and sequences
CE203.5	Apply and exposed to the domain of human genomics with open problem and technologies

CP5076 - Information Storage Management

CE203.1	To understand the storage architecture and available technologies.
CE203.2	To learn to establish & manage data centre.
CE203.3	To understand Networked Storage
CE203.4	To learn information availability, monitoring & managing Data centres
CE203.5	To learn security aspects of storage & data centre.

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CP5311-Project Work (Phase- I)

C204.1	Identify the problem by applying acquired knowledge
C204.2	Construct and organize executable project modules through proper designing
C204.3	Choose efficient tools for implementation of the designed modules
C204.4	Analyze and categorize the outcomes of the implementation and derive inferences.
C204.5	Examine the completed task and compile the project report

SEMESTER IV

CP5411 - Project Work (Phase- II)

C205.1	Plan and construct improved methods for an identified problem by applying acquired knowledge
C205.2	Experiment and Develop effective solutions through proper designing
C205.3	Analyze and categorize the outcomes of the implementation and derive inferences
C205.4	Assess the acquired outcomes based on evaluation metrics
C205.5	Examine the completed task and compile the project report