



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
M.E. COMPUTER SCIENCE AND ENGINEERING
COURSE OUTCOMES (REGULATION 2021)

SEMESTER I

Course Code / Course Name: MA4151/ Applied Probability and Statistics for Computer Science Engineers

CO No.	Course Outcomes (COs)
C101.1	Apply the concepts of Linear Algebra to solve practical problems.
C101.2	Use the ideas of probability and random variables in solving engineering problems.
C101.3	Be familiar with some of the commonly encountered two dimensional random variables and be equipped for a possible extension to multivariate analysis.
C101.4	Use statistical tests in testing hypotheses on data.
C101.5	Develop critical thinking based on empirical evidence and the scientific approach to knowledge development.

Course Code / Course Name: RM4151/ Research Methodology and IPR

CO No.	Course Outcomes (COs)
C102.1	Understand and adhere to ethical guidelines, avoiding plagiarism and ensuring data integrity.
C102.2	Develop skills in formulating research questions and designing robust methodologies.
C102.3	Learn techniques for collecting and analyzing data to derive meaningful insights.
C102.4	Understand the process of commercializing research innovations through licensing and collaboration.
C102.5	Examine the impact of intellectual property laws on innovation and economic development.

Course Code / Course Name: CP4151/ Advanced Data Structures and Algorithms

CO No.	Course Outcomes (COs)
C103.1	Design data structures and algorithms to solve computing problems
C103.2	Choose and implement efficient data structures and apply them to solve problems.

C103.3	Design algorithms using graph structure and various string-matching algorithms to solve real-life problems
C103.4	Design one's own algorithm for an unknown problem.
C103.5	Apply suitable design strategy for problem solving.

Course Code / Course Name: CP4152/ Database Practices

CO No.	Course Outcomes (COs)
C104.1	Convert the ER-model to relational tables, populate relational databases and formulate SQL queries on data.
C104.2	Understand and write well-formed XML documents
C104.3	Be able to apply methods and techniques for distributed query processing.
C104.4	Design and implement secure database systems
C104.5	Use the data control, definition, and manipulation languages of the NoSQL databases

Course Code / Course Name: CP4153/ Network Technologies

CO No.	Course Outcomes (COs)
C105.1	Explain basic networking concepts
C105.2	Compare different wireless networking protocols
C105.3	Describe the developments in each generation of mobile data networks
C105.4	Explain and develop SDN based applications
C105.5	Explain the concepts of network function virtualization

Course Code / Course Name: CP4154/ Principles of Programming Languages

CO No.	Course Outcomes (COs)
C106.1	Describe syntax and semantics of programming languages
C106.2	Explain data, data types, and basic statements of programming languages
C106.3	Design and implement subprogram constructs
C106.4	Apply object-oriented, concurrency, and event handling programming constructs
C106.5	Develop programs in Scheme, ML, and Prolog and Understand and adopt new programming language

Course Code / Course Name: CP4161/ Advanced Data Structures and Algorithms
Laboratory

CO No.	Course Outcomes (COs)
C107.1	Design and implement basic and advanced data structures extensively
C107.2	Design algorithms using graph structures
C107.3	Design and develop efficient algorithms with minimum complexity using design techniques
C107.4	Develop programs using various algorithms.
C107.5	Choose appropriate data structures and algorithms, understand the ADT/libraries, and use it to design algorithms for a specific problem.

SEMESTER II

Course Code / Course Name: CP4291/ Internet of Things

CO No.	Course Outcomes (COs)
C108.1	Understand the various concept of the IoT and their technologies
C108.2	Develop the IoT application using different hardware platforms
C108.3	Implement the various IoT Protocols
C108.4	Understand the basic principles of cloud computing
C108.5	Develop and deploy the IoT application into cloud environment

Course Code / Course Name: CP4292/ Multicore Architecture and Programming

CO No.	Course Outcomes (COs)
C109.1	Describe multicore architectures and identify their characteristics and challenges.
C109.2	Identify the issues in programming Parallel Processors.
C109.3	Write programs using OpenMP and MPI.
C109.4	Design parallel programming solutions to common problems.
C109.5	Compare and contrast programming for serial processors and programming for parallel processors.

Course Code / Course Name: CP4252/ Machine Learning

CO No.	Course Outcomes (COs)
C110.1	Understand and outline problems for each type of machine learning
C110.2	Design a Decision tree and Random forest for an application
C110.3	Implement Probabilistic Discriminative and Generative algorithms for an application and analyze the results.
C110.4	Use a tool to implement typical Clustering algorithms for different types of applications.
C110.5	Design and implement an HMM for a Sequence Model type of application and identify applications suitable for different types of Machine Learning with suitable justification.

Course Code / Course Name: SE4151/ Advanced Software Engineering

CO No.	Course Outcomes (COs)
C111.1	Identify appropriate process models based on the Project requirements
C111.2	Understand the importance of having a good Software Architecture.
C111.3	Understand the five important dimensions of dependability, namely, availability, reliability, safety, security, and resilience.
C111.4	Understand the basic notions of a web service, web service standards, and service-oriented architecture;
C111.5	Be familiar with various levels of Software testing

Course Code / Course Name: MP4092/ Human Computer Interaction

CO No.	Course Outcomes (COs)
C112.1	Understand the basics of human computer interactions via usability engineering and cognitive modelling.
C112.2	Understand the basic design paradigms, complex interaction styles
C112.3	Understand the models and theories for user interaction
C112.4	Examine the evaluation of interaction designs and implementations.
C112.5	Elaborate the above issues for web and mobile applications.

Course Code / Course Name: CP4096/ Software Quality Assurance

CO No.	Course Outcomes (COs)
C113.1	Utilize the concepts of SQA in software development life cycle
C113.2	Demonstrate their capability to adopt quality standards.
C113.3	Assess the quality of software products.
C113.4	Apply the concepts in preparing the quality plan & documents.
C113.5	Ensure whether the product meets company's quality standards and client's expectations and demands

Course Code / Course Name: CP4211/ Term Paper Writing and seminar

CO No.	Course Outcomes (COs)
C114.1	Students will gain a comprehensive understanding of various research methodologies
C114.2	Students will refine their academic writing skills, including thesis development, organization, clarity, and coherence, to produce well-crafted term papers that meet scholarly standards.
C114.3	Students will learn effective techniques for delivering engaging and informative presentations
C114.4	Students will understand the principles of academic integrity, including proper citation practices, avoidance of plagiarism
C114.5	Students will demonstrate their mastery of course concepts and skills by completing a substantial term paper writing

Course Code / Course Name: CP4212/ Software Engineering Laboratory

CO No.	Course Outcomes (COs)
C115.1	Students can produce the requirements and use cases the client wants for the software being produced.
C115.2	Participate in drawing up the project plan. The plan will include at least extent and work assessments of the project, the schedule, available resources, and risk management can model and specify the requirements of mid-range software and their architecture
C115.3	Create and specify such a software design based on the requirement specification that the software can be implemented based on the design.
C115.4	Student can assess the extent and COsts of a project with the help of several different assessment methods
C115.5	Students can produce the requirements and use cases the client wants for the software being produced.

SEMESTER III

Course Code / Course Name: CP4391 / Security Practices

CO No.	Course Outcomes (COs)
C201.1	Understand the core fundamentals of system security
C201.2	Apply the security concepts to wired and wireless networks
C201.3	Implement and Manage the security essentials in IT Sector
C201.4	Explain the concepts of Cyber Security and Cyber forensics
C201.5	Be aware of Privacy and Storage security Issues.

Course Code / Course Name: MP4094/ Web Services and API Design

CO No.	Course Outcomes (COs)
C202.1	Explain how to write XML documents.
C202.2	Apply the web service building blocks such as SOAP, WSDL and UDDI
C202.3	Describe the RESTful web services.
C202.4	Implement the RESTful web service with Spring Boot MVC
C202.5	Discuss Resource-oriented Architecture.

Course Code / Course Name: MP4292 / Mobile Application Development

CO No.	Course Outcomes (COs)
C203.1	Identify various concepts of mobile programming that make it unique from programming for other platforms
C203.2	Create, test and debug Android application by setting up Android development
C203.3	Demonstrate methods in storing, sharing and retrieving data in Android applications
C203.4	Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces
C203.5	Create interactive applications in android using databases with multiple activities including audio, video and notifications and deploy them in marketplace

Course Code / Course Name: CX4016/ Environmental Sustainability

CO No.	Course Outcomes (COs)
C204.1	To study about environment and eCOsystems
C204.2	To study about different types of natural resource.
C204.3	Knowledge and concept of biodiversity and its conservation.
C204.4	Basic knowledge and concept of causes, effect and control of different type of environmental pollution
C204.5	To develop a knowledge of natural resources and its conservation.

SEMESTER IV

Course Code / Course Name: CP4411/ Project Work

CO No.	Course Outcomes (COs)
C205.1	Demonstrate a sound technical knowledge of their selected project topic.
C205.2	Undertake problem identification, formulation and solution.
C205.3	Design engineering solutions to complex problems utilising a systems approach.
C205.4	Conduct an engineering project.
C205.5	Deliver presentations that are required as engineers.