



# 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 9001:2015 Certified Institution / All the Eligible UG Programs are accredited by NBA, New Delhi

## Department of Computer Science and Design

### Course Outcomes

#### ODD Semester 2023-2024

Sl. No.	Semester	Theory/ Practical	Course Code / Course Name
1	3	Theory	Discrete Mathematics
2	3	Theory	Universal HumanValues 2: Understanding Harmony
3	3	Theory	Tamils and Technology
4	3	Theory	Computer Organization and Architecture
5	3	Theory with Practical	Advanced Java Programming
6	3	Theory with Practical	Operating Systems
7	3	Theory with Practical	Design Thinking
8	3	Practical	Product Development Lab – 3
9	3	Practical	Aptitude and Coding Skills I
10	3	Practical	Internship and Seminar*
11	3	Practical	Value Education (Non Credit)

Sl. No.	Semester	Theory/ Practical/Honour Degree/Minor Degree	Course Code / Course Name
1	5	Theory	20CD501 - Web Technology
2.	5	Theory	20CD502-Computer Graphics and Animation
3.	5	Theory	20CD503-Augmented and Virtual Reality(Lab Integrated)
4.	5	Theory	20CD905-Product Centric Agile Development (Lab Integrated)
5.	5	Theory	20EC004 - Industrial IoT Applications
7.	5	Practical	20CD511-Computer Graphics and

			Animation Laboratory
8.	5	Practical	20CD512- Web Technology Laboratory
9.	5	Practical	20CS512-Advanced Aptitude and Coding Skills – I
10	5	Practical	20CS513 - Mini Project and Design Thinking Practices Laboratory
11	5	Honour Degree	20AI302 - Introduction to Data Science
12	5	Minor Degree	20EC901 - Introduction to Internet of Things

### **ODD Semester 2023-2024**

#### **3rd Semester – B.E. Computer Science and Design**

##### **22MA301-Discrete Mathematics**

**Cos Course Outcome: Upon completion of the course, the students will be able 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.

##### **22GE301- Universal HumanValues 2: Understanding Harmony**

**Cos Course Outcome: Upon completion of the course, the students will be able to:**

**CO1:** Be aware of themselves, and their surroundings (family, society, nature).

**CO2:** Be more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.

**CO3:** Have better critical ability.

**CO4:** Become sensitive to their commitment towards what they have understood (human values, human relationships, and human society).

**CO5:** 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.

##### **22GE201- Tamils and Technology**

**Cos Course Outcome: Upon completion of the course, the students will be able to:**

**CO1:** Identify the role of weaving and ceramic technology in ancient Tamil Culture.

**CO2:** Assess the design and construction technology ideas in the current Tamil society.

**CO3:** Identify the different types of manufacturing technology used in Tamil society and their significance.

**CO4:** Classify agricultural and irrigation technologies in ancient Tamil society and its current relevance

**CO5:** Discuss the fundamentals of scientific Tamil and Tamil computing

#### **22CS302- Computer Organization and Architecture**

**Cos Course Outcome: Upon completion of the course, the students will be able to:**

**CO1:** Explain the basic principles and operations of digital computers.

**CO2:** Design Arithmetic and Logic Unit to perform fixed and floating-point operations

**CO3:** Develop pipeline architectures for RISC Processors

**CO4:** Summarize Various Memory systems & I/O interfacings.

**CO5:** Recognize Parallel Processor and Multi Processor Architectures

#### **22CS301- Advanced Java Programming**

**Cos Course Outcome: Upon completion of the course, the students will be able to:**

**CO1:** Apply collections in applications.

**CO2:** Develop interactive Java applications using swings and event handling mechanism.

**CO3:** Develop server-side programs using Servlets and JSP.

**CO4:** Construct simple web pages in PHP and to represent data in XML format.

**CO5:** Apply AJAX and web services to develop interactive web applications.

#### **22CS304- Operating Systems**

**Cos Course Outcome: Upon completion of the course, the students will be able 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

#### **22CD301- Design Thinking**

**Cos Course Outcome: Upon completion of the course, the students will be able 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

## Laboratory

### 22ME311- PRODUCT DEVELOPMENT LAB – 3

**Cos Course Outcome: Upon completion of the course, the students will be able 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.

### 22CS311 - APTITUDE AND CODING SKILLS – I

**Cos Course Outcome: Upon completion of the course, the students will be able 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.

## 5<sup>th</sup> Semester – B.E. Computer Science and Design

### 20CD501 - Web Technology

**Cos Course Outcome : The students, after the completion of the course, are expected to**

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**CO1** Construct a basic website using HTML and Cascading Style Sheets.

**CO2** Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.

**CO3** Develop server-side programs using Servlets and JSP.

**CO4** Construct simple web pages in PHP and to represent data in XML format.

**CO5** Apply AJAX and Web Services to develop interactive web applications

### 20CD502 - Computer Graphics and Animation

**COs Course Outcome : The students, after the completion of the course, are expected to**

....

**CO1** Implement 2D transformations and algorithms for generating primitives and attributes.

**CO2** Solve problems in 3D transformations and viewing.

**CO3** Implement the process of open source Vulkan API.

**CO4** Implement rendering techniques and use advanced based rendering.

**CO5** Understand the multimedia systems and animation.

### 20CD503 - Augmented and Virtual Reality (Lab Integrated)

**COs Course Outcome : The students, after the completion of the course, are expected to**

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**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

### 20CD905 - Product Centric Agile Development (Lab Integrated)

**COs Course Outcome : The students, after the completion of the course, are expected to**

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**CO1** Apply agile development methods in software development practices.

**CO2** Obtain knowledge on Product Centric Value Delivery.

**CO3** Implement Agile metrics and its ways of working.

**CO4** Apply Product Centric Agile Development and understand about web services.

**CO5** Apply DevOps concepts and tools for Web Development.

### 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 the role of 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.

### Laboratory

#### 20CD511 - Computer Graphics and Animation Laboratory

**Cos**      **Course Outcome : The students, after the completion of the course, are expected to**

....

**CO1:** Implement 2D transformations and algorithms for generating primitives and attributes

**CO2:** Solve problems in 3D transformations and viewing

**CO3:** Implement and Render graphics using open source Vulkan API

**CO4:** Implement rendering techniques and Use GPU based rendering

**CO5:** Create 2D animations.

#### 20CD512 - Web Technology Laboratory

**Cos**      **Course Outcome : The students, after the completion of the course, are expected to**

....

**CO1:** Create web pages using HTML/XML and style sheets.

**CO2:** Design user interfaces using Java frames and applets

**CO3:** Develop dynamic web pages using server-side scripting and PHP programming.

**CO4:** Build applications with AJAX.

**CO5:** Develop mini-project using web application.

### **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.

### **Honour Degree in Artificial Intelligence and Data science**

#### **20AI302 - Introduction to Data Science**

**Cos Course Outcome : The students, after the completion of the course, are expected to**

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**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.

### **Minor Degree in Internet of Things**

#### **20EC901 - Introduction to Internet of Things**

**Cos Course Outcome : The students, after the completion of the course, are expected to**

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**CO1:** Identify IoT enabling technologies.

**CO2:** Discover different IoT Architecture.

**CO3:** Understand communication, network and security protocols

**CO4:** Develop IoT based applications with Raspberry Pi

**CO5:** Infer the applications of IoT in Real-world scenario.

**CO6:** Discover the advancements of IoT in various sectors