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
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DEPARTMENT OF INFORMATION TECHNOLOGY

Course Outcomes – ODD Semester 2021-2022

Sl. No.	Semester	Theory/Practical/ Lab Integrated	Course Code / Course Name
1)	3	Theory	20MA302 – Discrete Mathematics
2)	3	Theory	20IT301 – Object Oriented Programming Principles
3)	3	Theory	20CS404 – Operating Systems
4)	3	Theory	20CS402 – Design and Analysis of Algorithms
5)	3	Theory	20EC341 – Analog and Digital Communications
6)	3	Lab Integrated	20CS301 - Digital Principles and System Design
7)	3	Practical	20IT311 - Object Oriented Programming Principles Laboratory
8)	3	Practical	20CS412 – Operating Systems Laboratory
9)	3	Practical	20IT312 – Mini Project - I
10)	3	Practical	20CS313 – Aptitude and Coding Skills - I
11)	5	Theory	MA8551 - Algebra and Number Theory
12)	5	Theory	CS8591 - Computer Networks
13)	5	Theory	EC8691 - Microprocessors and Microcontrollers
14)	5	Theory	IT8501 - Web Technology
15)	5	Theory	CS8494 - Software Engineering
16)	5	Theory	OCE551 - Air Pollution and Control Engineering
17)	5	Practical	EC8681 - Microprocessors and Microcontrollers Laboratory
18)	5	Practical	CS8581 - Networks Laboratory
19)	5	Practical	IT8511 - Web Technology Laboratory
20)	7	Theory	CS8791 – Cloud Computing
21)	7	Theory	MG8591 – Principles of Management
22)	7	Theory	CS8792 - Cryptography and Network Security
23)	7	Theory	CS8079 - Human Computer Interaction
24)	7	Theory	OME752 – Supply Chain Management
25)	7	Theory	GE8077 - Total Quality Management
26)	7	Practical	IT8711 – FOSS and Cloud Computing Laboratory
27)	7	Practical	IT8761 – Security Lab

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Third Semester B.Tech.

	20MA302 – Discrete Mathematics
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Examine the validity of the arguments
CO2	Demonstrate various proof techniques and application of principles
CO3	Apply graph theory techniques to solve real life problems
CO4	Identify algebraic techniques to formulate and solve group theoretic problems
CO5	Utilize the significance of lattices and Boolean algebra in Computer Science and Engineering

	20IT301 – Object Oriented Programming Principles
COs	**Course Outcome : The students, after the completion of the course, are expected to ….**
CO1	Design and develop various applications in Java using OOD and Principles
CO2	Implement a given problem statement by selecting the right choice of options in Core Java.
CO3	Accomplish efficient programming in Core Java
CO4	Design and Develop real time applications to process high volume of data with consistency and atomicity
CO5	Develop applications to connect to Database using available thin drivers, and performs DDL operations

	20CS404 – 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	Analyse 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.

	20CS402 – Design and Analysis of Algorithms
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Explain the Analysis of Algorithm Efficiency and Compare the Mathematical analysis for Recursive and Non-recursive algorithms.
CO2	Identify the efficiency of Brute Force And Divide-And-Conquer technique algorithms
CO3	Identify the efficiency of Dynamic Programming And Greedy Technique algorithms
CO4	Solve the problems using Iterative Improvement technique
CO5	Solve the problems using Backtracking and Branch and Bound Technique
CO6	Outline the limitations of Algorithm power.

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\multicolumn	20EC341 – Analog and Digital Communication
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Analyze the different types of Analog Communication Systems.
CO2	Familiarize with Data Communication Techniques.
CO3	Explore the different types of Pulse Communication Techniques.
CO4	Analyze the various types of Digital Communication Schemes.
CO5	Solve Source Coding and Error Control Coding problems.
CO6	Apply the Principles of Multi-User Radio Communication

Lab Integrated

	20CS301 - Digital Principles and System Design
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Design and implement Digital Circuits using simplified Boolean functions
CO2	Analyze and Design and implement Combinational Circuits
CO3	Analyze and Design Synchronous Sequential Circuits
CO4	Analyze and Design Asynchronous Sequential Circuits
CO5	Implement designs using Programmable Logic Devices
CO6	Develop HDL code for Combinational and Sequential Circuits

Laboratory

	20IT311 - Object Oriented Programming Laboratory
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Develop and implement Java programs for simple applications that make use of classes Packages and interfaces.
CO2	Develop and implement Java programs with array list, exception handling and multithreading.
CO3	Design applications using file processing, generic programming and event handling.

	20CS412 -Operating Systems Laboratory
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Compare the performance of various CPU Scheduling Algorithms
CO2	Implement Deadlock avoidance and Detection Algorithms
CO3	Create processes and implement IPC
CO4	Analyze the performance of the various Page Replacement Algorithms
CO5	Implement File Organization and File Allocation Strategies

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20IT312 – Mini Project - I

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Define the problem statement, study of requirements; study related Literature and the possible feasibilities.
CO2	Demonstrate a sound technical knowledge of their selected project domain.
CO3	Analyze the problem statement and design the architecture and modules for the proposed system
CO4	Implement the problem and test the project with various test cases
CO5	Demonstrate the knowledge, skills and attitudes of a software professional
CO6	To take up challenging real world problems and find solution using appropriate methodology.

20IT312 – 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.

Fifth Semester B.Tech.

MA8551 - Algebra and Number Theory

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Apply the basic notions of groups, rings, fields which will then be used to solve related problems.
CO2	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
CO3	Demonstrate accurate and efficient use of advanced algebraic techniques.
CO4	Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text.
CO5	Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

CS8591 - Computer Networks

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Understand the basic layers and its functions in computer networks
CO2	Evaluate the performance of a network
CO3	Understand the basics of how data flows from one node to another
CO4	Analyze and design routing algorithm and protocols for various functions in the network
CO5	Analyze functionalities and protocols at the Transport Layer
CO6	Understand the working of various application layer protocols

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EC8691 - Microprocessors and Microcontrollers

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Explain the basic architecture of 8086 microprocessor
CO2	Explain the 8086 configuration and design a system.
CO3	Analyze I/O circuits.
CO4	Analyze Memory Interfacing circuits.
CO5	Explain the basic architecture of 8051 microcontroller.
CO6	Design and implement 8051 micro controller-based systems.

IT8501 - Web Technology

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Design simple web pages using markup languages like HTML and XHTML.
CO2	Create dynamic web pages using DHTML and java script that is easy to navigate and use.
CO3	Program server-side web pages that have to process request from client-side web pages.
CO4	Represent web data using XML and develop web pages using JSP.
CO5	Understand various web services and how these web services interact.

CS8494 - Software Engineering

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Identify the key activities in managing a software project.
CO2	Compare different process models.
CO3	Concepts of requirements engineering and Analysis Modeling.
CO4	Apply systematic procedure for software design and deployment.
CO5	Compare and contrast the various testing and maintenance.
CO6	Manage project schedule, estimate project cost and effort required.

OCE551 - Air Pollution and Control Engineering

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Understand the atmospheric process and pollutant transport mechanism
CO2	Apply modeling techniques and to determine the fate of air pollutant with respect to time and space
CO3	Prevent and control air pollution by suitable air pollution control measures
CO4	Control and Monitoring of gaseous contaminants in air pollution
CO5	Prevent, control and measure of Indoor air quality management

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<u>Laboratory</u>

EC8681 - Microprocessors and Microcontrollers Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Write ALP Programs for fixed and Floating Point and Arithmetic operations
CO2	Interface different I/Os with processor
CO3	Generate waveforms using Microprocessors
CO4	Execute Programs in 8051
CO5	Explain the difference between simulator and Emulator

CS8581 - Networks Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Implement various protocols using TCP and UDP.
CO2	Compare the performance of different transport layer protocols.
CO3	Use simulation tools to analyze the performance of various network protocols.
CO4	Analyze various routing algorithms.
CO5	Implement error correction codes.

IT8511 - Web Technology Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Design simple web pages using markup languages like HTML and XHTML.
CO2	Create dynamic web pages using DHTML and java script that is easy to navigate and use.
CO3	Program server-side web pages that have to process request from client-side web pages.
CO4	Represent web data using XML and develop web pages using JSP.
CO5	Understand various web services and how these web services interact.

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DEPARTMENT OF INFORMATION TECHNOLOGY

Seventh Semester B.Tech.

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CS8791 – Cloud Computing
CO1	Describe the principles of Parallel and Distributed Computing and evolution of cloud computing from existing technologies
CO2	Implement different types of Virtualization technologies and Service Oriented Architecture systems
CO3	Elucidate the concepts of NIST Cloud Computing architecture and its design challenges
CO4	Analyze the issues in Resource provisioning and Security governance in clouds
CO5	Choose among various cloud technologies for implementing applications
CO6	Install and use current cloud technologies

COs	Course Outcome: The students, after the completion of the course, are expected to ….
MG8591 – Principles of Management
CO1	Describe the historical evolution of management theories for business organizations
CO2	Demonstrate the use of planning tools for strategic management
CO3	Identify the most appropriate organizational structure.
CO4	Discuss HR strategies for planning, recruiting and training employees.
CO5	Explain the theories of motivation and leadership to manage a group.
CO6	Summarize the controlling methods and tools to increase productivity of the Organization.

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CS8792 - Cryptography and Network Security
CO1	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2	Apply the different cryptographic operations of symmetric cryptographic algorithms
CO3	Apply the different cryptographic operations of public key cryptography
CO4	Apply the various Authentication schemes to simulate different applications.
CO5	Understand various Security practices
CO6	Understand System security standards

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CS8079 - Human Computer Interaction
CO1	Examine the effective dialog for HCI
CO2	Inspect interactive design process in human computer interaction
CO3	Inspect software design process in human computer interaction
CO4	Examine various models and theories related to human computer interaction
CO5	Utilize the HCI implications for designing multimedia/ e-commerce/ e-learning Web sites
CO6	Build meaningful user interface

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OME752 – Supply Chain Management	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Understand fundamental supply chain management concepts.
CO2	Understand the design factors and various design options of distribution networks in industries
CO3	Understand the framework of supply chain networks and functions
CO4	Understand the foundational role of logistics as it relates to transportation and warehousing.
CO5	Understand the various sourcing decisions in supply chain
CO6	Understand the supply chain management in IT industries

GE8077 - Total Quality Management	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Understand the quality philosophies and customer focused managerial system
CO2	Summarize the quality management principles
CO3	Apply six sigma concepts in manufacturing and service sector
CO4	Determine the tools and techniques for quality improvement.
CO5	Analyze standards and auditing system on implementation of TQM.
CO6	Analyze standards for the operation of EMS.

Laboratory

IT8711 – FOSS and Cloud Computing Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Configure various virtualization tools such as Virtual Box, VMware workstation
CO2	Design and deploy a web application in a PaaS environment
CO3	Learn how to simulate a cloud environment to implement new schedulers.
CO4	Install and use a generic cloud environment that can be used as a private cloud
CO5	Manipulate large data sets in a parallel environment.

IT8761 – Security Laboratory	
COs	**Course Outcome: The students, after the completion of the course, are expected to ….**
CO1	Develop code for classical Encryption Techniques to solve the problems.
CO2	Build cryptosystems by applying symmetric and public key encryption algorithms
CO3	Construct code for authentication algorithms
CO4	Develop a signature scheme using Digital signature standard.
CO5	Demonstrate the network security system using open source tools