MEENAKSHI COLLEGE OF ENGINEERING

12, Vembuli Amman Koil Street, West K.K Nagar,
Chennai – 78

DEPARTMENT OF COMPUTER APPLICATIONS

REGULATION 2017

COURSE OUTCOMES

SEMESTER I

Course Name: Mathematical Foundations For Computer Applications (MA5161)

CO1	Basic knowledge of matrix, set theory, functions and relations concepts needed for designing and solving problems.
CO2	Logical operations and predicate calculus needed for computing skill
CO3	Design and solve Boolean functions for defined problems.
CO4	Apply the acquired knowledge of formal languages to the engineering areas like Compiler Design
CO5	Apply the acquired knowledge of finite automata theory and to design discrete problems to solve by computers.

Course Name: Computer Organisation (MC5101)

CO1	Perform conversions and arithmetic operations in various number systems
CO2	Simplify using laws of Boolean algebra and Karnaugh map method
CO3	Design various combinational and sequential circuits
CO4	Differentiate between various addressing modes
CO5	Trace the flow of execution of an instruction in a processor
CO6	Differentiate between the various mapping policies used in cache memories
CO7	Discuss the implementation of virtual memory
CO8	Discuss the various types of I/O transfers

Course Name: Problem Solving And Programming (MC5102)

CO1	Able to design a computational solution for a given problem.
CO2	Able to break a problem into logical modules that can be solved (programmed).
CO3	Able to transform a problem solution into program involving programming constructs.
CO4	To write programs using structures, strings, arrays, pointer and files for solving complex computational problem.
CO5	Able to introduce modularity using functions and pointers which permit ad hoc run-time polymorphism.

Course Name: Database Management Systems (MC5103)

CO1	Understand the basic concepts of the database and data models.
CO2	Design a database using ER diagrams and map ER into Relations and normalize the relations
CO3	Acquire the knowledge of query evaluation to monitor the performance of the DBMS.
CO4	Develop a simple database applications using normalization.
CO5	Acquire the knowledge about different special purpose databases and to critique how they differ from traditional database systems
CO6	Understand the basic concepts of the database and data models.

Course Name: Data Structures (MC5104)

CO1	Able to analyze algorithms and determines their time complexity.
CO2	Able to understand the concepts of data types, data structures and linear structures.
CO3	Able to apply data structures to solve various problems.
CO4	Able to understand non-linear data structures.
CO5	Able to apply different Sorting, Searching and Hashing algorithms.

Course Name: Data Structures Laboratory (MC5111)

CO1	Work with basic data structures that are suitable for the problems to be solved efficiently.
CO2	Design and implement linear, and tree and its applications.
CO3	Design sorting technique, its algorithm design and analysis.

Course Name: Database Management Systems Laboratory (MC5112)

CO1	Design and Implement databases
CO2	Formulate complex queries using SQL
CO3	Design and Implement applications that have GUI and access databases for backend connectivity

Course Name: Communication Skill Laboratory(MC5113)

CO1	Students will be able to make presentations and participate in group discussions with high level of self-confidence.
CO2	Students will be able to perform well in the interviews
CO3	They will have adequate reading and writing skills needed for workplace situations

SEMESTER II

Course Name: Object Oriented Programming(MC5201)

CO1	Able to understand and design the solution to a problem using object-oriented programming concepts.
CO2	Able to use proper class protection mechanism to provide security.
CO3	Able to demonstrate the use of virtual functions to implement polymorphism.
CO4	Understand and implement the features of C++ including templates, exceptions and file handling for providing programmed solutions to complex problems
CO5	Able to reuse the code with extensible Class types, User-defined operators and function Overloading.

Course Name: Embedded Systems (MC5202)

CO1	Demonstrate the ability to design and develop embedded systems that meet real-time requirements and address challenges related to hardware and software integration.
CO2	Utilize knowledge of various microcontroller architectures (e.g., 8051, ARM) to effectively program and interface embedded systems with peripheral devices.
CO3	Exhibit proficiency in programming embedded systems using C, including the use of advanced features such as pointers, bit manipulation, and memory management.
CO4	Analyze and evaluate the performance of embedded systems through effective task scheduling, context switching, and interprocess communication mechanisms.
CO5	Integrate Internet of Things (IoT) principles into embedded system designs, addressing design issues such as connectivity, security, and data management through practical case studies and example systems.

Course Name: Software Engineering (MC5203)

CO1	Able to understand the problem domain to choose process models and to develop SRS.
CO2	Able to model software projects using appropriate design notations.
CO3	Able to measure the product and process performance using various metrics.
CO4	Able to evaluate the system with various testing techniques and strategies.
CO5	Able to analyze, design, verify, validate, implement, and maintain software systems.

Course Name: Operating Systems (MC5204)

CO1	Able to understand the operating system components and its services
CO2	Implement the algorithms in process management and solving the issues of IPC
CO3	Able to demonstrate the mapping between the physical memory and virtual memory
CO4	Able to understand file handling concepts in OS perspective
CO5	Able to understand the operating system components and services with the recent OS

Course Name: Computer Graphics And Multimedia (MC5205)

CO1	Gain proficiency in various algorithms of 2D Computer graphics and trend their use in various real-life systems.
CO2	Enhance the perspective of Modern computer system with modelling, analysis and interpretation of 3D visual information.
CO3	Able to understand different forms of Multimedia and gain knowledge about Audio and Video.
CO4	Able to understand the Networks used for Multimedia and to communicate with Multimedia Applications.
CO5	Able to design and implement a number of Multimedia Applications and to do Research in Multimedia Industry.

Course Name: Object Oriented Programming Laboratory (MC5211)

CO1	Develop programs in object oriented paradigm
CO2	Implement data structure using C++
CO3	Suggest appropriate data structure for any given data set
CO4	Modify or suggest new data structure for an application.
CO5	File handling in object oriented environment.

Course Name: Graphics And Multimedia Laboratory (MC5212)

CO1	Function as designers, applying Mathematics knowledge for various calculations, involving tools for analyzing the world, accessing and interpreting the information and representing what they know to others.
CO2	Gain knowledge about the creation of text, image, graphic and animation files.
CO3	Learn about authoring tools for packaging multimedia systems and to use a variety of common software packages to complete the experiments.

Course Name: Operating Systems And Embedded Systems Laboratory(MC5213)

CO1	Perform arithmetic operation using 8085 microprocessor and 8051microcontroller along with I/O interfacing.
CO2	Improved Employability and entrepreneurship capacity due to knowledge up gradation on recent trends in embedded systems design.
CO3	Create system calls, processes and implement IPC.
CO4	Compare the performance of various CPU Scheduling Algorithm

SEMESTER III

Course Name: Advanced Data Structures And Algorithms (MC5301)

CO1	Describe, explain and use abstract data types including stacks, queues and lists
CO2	Design and Implement Tree data structures and Sets
CO3	Able to understand and implement nonlinear data structures - graphs.
CO4	Able to understand various algorithm design and implementation.

Course Name: Computer Networks (MC5302)

CO1	Able to trace the flow of information from one node to another node in the network
CO2	Able to Identify the components required to build different types of networks
CO3	Able to understand the functionalities needed for data communication into layers
CO4	Able to choose the required functionality at each layer for given application
CO5	Able to understand the working principles of various application protocols and fundamentals of security issues and services available.

Course Name: Web Programming Essentials (MC5303)

CO1	Create a basic website using HTML and Cascading Style Sheets.
CO2	Design and implement dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms.
CO3	Design rich client presentation using AJAX.
CO4	Design and implement simple web page in PHP, and to present data in XML format.
CO5	Design front end web page and connect to the back end databases

Course Name: Programming With Java (MC5304)

CO1	Implement Java programs.
CO2	Make use of hierarchy of Java classes to provide a solution to a given set of requirements found in the Java API
CO3	Use the frameworks JSP, Hibernate, Spring
CO4	Design and implement server side programs using Servlets and JSP.
CO5	Implement Java programs.

Course Name: Object Oriented Analysis And Design (MC5305)

CO1	Able to understand the object oriented concepts and to apply object oriented life cycle model for a project.
CO2	Able to design static and dynamic models using UML diagrams.
CO3	Able to perform object oriented analysis to identify the objects from the problem specification.
CO4	Able to identify and refine the attributes and methods for designing the object oriented system.

CO5	Able learn the open source CASE tools and to apply them in various domains.

Course Name: Data Structures And Algorithms Laboratory (MC5311)

CO1	Work with basic data structures that are suitable for the problems to be solved efficiently.
CO2	Design and implement linear, tree, and graph structures and its applications
CO3	Design various sorting techniques, its algorithm design and analysis

Course Name: Web Programming Laboratory (MC5312)

CO1	Develop simple web applications using scripting languages.
CO2	Implement server side and client side programming develop web applications with various web technology concepts.
CO3	Design a Web application using various technologies such as AJAX, JQuery and JSON.
CO4	Develop an application for social media using HTML5, CSS3, JQuery, AJAX & PHP
CO5	Develop simple web applications using scripting languages.

Course Name: Programming With Java Laboratory (MC5313)

CO1	Apply the Object Oriented features of Java for programming on the internet.Implement, compile, test and run Java program.
CO2	Make use of hierarchy of Java classes to provide a solution to a given set of requirements found in the Java API
CO3	Understand the components and patterns that constitute a suitable architecture for a web application using java servlets
CO4	Demonstrate systematic knowledge of backend and front end by developing an appropriate application.
CO5	Implement socket programming and Client side scripting in Java

SEMESTER IV

Course Name: Resource Management Techniques (MC5401)

CO1	Understand and apply linear, integer programming to solve operational problem with Constraints
CO2	Apply transportation and assignment models to find optimal solution in warehousing and Travelling.
CO3	To prepare project scheduling using PERT and CPM
CO4	Identify and analyze appropriate queuing model to reduce the waiting time in queue.
CO5	Able to use optimization concepts in real world problems

Course Name: Mobile Computing (MC5402)

CO1	Gain the knowledge about various types of Wireless Data Networks and Voice Networks.
CO2	Understand the architectures, the challenges and the Solutions of Wireless Communication
CO3	Realize the role of Wireless Protocols in shaping the future Internet.
CO4	Able to develop simple Mobile Application Using Android

Course Name: Advanced Database And Data Mining (MC5403)

CO1	Create relational data models. Preprocess the data for mining applications.
CO2	Apply the association rules for mining the data. Design and deploy appropriate classification techniques.
CO3	Cluster the high dimensional data for better organization of the data. Discover the knowledge imbibed in the high dimensional system.
CO4	Evolve Multidimensional Intelligent model from typical system. Evaluate various mining techniques on complex data objects.

Course Name: Web Application Development (MC5404)

CO1	Design and implement Internet systems for enhancing education and engineering design. Understand functionality of Internet system
CO2	Design a system according to customer needs using the available Internet technologies
CO3	Design and develop interactive, client-side, server-side executable web applications.
CO4	Develop a rapid application in many areas on most platforms.
CO5	Build better Web apps more quickly and with less code

Course Name: Software Project Management (MC5003)

CO1	Understand the activities during the project scheduling of any software application.
CO2	Learn the risk management activities and the resource allocation for the projects.
CO3	Can apply the software estimation and recent quality standards for evaluation of the software projects
CO4	Acquire knowledge and skills needed for the construction of highly reliable software project
CO5	Able to create reliable, replicable cost estimation that links to the requirements of project planning and managing.

Course Name: Mobile Application Development Laboratory (MC5411)

CO1	Install and configure Android application development tools.
CO2	Design and develop user Interfaces for the Android platform.
CO3	Apply Java programming concepts to Android application development.
CO4	Familiar with technology and business trends impacting mobile applications.
CO5	Competent with the characterization and architecture of mobile applications.

Course Name: Web Application Development Laboratory (MC5412)

CO1	Design and develop interactive, client-side, server-side executable web applications.
CO2	Develop a simple online application using Spring MVCK
CO3	Create applications using web services such as JSON, WSDL and SOAP,
CO4	Develop a simple database application using Spring JDBC/Struts with CURD functionality

SEMESTER V

Course Name: Cloud Computing (MC5501)

CO1	Compare the strengths and limitations of cloud computing.
CO2	Identify the architecture, infrastructure and delivery models of cloud computing.
CO3	Apply suitable virtualization concept.
CO4	Choose the appropriate cloud player, Programming Models and approach.
CO5	Address the core issues of cloud computing such as security, privacy and interoperability.
CO6	Design Cloud Services and Set a private cloud.

Course Name: Big Data Analytics (MC5502)

CO1	Work with big data platform and Understand the fundamentals of various big data analysis techniques
CO2	Analyze the big data analytic techniques for useful business applications.
CO3	Design efficient algorithms for mining the data from large volumes.
CO4	Analyze the HADOOP and Map Reduce technologies associated with big data analytics
CO5	Explore the applications of Big Data

Course Name: Software Testing And Quality Assurance (MC5503)

CO1	Able to test the software by applying various testing techniques.
CO2	Able to debug the project and to test the entire computer based systems at all levels.
CO3	Able to test the applications in the specialized environment using various automation tools.
CO4	Able to evaluate the web applications using bug tracking tools.
CO5	Able to apply quality and reliability metrics to ensure the performance of the software.

Course Name: Human Resource Management (MC5009)

CO1	Identify the primary external influences affecting HRM.
CO2	Outline the components and the goals of staffing, training and development.
CO3	Understand the selection procedure in various organizations.
CO4	Understand the practices used to retain the employees and able to evaluate their performance.
CO5	Able to identify the stress and the cause of burn out.

Course Name: Service Oriented Architecture (MC5012)

CO1	Able to know the structure of XML and to design and store data in XML.
CO2	Able to apply SOAP , HTTP and UDDI services in the web applications.
CO3	Able to apply SOA architecture and the underlying design principles for the web projects
CO4	Able to understand the role of SOA in J2EE and .NET.
CO5	Able to know the cloud computing architecture and the types of clouds.

Course Name: Cloud And Big Data Laboratory (MC5511)

CO1	**C506.1**	Use the cloud and big data tool kits.
CO2	**C506.2**	Design and Implement applications on the Cloud environment.
CO3	**C506.3**	Set up and implement Hadoop clusters.
CO4	**C506.4**	Use the map reduce tasks for various applications.

Course Name: Software Testing Laboratory (MC5512)

CO1	Able to test the software by applying various testing techniques.
CO2	Able to debug the project and to test the entire computer based systems at all levels.
CO3	Able to test the applications in the specialized environment using various automation tools.
CO4	Able to evaluate the web applications using bug tracking tools.
CO5	Able to apply quality and reliability metrics to ensure the performance of the software.