MEENAKSHI COLLEGE OF ENGINEERING

No-12,Vembuli Amman Koil Street, West K.K. Nagar,
Chennai – 78

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (PG)

REGULATION-2021

COURSE OUTCOMES

SEMESTER I

Course Name: MA4151 - Applied Probability and Statistics

CO1	Apply the concepts of Linear Algebra to solve practical problems.
CO2	Use the ideas of probability and random variables in solving engineering problems
CO3	Be familiar with some of the commonly encountered two dimensional random variables and be equipped for a possible extension to multivariate analysis.
CO4	Use statistical tests in testing hypotheses on data.
CO5	Develop critical thinking based on empirical evidence and the scientific approach to knowledge development.

Course Name: RM4151- Research Methodology and IPR

CO1	Plan and carry out effective research projects using different research methods.
CO2	Be able to use basic statistical tools to analyze research data and draw meaningful conclusions.
CO3	Be able to read and understand existing research papers, and identify key findings and gaps.
CO4	Learn about different types of intellectual property (like patents and copyrights) and how to protect their own work.
CO5	Understand the importance of ethical practices in research and ensure their work meets these standards.

Course Name: CP4151-Advanced Data Structures and Algorithms

CO1	Design data structures and algorithms to solve computing problems.
CO2	Choose and implement efficient data structures and apply them to solve problems.
CO3	Design algorithms using graph structure and various string-matching algorithms to solve real-life problems.
CO4	Design one’s own algorithm for an unknown problem.
CO5	Apply suitable design strategy for problem solving.

Course Name: CP4152 -Database Practices

CO1	Convert the ER-model to relational tables, populate relational databases and formulate SQL queries on data.
CO2	Understand and write well-formed XML documents
CO3	Be able to apply methods and techniques for distributed query processing
CO4	Design and Implement secure database systems.
CO5	Use the data control, definition, and manipulation languages of the NoSQL databases.

Course Name: CP4153 - Network Technologies

CO1	Explain basic networking concepts
CO2	Compare different wireless networking protocols
CO3	Describe the developments in each generation of mobile data networks
CO4	Explain and develop SDN based applications
CO5	Explain the concepts of network function virtualization

Course Name: CP4154 -Principles of Programming Languages

CO1	Describe syntax and semantics of programming languages
CO2	Explain data, data types, and basic statements of programming languages
CO3	Design and implement subprogram constructs
CO4	Apply object-oriented, concurrency, and event handling programming constructs
CO5	Develop programs in Scheme, ML, and Prolog and Understand and adopt new programming language

Course Name: CP4161- Advanced Data Structures and Algorithms Laboratory

CO1	Design and implement basic and advanced data structures extensively
CO2	Design algorithms using graph structures
CO3	Design and develop efficient algorithms with minimum complexity using design techniques
CO4	Develop programs using various algorithms.
CO5	Choose appropriate data structures and algorithms, understand the ADT/libraries, and use it to design algorithms for a specific problem.

SEMESTER II

Course Name: CP4291 -Internet of Things

CO1	Understand the various concept of the IoT and their technologies
CO2	Develop an application for LED Pattern with Push Button Control using Arduino or Raspberry Pi
CO3	Develop an application for LM35 Temperature Sensor to display temperature values using arduino or Raspberry Pi
CO4	Develop an application for Forest fire detection end node using Raspberry Pi device and sensor
CO5	Develop an application for home intrusion detection web application
CO6	Develop an application for Smart parking application using python and Django for web application

Course Name: CP4292 Multicore Architecture and Programming

CO1	Describe multicore architectures and identify their characteristics and challenges
CO2	Identify the issues in programming Parallel Processors
CO3	Write programs using OpenMP and MPI
CO4	Design parallel programming solutions to common problems
CO5	Compare and contrast programming for serial processors and programming for parallel processors

Course Name: CP4252 - Machine Learning

CO1	Understand and outline problems for each type of machine learning
CO2	Design a Decision tree and Random forest for an application
CO3	Implement Probabilistic Discriminative and Generative algorithms for an application and analyze the results.
CO4	Use a tool to implement typical Clustering algorithms for different types of applications
CO5	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 Name: SE4151-Advanced Software Engineering

CO1	Identify appropriate process models based on the Project requirements
CO2	Understand the importance of having a good Software Architecture
CO3	Understand the five important dimensions of dependability, namely, availability, reliability, safety, security, and resilience
CO4	Understand the basic notions of a web service, web service standards, and service-oriented architecture;
CO5	Be familiar with various levels of Software testing

Course Name: CP4211- Term Paper Writing and Seminar

CO1	The ability to conduct comprehensive and methodologically sound research on a chosen topic, utilizing a range of academic resources and tools.
CO2	Develop and exhibit skills in critical thinking and analysis, allowing them to evaluate sources, synthesize information, and construct well-reasoned arguments in their term papers.
CO3	Produce a well-structured and coherent term paper that adheres to academic standards, including proper citation practices, clear organization, and a formal tone.
CO4	Effectively present their research findings and engage in scholarly discussion during seminars, showcasing their ability to communicate complex ideas clearly and confidently.
CO5	Participate in the peer review process, providing constructive feedback to classmates and utilizing feedback received to refine and improve their own research and writing.

Course Name: MP4251-Cloud Computing Technologies

CO1	Employ the concepts of virtualization in the cloud computing
CO2	Identify the architecture, infrastructure and delivery models of cloud computing
CO3	Develop the Cloud Application in AWS platform
CO4	Apply the concepts of Windows Azure to design Cloud Application
CO5	Develop services using various Cloud computing programming models.

Course Name: CP4096 -Software Quality Assurance

CO1	Utilize the concepts of SQA in software development life cycle
CO2	Demonstrate their capability to adopt quality standards.
CO3	Assess the quality of software products.
CO4	Apply the concepts in preparing the quality plan & documents.
CO5	Ensure whether the product meets company's quality standards and client's expectations and demands

Course Name: CP4212 - Software Engineering Laboratory

CO1	Can produce the requirements and use cases the client wants for the software being Produced.
CO2	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.
CO3	create and specify such a software design based on the requirement specification that the software can be implemented based on the design.
CO4	Can assess the extent and costs of a project with the help of several different assessment methods.

SEMESTER III

Course Name: CP4391 -Security Practices

CO1	Understand the core fundamentals of system security
CO2	Apply the security concepts to wired and wireless networks
CO3	Implement and Manage the security essentials in IT Sector
CO4	Explain the concepts of Cyber Security and Cyber forensics
CO5	Be aware of Privacy and Storage security Issues.

Course Name: CP4092 -Data Visualization Techniques (Professional Elective III)

CO1	Visualize the objects in different dimensions
CO2	Design and process the data for Visualization
CO3	Apply the visualization techniques in physical sciences, computer science, applied mathematics and medical sciences
CO4	Apply the virtualization techniques for research projects.
CO5	Identify appropriate data visualization techniques given particular requirements imposed by the data.

Course Name: IF4073 -DevOps and Microservices (Professional Elective IV)

CO1	Implement modern software Engineering process
CO2	Work with DevOps platform
CO3	Build, test and deploy code
CO4	Explore DevOps tools
CO5	Correlate MLOps concepts with real time examples

Course Name: DS4015 -Big Data Analytics

CO1	Understand the basics of big data analytics
CO2	Ability to use Hadoop, Map Reduce Framework.
CO3	Ability to identify the areas for applying big data analytics for increasing the business outcome
CO4	Gain knowledge on R language
CO5	Contextually integrate and correlate large amounts of information to gain faster insights.

Course Name : **CP4311-Project Work I**

CO1	Create a clear plan for their project, outlining what needs to be done, when, and with what resources
CO2	Develop and put into action the technical parts of their project, using appropriate tools and technologies
CO3	Collaborate effectively with team members, communicating ideas and resolving issues together.
CO4	Identify and address any problems that come up during the project, finding solutions and making improvements.
CO5	Write and present clear reports and documentation about their project work, explaining their process and results.

SEMESTER IV

Course Name : **CP4411-Project Work II**

CO1	Finalize a more advanced project, demonstrating the ability to integrate and apply their knowledge and skills from previous coursework
CO2	Tackle and resolve complex issues that arise during the project, using advanced problem-solving techniques
CO3	Use advanced tools and technologies to develop and enhance their project, showcasing their technical proficiency
CO4	Effectively present their project outcomes and defend their approach and results to an audience, including stakeholders and peers
CO5	Evaluate their project work and process, reflecting on what worked well and what could be improved for future projects.