



R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipttai, 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 2024-2025

Sl. No.	Semester	Theory/Practical/ Lab Integrated	Course Code / Course Name
1)	3	Theory	22GE301 – Universal Human Values
2)	3	Theory	22MA301 – Discrete Mathematics
3)	3	Theory	22IT302 – Design Thinking
4)	3	Lab Integrated	22CS305 – Advanced Java Programming
5)	3	Lab Integrated	22CS306 – 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	Lab Integrated	22IT501 – Data Communicaton & Computer Networks
10)	5	Lab Integrated	22IT503 – Managing Cloud and Containerization
11)	5	Lab Integrated	22CS702 – Data Analytics
12)	5	Theory	22IT902 - Server Side Engineering
13)	5	Lab Integrated	22IT910 – Rest Application Development using Spring Boot and JPA
14)	5	Theory	22AI005- Introduction to Generative AI
15)	5	Practical	22CS511 – Advanced Aptitude and Coding Skills - 1
16)	7	Lab Integrated	20EC012 – Industrial IoT Applications
17)	7	Lab Integrated	20IT911 - DevOps
18)	7	Lab Integrated	20IT931 – Microservice Architecture
19)	7	Theory	20IT928 – Professional Readiness for Innovation, Employability and Entrepreneurship

Third Semester B.Tech.

22GE301 – Universal Human Values 2	
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.

22MA301 – 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

22IT302 – 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

22CS305 – 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

22CS306 – 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 – Data Communication & 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.

22IT503 – Managing Cloud and Containerization	
COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Demonstrate an understanding of the basic global infrastructure of the AWS Cloud, including regions, availability zones, and edge locations.
CO2	Identify and recommend appropriate AWS Cloud services for various use cases, optimizing solutions based on the specific needs of applications and workloads.
CO3	Interpret the components and architecture of Docker containers and understand their role in supporting compute container implementations within AWS.
CO4	Examine common infrastructure servers, implement strategies for high availability, and leverage AWS scaling options to ensure reliable and scalable applications.
CO5	Understand the significance of automation, cultural practices, and metrics in DevOps
CO6	Apply the principles to create efficient and effective DevOps workflows using AWS tools and services.

22CS702 – Data Analytics	
COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Understand the basics of big data, including its definition, challenges, and differences from traditional BI.
CO2	Use R and Python to analyze data sets and perform basic statistical analyses and visualizations.
CO3	Compare the functionalities of RDBMS and Hadoop in data processing and resource management.
CO4	Conduct exploratory data analysis (EDA) and understand its role compared to classical and Bayesian analysis.
CO5	Implement various data stream mining algorithms for real-time data analysis.
CO6	Develop real-world applications of big data analytics, covering data preparation, storage, analytics, and visualization.

22IT902 - Server Side Engineering	
COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Analyze the concepts of JEE and create tools using Maven.
CO2	Implement core technologies in real-world applications.
CO3	Develop real-world applications utilizing frameworks such as Spring and Spring MVC.
CO4	Integrate logging processes and Spring Security into real-world applications.
CO5	Evaluate the effectiveness of different frameworks in real-world scenarios.
CO6	Design secure and efficient applications using advanced JEE concepts and tools.

22IT910 – Rest Application Development using Spring Boot and JPA	
COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Create simple applications using RESTful APIs and effectively manage HTTP methods within the Spring Boot framework.
CO2	Apply database connectivity with JPA, utilizing advanced queries to interact with the database.
CO3	Build applications using Spring Boot and perform CRUD operations efficiently using JPQL
CO4	Demonstrate the implementation of various relational mappings in JPA, including one- to-one and one-to-many associations
CO5	Develop real-time applications that integrate user interfaces and utilize Spring AOP for method interception and advice handling.
CO6	Apply security measures to REST APIs using Spring Security and JWT to protect sensitive data and ensure secure communication between clients and servers.

22AI005- Introduction to Generative AI	
COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Elaborate the basic concepts of Generative AI.
CO2	Build Generative AI systems to generate images.
CO3	Apply the concepts used in Generative AI Models.
CO4	Use various Generative AI models.
CO5	Compare and use the various Large Language Models.
CO6	Analyze the basics of Prompt Engineering.

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.

20EC012 – 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

20IT928 – Professional Readiness for Innovation, Employability and Entrepreneurship	
COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Upskill in emerging technologies and apply to real industry-level use cases
CO2	Understand agile development process
CO3	Develop career readiness competencies, Team Skills / Leadership qualities
CO4	Develop Time management, Project management skills and Communication Skills
CO5	Use Critical Thinking for Innovative Problem Solving
CO6	Develop entrepreneurship skills to independently work on products

20IT931 – 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
CO6	Implement security, monitoring, and logging strategies in Microservices for scalable and efficient deployment.

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