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
An ISO 21001:2018 Certified Institution / All the Eligible UG Programs are accredited by NBA, New Delhi

Department of Computer Science and Design

Course Outcomes

4 th (EVEN) Semester 2023-2024

Sl. No.	Semester	Theory/ Practical	Course Code / Course Name
1	4	Theory with Practical	Probability and Statistics
2	4	Theory with Practical	Web Development Frameworks
3	4	Theory with Practical	Design and analysis of algorithms
4	4	Theory with Practical	Human Computer Interaction
5	4	Theory with Practical	Design Programming
6	4	Theory with Practical	Professional Elective I(Augmented and Virtual Reality)
7	4	Practical	Product Development Lab - 4
8	4	Practical	Aptitude and Coding Skills II
9	4	Practical	Mini Project and Design Thinking Lab
10	4	Practical	Yoga/ Personality Development (Non Credit)
11	4	Theory with Practical(Honours Degree)	Data Science Using Python

Sl. No	Semester	Theory/Practical/ Honour Degree/ Minor Degree	Course Code / Course Name
1	6	Theory with practical	20CS601-Compiler Design (Lab integrated)
2	6	Theory with practical	20CD601- Computer Networks (Lab Integrated)
3	6	Theory with practical	20CS932- Mobile Computing (Lab Integrated)
4	6	Theory with practical	20CD904- UI/UX Design (Lab Integrated)
5	6	Theory with practical	20CS920- Block chain Technologies
6	6	Practical	20CS614- Advanced Aptitude and Coding

			Skills-II
7	6	Practical	20CD612- Internship
8	6	Honour Degree	20AI501- Data Exploration and Visualization (Lab Integrated)
9	6	Honour Degree	20AI703- Deep Learning Techniques (Lab Integrated)
10	6	Minor Degree	20EC907-Sensors and Actuator Devices
11	6	Minor Degree	20EC959-Image and Video Analytics

EVEN Semester 2023-2024

4rd Semester – B.E. Computer Science and Design

22MA401-PROBABILITY AND STATISTICS	
Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1: Calculate the statistical measures of standard distributions	
CO2: Compute the correlation & regression for two dimensional random variables.	
CO3: Apply the concept of testing the hypothesis.	
CO4: Implement the concept of analysis of variance for various experimental designs.	
CO5: Demonstrate the control charts for variables and attributes	

22CS402- WEB DEVELOPMENT FRAMEWORKS	
Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1: Write Web API/RESTful API application programming interface to communicate with Spring boot as a serverside technology	
CO2: Build single page applications using REACT as a reusable UI component technology as client side technology	
CO3: Build applications using Node Js as serverside technologies	
CO4: Able to develop a web application using latest Angular Framework	
CO5: Apply various Angular features including directives, components, and services.	

22CD401- HUMAN COMPUTER INTERACTION	
Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1: Enumerate the basic concepts of human, computer interactions	
CO2: Inspect software design process in human computer interaction	
CO3: Examine various models and theories related to human computer interaction	
CO4: Build meaningful user interface	
CO5: Establish the different levels of communication across the application stakeholders	

22CS303- DESIGN AND ANALYSIS OF ALGORITHMS

Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1: Solve mathematically the efficiency of recursive and non-recursive algorithms	
CO2: Design and Analyse the efficiency of divide and conquer and transform and conquer algorithmic techniques	
CO3: Implement and analyse the problems using dynamic programming	
CO4: Solve the problems using and 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	

22CD402- DESIGN PROGRAMMING

Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1: Learn about Blender interface	
CO2: Understand Texture Mapping and Rendering	
CO3: Analyse Text to Mesh Object and Curve conversion	
CO4: Know the scripting fundamentals	
CO5: Understand accessing game objects	

Professional Elective I

22CD918- AUGMENTED AND VIRTUAL REALITY

Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1: Understand Augmented Reality.	
CO2: Explore different input and output devices used in Virtual Reality system.	
CO3: Model the VR system	
CO4: To learn about Google Toolkit's and Scene Graph	
CO5: Apply VR in various fields	

Honours Degree in Artificial Intelligence and Data science

22AI302 – DATA SCIENCE USING PYTHON

Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1: Explain the fundamentals of data science.	
CO2: Experiment python libraries for data science.	
CO3: Apply and implement basic classification algorithms	

CO4: Implement clustering and outlier detection approaches
CO5: Present and interpret data using visualization tools in Python

Laboratory

22ME411-PRODUCT DEVELOPMENT LAB - 4
Cos   Course Outcome: Upon completion of the course, the students will be able to:
CO 1: Identify the real-time problems through literature
CO 2: Develop feasible solutions for the problems.
CO 3: Evaluate the methods to develop solutions to the problem.
CO 4: Analyze the business opportunities for a new product.
CO 5: Prepare a detailed report for the experimental dissemination.

22CS411- APTITUDE AND CODING SKILLS – II
Cos   Course Outcome: Upon completion of the course, the students will be able to:
CO1: Develop advanced vocabulary for effective communication and reading skills.
CO2: Build an enhanced level of logical reasoning and quantitative skills.
CO3: Develop error correction and debugging skills in programming.
CO4: Apply data structures and algorithms in problem solving.

22CS412- MINI PROJECT AND DESIGN THINKING LAB
Cos   Course Outcome: Upon completion of the course, the students will be able to:
CO1: Understand the design thinking process and able to visualize the problem
CO2: Analyse the problem using innovation tools
CO3: Design a prototype for an identified problem solution
CO4: Testing and evaluate strategies in improving the solution
CO5: Apply the innovation ideas to real-world applications

6th Semester – B.E. Computer Science and Design

20CS601- COMPILER DESIGN (LAB INTEGRATED)
COs   **Course Outcome: The students, after the completion of the course, the students will be**
CO1 : Understand the different phases of compiler
CO2 : Perform tokenization and parsing for programs
CO3 : Generate intermediate code representation for any source programs
CO4 : Analyze the different techniques used for assembly code generation
CO5 : Implement code optimization techniques with simple code generators

20CD601- COMPUTER NETWORKS (LAB INTEGRATED)
COs   **Course Outcome: The students, after the completion of the course, are expected to**
CO1 : Understand the fundamental concepts of computer networks and physical layer.
CO2 : Gain knowledge of various protocols and techniques used in the data link layer.
CO3 : Learn the network layer services and network layer protocols.
CO4 : Understand the various protocols used in the transport layer.
CO5 : Analyze the various application layer protocols.

20CS932- MOBILE COMPUTING (LAB INTEGRATED)
COs   **Course Outcome: The students, after the completion of the course, are expected to**
CO1 : Explain the basics of mobile computing and multiplexing techniques.
CO2 : Illustrate the generations of telecommunication systems in wireless networks.
CO3 : Determine the functionality of MAC, network layer and identify a routing protocol for a given Adhoc network.
CO4 : Explain the functionality of mobile Transport and Application layers.
CO5 : Understand the usage of different mobile platforms and implement applications.

20CD904 - UI/UX DESIGN (LAB INTEGRATED)
COs   **Course Outcome: The students, after the completion of the course, are expected to**
CO1 : Understand the principles of User Interface (UI) Design in order to design with intention

CO2 : Learn the effective User eXperience (UX) and the psychology behind user decision making.
CO3 : Understand the importance of UX process and user Psychology.
CO4 : Elucidate the implications for designing web application with multimedia effects.
CO5 : Create Wireframe and Prototype.

20CS920- BLOCK CHAIN TECHNOLOGIES
COs **Course Outcome: The students, after the completion of the course, are expected to**
CO1 : Understand the technology components of Blockchain and how it works behind the scenes.
CO2 : Understand the Bitcoin and its limitations by comparing with other alternative coins.
CO3 : Develop deep understanding of the Ethereum model, its consensus model, code execution.
CO4 : Understand the architectural components of a Hyperledger and its development framework.
CO5 : Explore the alternative blockchains and its emerging trends.

Laboratory

20CS614- ADVANCED APTITUDE AND CODING SKILLS - II
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 logical reasoning and quantitative skills.
CO3 : Develop error correction and debugging skills in programming.
CO4 : Develop error correction and debugging skills in programming.

Honour Degree in Artificial Intelligence and Data science

20AI501-DATA EXPLORATION AND VISUALIZATION (LAB INTEGRATED)
COs **Course Outcome: The students, after the completion of the course, are expected to**
CO1 : Explain the overview of exploratory data analysis and phases involved in data analytics.
CO2 : Explore in-depth knowledge in EDA techniques.
CO3 : Apply the visualization techniques in data.

| CO4: Describe the methods of time series analysis. |
| CO5: Represent the data in tree and hierarchical formats. |

20AI703-DEEP LEARNING TECHNIQUES (LAB INTEGRATED)
COs   **Course Outcome: The students, after the completion of the course, are expected to**
CO1: Explain the basics of deep neural networks.
CO2: Describe advanced deep learning models.
CO3: Understand and Implement CNN and RNN architectures of deep neural networks.
CO4: Learn autoencoders in neural networks.
CO5 : Apply deep generative models to solve real world problems.

Minor Degree in Internet of Things

20EC907-SENSORS AND ACTUATOR DEVICES
COs   **Course Outcome: The students, after the completion of the course, are expected to**
CO1: Build schematic for IoT solutions with sensors.
CO2: Design and develop IoT based sensor systems.
CO3: Select the appropriate sensors for various industrial applications
CO4: Evaluate the wireless sensor technologies for IoT.
CO5 : Design and develop an IoT Prototype project
CO6 : Identify the IoT networking components with respect to sensors.

20EC959-IMAGE AND VIDEO ANALYTICS
COs   **Course Outcome: The students, after the completion of the course, are expected to**
CO1: Understand the requirements of image processing
CO2: Illustrate the principles and techniques of digital image in applications related to digital imaging system.
CO3: Demonstrate the image recognition and motion recognition.
CO4: Understand the fundamentals of digital video processing.
CO5 : Illustrate the motion estimation, segmentation and modelling.
CO6: Design and Analysis of video processing in application.