R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk Thiruvallur District, Tamil Nadu- 601206

Affiliated to Anna University, Chennai / Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade / All the Eligible UG Programs are accredited by NBA, NewDelhi

DEPARTMENT OF INFORMATION TECHNOLOGY

Course Outcomes – Odd Semester 2023-2024

Sl. No.	Semester	Theory/Practical/ Lab Integrated	Course Code / Course Name
1)	3	Theory	22GE301 – Universal Human Values 2: Understanding Harmony
2)	3	Theory	22MA302 – Discrete Mathematics
3)	3	Theory	22IT301 – Design Thinking
4)	3	Lab Integrated	22CS301 – Advanced Java Programming
5)	3	Lab Integrated	22CS303 – Design and Analysis of Algorithms
6)	3	Lab Integrated	22CS304 – Operating Systems
7)	3	Practical	22CS311 – Aptitude and Coding Skills - I
8)	3	Practical	22ME411 - Product Development Lab - 3
9)	5	Theory	20CS501 – Computer Networks
10)	5	Theory	20IT502 – Object Oriented Systems Design
11)	5	Theory	20IT501 – Big Data Analytics
12)	5	Lab Integrated	20IT940 - Web Development Frameworks
13)	5	Lab Integrated	20EC441 – Microprocessors and Interfacing
14)	5	Practical	20CS511 - Networks Laboratory
15)	5	Practical	20IT511 – Object Oriented Systems Design Laboratory
16)	5	Practical	20IT512 - Big Data Analytics Laboratory
17)	5	Practical	20CS512 – Advanced Aptitude and Coding Skills - 1
18)	7	Theory	20EC004 – Industrial IoT Applications
19)	7	Theory	20It911 - DevOps
20)	7	Theory	20IT921 – Blockchain Technologies
21)	7	Theory	20CB404 – Introduction to Innovation, IP Management and Entrepreneurship
22)	7	Theory	20IT928 – Professional Readiness for Innovation, Employability and Entrepreneurship
23)	7	Lab Integrated	20IT701 – Microservice Architecture

Third Semester B.Tech.

22GE301 – Universal Human Values 2: Understanding Harmony	
COs	**Course Outcome: The students, after the completion of the course ….**
CO1	Would become more aware of themselves, and their surroundings (family, society, nature);
CO2	Would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
CO3	would have better critical ability.
CO4	Would become sensitive to their commitment towards what they have understood (human values, human relationship, and human society).
CO5	Would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.

22MA302 – Discrete Mathematics	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Validate the arguments using connectives and rule of inference
CO2	Solve linear recurrence relations
CO3	Determine Euler's path and Hamilton paths
CO4	Identify algebraic structures of groups, rings and fields
CO5	Interpret lattices as algebraic structures

22IT301 – Design Thinking	
COs	**Course Outcome : The students, after the completion of the course, are expected to ….**
CO1	Understand the phases of design thinking process
CO2	Conduct an immersion activity to create an empathy map
CO3	Define the key problems of the personas created
CO4	Apply the ideation phase steps to present the prototype ideas
CO5	Create a prototype with value propositions and test the prototype

22CS301 – Advanced Java Programming	
COs	**Course Outcome : The students, after the completion of the course, are expected to ….**
CO1	Apply collections and IO Streams to efficiently manage and process data structures and perform input/output operations in Java.
CO2	Apply Java Stream API and Junit to streamline data manipulation and perform unit testing for robust code development.
CO3	Develop a Seamlessly integrate object-oriented programming with database operations for web applications using Hibernate.
CO4	Construct the power of the Spring Framework to provide a solid foundation for building scalable and maintainable applications
CO5	Organize application logic, user interface, and data flow using the Spring MVC framework for efficient and modular development

22CS303 – Design and Analysis of Algorithms	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Solve mathematically the efficiency of recursive and non-recursive algorithms.
CO2	Design and analyze the efficiency of brute force, divide and conquer, Transform and conquer algorithmic techniques
CO3	Implement and analyze the problems using dynamic programming
CO4	Solve the problems using greedy technique and iterative improvement technique for optimization.
CO5	Compute the limitations of algorithmic power and solve the problems using backtracking and branch and bound technique.
22CS304 – Operating Systems	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Implement the basic concepts of operating systems and process
CO2	Analyze various CPU scheduling algorithms and thread mechanism
CO3	Implement the concepts of process synchronization and deadlocks.
CO4	Design various memory management schemes to given situation
CO5	Implement various I/O and file management techniques.

22CS311 – Aptitude and Coding Skills - I	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Develop advanced vocabulary for effective communication and reading skills
CO2	Build an enhanced level of the logical reasoning and quantitative skills
CO3	Develop error correction and debugging skills in programming.
CO3	Apply data structures and algorithms in problem solving

22ME311 – Product Development Lab - 3	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Enhance their skills in design concepts, rules and procedures.
CO2	Develop their cognitive strategy to think, organize, learn and behave.
CO3	Demonstrate the ability to provide conceptual design strategies for a product.
CO4	Describe the procedure for designing a Mock-up model.
CO5	Recognize and apply appropriate interdisciplinary and integrative strategies for solving complex problems

Fifth Semester B.Tech.

20CS501 – Computer Networks	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Explain the basic layers and its functions, and transmission media in computer networks
CO2	Examine the performance of different types of networks
CO3	Inspect the functionalities of data link and media access control protocols
CO4	Examine different routing algorithms
CO5	Identify appropriate protocol to be used at the transport layer
CO6	Explain the working of various application layer protocols.

20IT502 – Object Oriented Systems Design	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Understand the fundamentals of object modeling
CO2	To understand and differentiate Unified Process from other approaches.
CO3	Design a static UML diagrams.
CO4	Design a dynamic UML and implementation diagrams.
CO5	To improve the software design with design patterns.
CO6	To test the software against its requirements specification

20IT503 – Big Data Analytics	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Identify Big Data and its Business Implications
CO2	List the components of Hadoop and Hadoop Eco- System
CO3	Access and Process Data on Distributed File System
CO4	Manage Job Execution in Hadoop Environment
CO5	Develop Big Data Solutions using Hadoop Eco System

20IT501 - Web Development Frameworks	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Personalize web pages using text formatting, graphics, audio, and video.
CO2	Hands on knowledge on Rest API , propTypes
CO3	Able to develop a web application using latest React Framework
CO4	Apply various React features including functions, components, and services.
CO5	Able to develop application using ReactJs hooks .

20EC441 - Microprocessors and Interfacing	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Acquire knowledge on the architecture of 8086 microprocessor and 8051 microcontroller.
CO2	Apply programming techniques in developing the assembly language program for microprocessor applications.
CO3	Apply programming techniques in developing the assembly language program for microcontroller applications.
CO4	Analyze various types of interfacing devices with other peripheral devices.
CO5	Design and Construct Memory Interfacing Circuits.
CO6	Design and Construct Microprocessor and Microcontroller based systems.

Laboratory

20CS511 - Networks Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Understand the various networking commands in different OS and troubleshoot it
CO2	Perform error detection & correction and flow control mechanisms in network programming.
CO3	Program with raw sockets for network protocol implementation
CO4	Understand the usage of various network programming APIs and application layer protocols.
CO5	Simulate various network protocols and analyze their behavior in the network

20IT511 – Object Oriented Systems Design Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Develop and implement simple applications that make use of classes, packages and interfaces.
CO2	Develop and implement the above application using exception handling.
CO3	Develop and implement above application with inheritance and polymorphism
CO4	Develop real-world applications using OOP Concepts

20IT512 – Big Data Analytics Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Identify the key issues in big data management and experiment with Hadoop framework.
CO2	Develop problem solving and critical thinking skills in fundamental enable techniques like Hadoop and MapReduce.
CO3	Construct and Explain with structure and unstructured data by using NoSQL commands.
CO4	Analyze the algorithms of big data analytics in various applications like recommender systems, social media applications.

20CS512 – Advanced Aptitude and Coding Skills - I	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Develop vocabulary for effective communication and reading skills
CO2	Build the logical reasoning and quantitative skills
CO3	Develop error correction and debugging skills in programming.

Seventh Semester B.Tech.

20EC004 – Industrial IoT Applications	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Describe IOT, IIOT
CO2	Understand various IoT Layers and their relative importance
CO3	Interpret the requirements of IIOT sensors and understand actuators.
CO4	Study various IoT platforms and Security
CO5	Realize the importance of Data Analytics in IoT
CO6	Design various applications using IIoT in manufacturing sector

20IT911 - DevOps

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Understand the concepts of DevOps and the issues it resolves
CO2	Learn the DevOps tools set
CO3	Learn to Develop automation using Maven
CO4	Understand Continuous Delivery and Continuous Deployment
CO5	Understand Docker Containerization
CO6	Understand the deployment process using Jenkins

20IT921 – Blockchain Technologies	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Describe the basic concepts and technology used for blockchain
CO2	Illustrate the concepts of Bitcoin and their usage
CO3	Describe the concepts of Consensus Algorithm
CO4	Implement Ethereum blockchain contract.
CO5	Implement web3 apps using Solidity on Ethereum Platform.
CO6	Use smart contract in real world applications

20CB404 – Introduction to Innovation, IP management and Entrepreneurship	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Understand the basics of Innovation and Entrepreneurship
CO2	Manage an innovation program
CO3	Create, protect, assetize and commercialize intellectual property
CO4	Understand opportunities and challenges for entrepreneurs
CO5	Developing mindsets to pursue entrepreneurship
CO6	Identify and discover market needs

20IT701 – Microservice Architecture	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Understand the need and Architecture of Microservices
CO2	Understand the need of Microservice Design and pattern.
CO3	Understand the need of JEE Framework.
CO4	Understand the Microservice Implementation
CO5	Design Applications using Docker Microservices