



ENGINEERING COLLEGE

(An Autonomous Institution)

R.M.K.



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

ODD Semester 2026-27

Sl. No.	Semester	Theory/ Practical	Course Code / Course Name
1	3	Theory	Discrete Mathematics
2	3	Theory	Universal Human Values 2: Understanding Harmony
3	3	Theory	Computer Organization and Architecture
4	3	Theory with Practical	Advanced Java Programming (Lab Integrated)
5	3	Theory with Practical	Database Management Systems (Lab Integrated)
6	3	Theory with Practical	Design Thinking (Lab Integrated)
7	3	Practical	Product Development Lab – 1
8	3	Practical	Aptitude and Coding Skills I
9	3	Practical	Internship / Seminar*
10	3	-	Indian Constitution(Non Credit)

Sl. No.	Semester	Theory/ Practical/ Honour/Minor	Course Code / Course Name
1	5	Theory with Practical	Augmented and Virtual Reality (Lab Integrated)

2	5	Theory with Practical	Computer Networks (Lab Integrated)
3	5	Theory with Practical	Computer Graphics and Multimedia (Lab Integrated)
4	5	Theory with Practical	Machine Learning (Lab Integrated)
5	5	Theory with Practical	Rest Application Development Using Spring Boot and JPA (Lab Integrated)
6	5	Practical	Product Development Lab – 3
7	5	Practical	Advanced Aptitude and Coding Skills I
8	5	Practical	Professional Communication – I (TOEFL)
9	5	Practical	Internship/Seminar
10	5	-	Essence of Indian Traditional Knowledge (Non Credit)
11	5	Honour	Streaming Media Tools & Techniques
12	5	Honour	Cloud Security Foundations

Sl. No.	Semester	Theory/ Practical	Course Code / Course Name
1	7	Theory	Automata Theory and Compiler Design
2	7	Theory	Cloud Foundations
3	7	Theory	Digital Marketing
4	7	Theory	Embedded Systems
5	7	Theory with Practical	Mobile Application Development (Lab Integrated)
6	7	Practical	Professional Readiness for Innovation, Employability and Entrepreneurship
7	7	-	Essence of Indian Knowledge Tradition (Non-Credit)

ODD Semester 2026-27

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

24MA301-Discrete Mathematics

Cos	Course Outcome: Upon completion of the course, the students will be able to:
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CO1:	Examine the validity of the arguments
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CO2:	Apply various proof techniques and principles using analytic and combinatorial methods
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CO3:	Develop the recurrence relation for the sequence.
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CO4:	Implement graph theory technique to solve real time problems.
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CO5:	Apply the concepts of groups, rings and fields in solving algebraic problems.
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CO6:	Solve problems in lattices and Boolean algebra.
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24GE301- Universal Human Values 2: Understanding Harmony

Cos	Course Outcome: Upon completion of the course, the students will be able to:
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CO1:	Develop self-awareness and a deeper understanding of their surroundings, including family, society, and nature.
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CO2:	Identify and resolve inner conflicts based on natural acceptance.
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CO3:	Become more responsible towards life, and handle problems with sustainable solutions by considering human relationships and natural harmony.
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CO4:	Enhance their critical thinking and analyzing skills.
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CO5:	Develop a stronger commitment towards human values, relationships, and societal well-being.
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CO6:	Apply what they have learnt in different day-to-day settings in real life, and take the initial steps towards integrating these values into daily life.
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24CS301- Computer Organization and Architecture

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

CO1: Infer the basic principles and operations of digital computers.

CO2: Analyze the performance of computers by identifying factors that contribute to performance.

CO3: Apply arithmetic algorithms for various operations..

CO4: Design hardware to solve computationally intensive problems.

CO5: Compare various I/O methods and analyze memory management techniques.

CO6: Demonstrate the concept of parallelism in hardware and software.

24CS302- Advanced Java Programming

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

CO1: Implement various data structures by utilizing core Java features and libraries.

CO2: Demonstrate proficiency in handling Java I/O operations, including file manipulation for efficient data storage and retrieval.

CO3: Apply and Analyze the Stream API for functional programming and data processing.

CO4: Implement advanced object serialization for complex data structures.

CO5: Utilize regular expressions for text parsing and string manipulation.

CO6: Build applications using advanced Java programming techniques.

24CS303- Database Management Systems

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

CO1: Map ER model to Relational model to perform database design effectively.

CO2: Implement SQL and effective relational database design concepts.

CO3: Apply relational algebra, calculus and normalization techniques in database design.

CO4: Understand the concepts of transaction processing, concurrency control, recovery procedure and data storage techniques.

CO5: Evaluate and implement transaction processing, concurrency control mechanisms, and recovery procedures to maintain data integrity.

CO6: Analyze and optimize database queries and understand the features and applications of advanced and distributed database systems, including NoSQL.

24CD301- Design Thinking(Lab Integrated)

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
CO6:	Investigate techniques to identify new directions in design thinking.

Laboratory

24ME311- PRODUCT DEVELOPMENT LAB – 1	
Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1 :	Understand the concept of manufacturing processes.
CO2 :	Describe the working of the machine element.
CO3 :	Discuss the various applications of engineering materials
CO4 :	Summarize the basics of core engineering concepts
CO5 :	Describe the process for converting ideas into products

24CS311R- 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 skills.
CO2:	Build the logical reasoning enhance critical thinking.
CO3:	Develop error correction and debugging skills in programming.
CO4:	Apply programming skills to develop programs efficiently.
CO5:	Solve problems using quantitative skills
CO6:	Develop effective reading and listening skills.

INDIAN CONSTITUTION	
Cos	Course Outcome: Upon completion of the course, the students will be able to:
CO1:	Interpret the knowledge on Indian Constitution.
CO2:	Demonstrate the knowledge gained through fundamental rights concept.
CO3:	Relate the concept of Lok Sabha and Rajya Sabha.
CO4:	Illustrate the concept of Legislative Assembly and Legislative Council.

CO5: Analyze the concept of Local Self Government.

ODD Semester 2026-27

5th Semester – B.E. Computer Science and Design

24CD501 – AUGMENTED AND VIRTUAL REALITY (LAB INTEGRATED)

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: Analyze about Google Toolkit's and Scene Graph.

CO5: Apply virtual reality in a variety of sectors.

CO6: Assess the effectiveness of VR in improving training outcomes and operational readiness.

22CS401 – COMPUTER NETWORKS (LAB INTEGRATED)

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: Analyze about Google Toolkit's and Scene Graph.

CO5: Apply virtual reality in a variety of sectors.

CO6: Assess the effectiveness of VR in improving training outcomes and operational readiness.

22CD502 - COMPUTER GRAPHICS AND MULTIMEDIA (LAB INEGRATED)

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

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

CO2: Solve problems in 3D transformations and viewing.

CO3: Analyze the process of open-source Vulkan API.

CO4: Examine rendering techniques and use advanced based rendering.

CO5: Apply lighting and shading models to enhance graphical scenes.

CO6: Understand the multimedia systems and animation.

PROFESSIONAL ELECTIVE II 22AI401- MACHINE LEARNING(LAB INTEGRTAED)

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

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

CO2: Solve problems in 3D transformations and viewing.

CO3: Analyze the process of open source Vulkan API.

CO4: Examine rendering techniques and use advanced based rendering.

CO5: Apply lighting and shading models to enhance graphical scenes.

CO6: Understand the multimedia systems and animation.

PROFESSIONAL ELECTIVE III – 24IT903 REST APPLICATION DEVELOPMENT USING SPRING BOOT AND JPA (LAB INTEGRATED)

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

24 HS511 - Professional Communication – I TOEFL

Cos	Course Outcome: Upon completion of the course, the students will be able to:
	CO1: Apply TOEFL reading strategies (skimming, scanning, inference, vocabulary recognition) to answer academic reading questions with appropriate accuracy under test conditions.
	CO2: Produce TOEFL-style integrated and independent essays that meet task requirements, demonstrating coherence, grammatical accuracy, and academic vocabulary within the allotted time.
	CO3: Identify the main ideas, supporting details, and the speaker's attitudes in TOEFLtype academic listening passages, and respond correctly to comprehension questions.
	CO4: Deliver organized spoken responses to TOEFL speaking prompts with intelligible pronunciation, adequate fluency, and relevant content within the prescribed time.
	CO5: Complete TOEFL integrated tasks by synthesizing information from reading and listening inputs into coherent spoken or written responses using appropriate timemanagement strategies.

Laboratory

22CS511 - ADVANCED 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 skills.
	CO2: Build the logical reasoning and quantitative skills.
	CO3: Develop error correction and debugging skills in programming.

24ME511 - PRODUCT DEVELOPMENT LAB – 3	
Cos	Course Outcome: Upon completion of the course, the students will be able to:
	CO1: Analyze critically the design process and outcomes to identify areas for improvement and future research directions.
	CO2: Develop preliminary prototypes or models to demonstrate design concepts and evaluate their effectiveness.
	CO3: Conduct iterative testing and evaluation of designs, incorporating feedback to improve outcomes.
	CO4: Apply industry-standard tools, technologies, and frameworks to execute the design process effectively.

CO5: Explain design concepts through well-structured oral presentations, reports, and visual aids tailored to diverse audiences.

Honours Degree in Creative Media Design

22CD917- STREAMING MEDIA TOOLS AND TECHNOLOGIES

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1	Understand the basics of Audio and Video Streaming.
CO2	Develop Streaming media Applications.
CO3	Apply concepts of Streaming Technologies on applications.
CO4	Hands on experience on streaming tools.
CO5	Analyze streaming services.
CO6	Implement SaaS website development integrating live streaming platforms.

Honour Degree in Creative Media Design

24CS919 - CLOUD SECURITY FOUNDATIONS

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1	Learn essential cloud security principles and identity management fundamentals.
CO2	Design and implement secure cloud infrastructure components for effective resource protection.
CO3	Explore methods for securing application data stored in the cloud, including encryption techniques and data protection features.
CO4	Gain proficiency in implementing logging and monitoring practices to detect and respond to security events efficiently in cloud environments.
CO5	Acquire skills to identify and manage security incidents in the cloud, utilizing appropriate tools and techniques for incident detection, analysis, and resolution.
CO6	Apply comprehensive cloud security principles and practices to design and manage secure cloud environments.

ODD Semester 2026-27

7th Semester – B.E. Computer Science and Design

22AI602 - Automata Theory and Compiler Design

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1	Construct deterministic and non-deterministic finite automata
CO2	Design context free grammars for formal languages using regular expressions
CO3	Use PDA and Turing Machines for recognizing context-free languages.
CO4	Design a lexical analyzer
CO5	Design a syntax analyzer.
CO6	Design a simple code generator and apply different code optimizations

OPEN ELECTIVE II- 22CS002 – CLOUD FOUNDATIONS

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1	Describe the different ways a user can interact with Cloud.
CO2	Discover the different compute options in Cloud and implement a variety of structured and unstructured storage model.
CO3	Discuss the different application managed service options in the cloud and outline how security in the cloud is administered in Cloud.
CO4	Demonstrate how to build secure networks in the cloud and identify cloud automation and management tools
CO5	Discover a variety of managed big data services in the cloud.
CO6	Use Cloud services to build applications.

PROFESSIONAL ELECTIVE VI – 22CD920 – DIGITAL MARKETING

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1	Explain the role and importance of digital marketing in a rapidly changing business landscape
CO2	Apply the marketing research metrics and do market segments, market targets and brand positioning

CO3 : Examine website designing and optimization
CO4 : Analyze the various SEM platforms for digital marketing
CO5 : Discuss the marketing strategies used in social media, then design and manage the Integrated Marketing Channels
CO6: Analyze the web and generate various types of reports for real time application

Open Elective IV -22EC002- EMBEDDED SYSTEMS

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1 :	Elaborate the build process of embedded systems.
CO2 :	Summarize the concepts of embedded system development life cycle.
CO3 :	Interpret the various embedded networking protocols and I/O interfacing.
CO4 :	Describe RTOS, multiprocessing, and multitasking.
CO5 :	Illustrate the different scheduling algorithms used for embedded systems.
CO6:	Implement embedded system design methods to a specific application.

22CD701 - MOBILE APPLICATION DEVELOPMENT (LAB INTEGRATED)

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1 :	Understand the basics of mobile application development frameworks and tools, able to develop a UI for mobile application
CO2 :	Implement mobile applications that manage memory dynamically.
CO3 :	Design and develop generic, multimodal user interfaces.
CO4 :	Build applications based on mobile OS like Android, iOS.
CO5 :	Deploy mobile applications, incorporating security measures to protect against hacking and vulnerabilities.
CO6:	: Develop layer animation and event handling and location-based services.

OPEN ELECTIVE III- 22CS002 – CLOUD FOUNDATIONS

COs	Course Outcome : The students, after the completion of the course, are expected to....
CO1	: Describe the different ways a user can interact with Cloud.
CO2	: Discover the different compute options in Cloud and implement a variety of structured and unstructured storage model.
CO3	: Discuss the different application managed service options in the cloud and outline how security in the cloud is administered in Cloud.
CO4	: Demonstrate how to build secure networks in the cloud and identify cloud automation and management tools
CO5	: Discover a variety of managed big data services in the cloud.
CO6	: Use Cloud services to build applications.

Laboratory

22IT711- 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