



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Civil Engineering – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24PH103	Physics for Civil Engineering (Lab Integrated)
5	1	24CE101	Applied Mechanics
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24CH105	Environmental Sciences and Sustainability (Non Credit)
9	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
10	1		Induction Program (Non Credit)

## First Semester B.E., / CE

<b>24MA101 - Matrices and Calculus</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

<b>24CS101- Programming in C++ (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

<b>24CS102 - Software Development Practices (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24PH103 - Physics for Civil Engineering (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	comprehend the elastic properties of materials.
<b>CO2</b>	explain sound absorption coefficient, factors affecting acoustics of buildings.
<b>CO3</b>	describe the thermal concepts and its applications.
<b>CO4</b>	analyze the crystalline structure and properties of materials.
<b>CO5</b>	interpret the properties of various nano and novel engineering materials and their applications.
<b>CO6</b>	explain the various properties and applications of materials in engineering and technology.

<b>24CE101 - Applied Mechanics</b>	
<b>COs</b>	<b>Course Outcomes:</b> After the completion of the course, students should be able to:
<b>CO1</b>	Apply basic laws of mechanics to solve problems involving forces and equilibrium.
<b>CO2</b>	Calculate centroids and moments of inertia for various shapes and sections.
<b>CO3</b>	Analyze stresses and strains in materials under different loads using Hooke's Law.
<b>CO4</b>	Calculate deformation due to self-weight and ensure factor of safety in designs.
<b>CO5</b>	Analyze stresses in composite bars and use Mohr's circle for principal stresses.
<b>CO6</b>	Classify and analyze pin-jointed plane trusses using methods of joints and tension coefficients.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24CH105 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able
<b>CO1</b>	To investigate and use conservational practices to protect natural resources.
<b>CO2</b>	To identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	To analyze the values of biodiversity and its conservational methods.
<b>CO4</b>	To classify suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	To assess the impacts of human population and suggest suitable solutions.
<b>CO6</b>	To develop innovative solutions and strategies to address sustainability challenges.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

## Induction Program

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Computer Science & Engineering – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24CH101	Engineering Chemistry (Lab Integrated)
5	1	24EC102	Digital Principles and System Design (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
9	1		Induction Program (Non Credit)

## First Semester B.E., / CSE

<b>24MA101 - Matrices and Calculus</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

<b>24CS101- Programming in C++ (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

<b>24CS102 - Software Development Practices (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24CH101 - Engineering Chemistry (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	To examine the role of polymers in different industrial sectors.
<b>CO2</b>	To identify the suitability of batteries for various fields.
<b>CO3</b>	To apply the fundamental principles of chemical sensors, cheminformatics and their applications across various industries.
<b>CO4</b>	To analyze the types of smart materials used in various engineering fields.
<b>CO5</b>	To explore the applications of nanomaterials in various fields, considering their advantages and limitations.
<b>CO6</b>	To integrate the concepts of chemistry for various engineering applications.

<b>24EC102 - Digital Principles and System Design (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Apply Boolean algebra to simplify and implement digital circuits.
<b>CO2</b>	Design combinational circuits to meet specific functional requirements using logic gates.
<b>CO3</b>	Demonstrate the operation of counters and shift registers using flip-flops in sequential circuits.
<b>CO4</b>	Analyze synchronous sequential circuits to determine their behavior and performance characteristics.
<b>CO5</b>	Evaluate various types of memory devices, discussing their roles and functionalities in digital systems.
<b>CO6</b>	Construct combinational circuits using Programmable Logic Devices (PLDs) to solve complex digital design problems.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

Induction Program	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Electrical and Electronics Engineering – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24PH101	Physics for Electrical and Electronics Engineering (Lab Integrated)
5	1	24EE101	Electrical Measurements and Electromagnetic Fields.
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24CH105	Environmental Sciences and Sustainability (Non Credit)
9	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
10	1		Induction Program (Non Credit)

## First Semester B.E., / EEE

<b>24MA101 - Matrices and Calculus</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

<b>24CS101- Programming in C++ (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

<b>24CS102 - Software Development Practices (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24PH101 - Physics for Electrical and Electronics Engineering (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	derive electrical and thermal conductivities using classical free electron theory.
<b>CO2</b>	use Fermi Dirac distribution function to determine the density of energy states.
<b>CO3</b>	distinguish between the types of semiconductors using the hall effect experiment.
<b>CO4</b>	associate the basic principles of working of laser and their applications in opto-electronic devices.
<b>CO5</b>	calculate the energy eigen value and eigen function for a particle in a one- dimensional and three-dimensional box using Schrodinger wave equations.
<b>CO6</b>	relate the quantum properties of nanoscale materials with their applications.

<b>24EE101 - Electrical Measurements and Electromagnetic Fields</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Explain the concepts of errors and the working of various types of instruments.
<b>CO2</b>	Demonstrate the working of DC, AC bridges, power and energy measurements.
<b>CO3</b>	Understand the representation of any point/vector in cartesian and curvilinear co-ordinate system.
<b>CO4</b>	Apply Coulombs law and Gauss's law to estimate E - filed and D-field.
<b>CO5</b>	Apply Biot-Savarts law and Ampere's circuital law to estimate H - filed and B field.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24CH105 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able
<b>CO1</b>	To investigate and use conservational practices to protect natural resources.
<b>CO2</b>	To identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	To analyze the values of biodiversity and its conservational methods.
<b>CO4</b>	To classify suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	To assess the impacts of human population and suggest suitable solutions.
<b>CO6</b>	To develop innovative solutions and strategies to address sustainability challenges.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

## Induction Program

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Electronics and Communication Engineering – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24PH101	Physics for Electrical and Electronics Engineering (Lab Integrated)
5	1	24EC101	Electronic Devices and Circuit theory (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24CH105	Environmental Sciences and Sustainability (Non Credit)
9	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
10	1		Induction Program (Non Credit)

## First Semester B.E., / ECE

<b>24MA101 - Matrices and Calculus</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

<b>24CS101- Programming in C++ (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

<b>24CS102 - Software Development Practices (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24PH101 - Physics for Electrical and Electronics Engineering (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	derive electrical and thermal conductivities using classical free electron theory.
<b>CO2</b>	use Fermi Dirac distribution function to determine the density of energy states.
<b>CO3</b>	distinguish between the types of semiconductors using the hall effect experiment.
<b>CO4</b>	associate the basic principles of working of laser and their applications in opto-electronic devices.
<b>CO5</b>	calculate the energy eigen value and eigen function for a particle in a one- dimensional and three-dimensional box using Schrodinger wave equations.
<b>CO6</b>	relate the quantum properties of nanoscale materials with their applications.

<b>24EC101 - Electronic Devices and Circuit theory (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Explain the operating principles of electronic devices.
<b>CO2</b>	Analyze the V-I characteristics of electronic devices.
<b>CO3</b>	Design basic electronic circuits using various electron devices.
<b>CO4</b>	Analyze electric circuits using network theorems.
<b>CO5</b>	Evaluate the Performance of Electrical and Electronic Circuits Using Simulation Tools.
<b>CO6</b>	Develop simple circuits for real time applications.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24CH105 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able
<b>CO1</b>	To investigate and use conservational practices to protect natural resources.
<b>CO2</b>	To identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	To analyze the values of biodiversity and its conservational methods.
<b>CO4</b>	To classify suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	To assess the impacts of human population and suggest suitable solutions.
<b>CO6</b>	To develop innovative solutions and strategies to address sustainability challenges.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

## Induction Program

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Mechanical Engineering – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24PH104	Physics for Mechanical Engineering (Lab Integrated)
5	1	24ME101	Computer Aided Engineering Graphics
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24CH105	Environmental Sciences and Sustainability (Non Credit)
9	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
10	1		Induction Program (Non Credit)

## First Semester B.E., / ME

24MA101 - Matrices and Calculus	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

24CS101- Programming in C++ (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

24CS102 - Software Development Practices (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24PH104 - Physics for Mechanical Engineering (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	discuss the basic principles of working of laser and their applications to material processing.
<b>CO2</b>	comprehend the mechanical properties of matter and its measurement techniques.
<b>CO3</b>	discuss the basic principles of crystal and their applications to material processing.
<b>CO4</b>	understand the basic properties of various materials and apply that knowledge on various applications thereby help in finding the solution for specific needs by design.
<b>CO5</b>	describe the principles of working of various sensors and transducers.
<b>CO6</b>	explain the various properties and applications of materials in engineering and technology.

<b>24ME101 - Computer Aided Engineering Graphics</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Illustrate the principles of engineering drawings, including the exploration of conic sections, and apply the concepts of orthographic projections using drafting software.
<b>CO2</b>	Develop orthographic projections of plane surfaces.
<b>CO3</b>	Make use of concepts in projection to draw projections of solids.
<b>CO4</b>	Create accurate sectional views of solid objects and develop the surfaces effectively representing internal features in technical drawings.
<b>CO5</b>	Apply the principles of isometric projection to create isometric drawings of simple and truncated solids.
<b>CO6</b>	Imagine the parametric features of new products.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24CH105 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able
<b>CO1</b>	To investigate and use conservational practices to protect natural resources.
<b>CO2</b>	To identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	To analyze the values of biodiversity and its conservational methods.
<b>CO4</b>	To classify suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	To assess the impacts of human population and suggest suitable solutions.
<b>CO6</b>	To develop innovative solutions and strategies to address sustainability challenges.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

## Induction Program

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Computer Science & Design – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24CH101	Engineering Chemistry (Lab Integrated)
5	1	24EC102	Digital Principles and System Design (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
9	1		Induction Program (Non Credit)

## First Semester B.E., / CSD

<b>24MA101 - Matrices and Calculus</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

<b>24CS101- Programming in C++ (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

<b>24CS102 - Software Development Practices (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24CH101 - Engineering Chemistry (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	To examine the role of polymers in different industrial sectors.
<b>CO2</b>	To identify the suitability of batteries for various fields.
<b>CO3</b>	To apply the fundamental principles of chemical sensors, cheminformatics and their applications across various industries.
<b>CO4</b>	To analyze the types of smart materials used in various engineering fields.
<b>CO5</b>	To explore the applications of nanomaterials in various fields, considering their advantages and limitations.
<b>CO6</b>	To integrate the concepts of chemistry for various engineering applications.

<b>24EC102 - Digital Principles and System Design (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Apply Boolean algebra to simplify and implement digital circuits.
<b>CO2</b>	Design combinational circuits to meet specific functional requirements using logic gates.
<b>CO3</b>	Demonstrate the operation of counters and shift registers using flip-flops in sequential circuits.
<b>CO4</b>	Analyze synchronous sequential circuits to determine their behavior and performance characteristics.
<b>CO5</b>	Evaluate various types of memory devices, discussing their roles and functionalities in digital systems.
<b>CO6</b>	Construct combinational circuits using Programmable Logic Devices (PLDs) to solve complex digital design problems.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

Induction Program	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Electronics and Communication (Advanced Communication Technology) – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24PH101	Physics for Electrical and Electronics Engineering (Lab Integrated)
5	1	24EC101	Electronic Devices and Circuit theory (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24CH105	Environmental Sciences and Sustainability (Non Credit)
9	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
10	1		Induction Program (Non Credit)

## First Semester B.E., / EC-ACT

24MA101 - Matrices and Calculus	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

24CS101- Programming in C++ (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

24CS102 - Software Development Practices (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24PH101 - Physics for Electrical and Electronics Engineering (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	derive electrical and thermal conductivities using classical free electron theory.
<b>CO2</b>	use Fermi Dirac distribution function to determine the density of energy states.
<b>CO3</b>	distinguish between the types of semiconductors using the hall effect experiment.
<b>CO4</b>	associate the basic principles of working of laser and their applications in opto-electronic devices.
<b>CO5</b>	calculate the energy eigen value and eigen function for a particle in a one- dimensional and three-dimensional box using Schrodinger wave equations.
<b>CO6</b>	relate the quantum properties of nanoscale materials with their applications.

<b>24EC101 - Electronic Devices and Circuit theory (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Explain the operating principles of electronic devices.
<b>CO2</b>	Analyze the V-I characteristics of electronic devices.
<b>CO3</b>	Design basic electronic circuits using various electron devices.
<b>CO4</b>	Analyze electric circuits using network theorems.
<b>CO5</b>	Evaluate the Performance of Electrical and Electronic Circuits Using Simulation Tools
<b>CO6</b>	Develop simple circuits for real time applications.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24CH105 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able
<b>CO1</b>	To investigate and use conservational practices to protect natural resources.
<b>CO2</b>	To identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	To analyze the values of biodiversity and its conservational methods.
<b>CO4</b>	To classify suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	To assess the impacts of human population and suggest suitable solutions.
<b>CO6</b>	To develop innovative solutions and strategies to address sustainability challenges.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

## Induction Program

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.E., - Electronics Engineering (VLSI Design and Technology) – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24PH101	Physics for Electrical and Electronics Engineering (Lab Integrated)
5	1	24EC101	Electronic Devices and Circuit theory (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24CH105	Environmental Sciences and Sustainability (Non Credit)
9	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
10	1		Induction Program (Non Credit)

## First Semester B.E., / EE-VLSI

24MA101 - Matrices and Calculus	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

24CS101- Programming in C++ (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

24CS102 - Software Development Practices (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24PH101 - Physics for Electrical and Electronics Engineering (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	derive electrical and thermal conductivities using classical free electron theory
<b>CO2</b>	use Fermi Dirac distribution function to determine the density of energy states.
<b>CO3</b>	distinguish between the types of semiconductors using the hall effect experiment.
<b>CO4</b>	associate the basic principles of working of laser and their applications in opto-electronic devices.
<b>CO5</b>	calculate the energy eigen value and eigen function for a particle in a one- dimensional and three-dimensional box using Schrodinger wave equations.
<b>CO6</b>	relate the quantum properties of nanoscale materials with their applications.

<b>24EC101 - Electronic Devices and Circuit theory (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Explain the operating principles of electronic devices
<b>CO2</b>	Analyze the V-I characteristics of electronic devices.
<b>CO3</b>	Design basic electronic circuits using various electron devices.
<b>CO4</b>	Analyze electric circuits using network theorems.
<b>CO5</b>	Evaluate the Performance of Electrical and Electronic Circuits Using Simulation Tools.
<b>CO6</b>	Develop simple circuits for real time applications.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24CH105 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able
<b>CO1</b>	To investigate and use conservational practices to protect natural resources.
<b>CO2</b>	To identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	To analyze the values of biodiversity and its conservational methods.
<b>CO4</b>	To classify suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	To assess the impacts of human population and suggest suitable solutions.
<b>CO6</b>	To develop innovative solutions and strategies to address sustainability challenges.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

## Induction Program

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.Tech – Artificial Intelligence & Data Science – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24CH101	Engineering Chemistry (Lab Integrated)
5	1	24EC102	Digital Principles and System Design (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
9	1		Induction Program (Non Credit)

## First Semester B.Tech. / ADS

24MA101 - Matrices and Calculus	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

24CS101- Programming in C++ (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

24CS102 - Software Development Practices (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24CH101 - Engineering Chemistry (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	To examine the role of polymers in different industrial sectors.
<b>CO2</b>	To identify the suitability of batteries for various fields.
<b>CO3</b>	To apply the fundamental principles of chemical sensors, cheminformatics and their applications across various industries.
<b>CO4</b>	To analyze the types of smart materials used in various engineering fields.
<b>CO5</b>	To explore the applications of nanomaterials in various fields, considering their advantages and limitations.
<b>CO6</b>	To integrate the concepts of chemistry for various engineering applications.

<b>24EC102 - Digital Principles and System Design (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Apply Boolean algebra to simplify and implement digital circuits.
<b>CO2</b>	Design combinational circuits to meet specific functional requirements using logic gates.
<b>CO3</b>	Demonstrate the operation of counters and shift registers using flip-flops in sequential circuits.
<b>CO4</b>	Analyze synchronous sequential circuits to determine their behavior and performance characteristics.
<b>CO5</b>	Evaluate various types of memory devices, discussing their roles and functionalities in digital systems.
<b>CO6</b>	Construct combinational circuits using Programmable Logic Devices (PLDs) to solve complex digital design problems.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

Induction Program	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.Tech – Computer Science & Business Systems – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA102	Introduction to Statistics, Probability and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24PH102	Fundamentals of Physics
5	1	24EE102	Principles of Electrical Engineering (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24CH105	Environmental Science & Sustainability (Non Credit)
9	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
10	1		Induction Program (Non Credit)

## First Semester B.Tech. / CSBS

<b>24MA102 - Introduction to Statistics, Probability and Calculus</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	evaluate the differentiation and integration problems using concepts of calculus.
<b>CO2</b>	compute the expected values, moments, variance and interpret their significance.
<b>CO3</b>	analyze the discrete probability distributions for countable outcomes.
<b>CO4</b>	analyze the continuous probability distributions to continuous variables.
<b>CO5</b>	develop proficiency in gathering, analyzing, and interpreting data from diverse sources.
<b>CO6</b>	apply probability concepts to solve problems involving uncertainty.

<b>24CS101- Programming in C++ (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

<b>24CS102 - Software Development Practices (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24PH102 - Fundamentals of Physics</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	obtain solution of the forced and damped oscillator using differential equation.
<b>CO2</b>	apply the concept of interference to form Newton's rings and calculate the wavelength of light.
<b>CO3</b>	derive the Schrodinger wave equation and determine the solution for a particle in a one-dimensional box.
<b>CO4</b>	calculate the atomic packing factor and d spacing of crystals.
<b>CO5</b>	analyze and determine the properties of laser and optical fiber and its applications.
<b>CO6</b>	calculate the packing factor for various crystal structure.

<b>24EE102 - Principles of Electrical Engineering (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Summarize the behavior electrical circuits.
<b>CO2</b>	Solve the DC circuits using network theorems.
<b>CO3</b>	Interpret the concepts of AC circuits.
<b>CO4</b>	Discuss the electrostatic and magnetic fields with circuit laws and analyze the performance of transformers.
<b>CO5</b>	Explain the various sensors and demonstrate electric wiring.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24CH105 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able
<b>CO1</b>	To investigate and use conservational practices to protect natural resources.
<b>CO2</b>	To identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	To analyze the values of biodiversity and its conservational methods.
<b>CO4</b>	To classify suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	To assess the impacts of human population and suggest suitable solutions.
<b>CO6</b>	To develop innovative solutions and strategies to address sustainability challenges.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

## Induction Program

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.



# R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi / ISO 21001:2018 Certified Institution/

Accredited by NAAC with A+ Grade/ All the eligible UG Programs are accredited by NBA, New Delhi



## Department of Science & Humanities

### Course Outcomes – First semester - 2025 -26

### B.Tech – Information Technology – Odd semester

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	1	24MA101	Matrices and Calculus
2	1	24CS101	Programming in C++ (Lab Integrated)
3	1	24CS102	Software Development Practices (Lab Integrated)
4	1	24CH101	Engineering Chemistry (Lab Integrated)
5	1	24EC102	Digital Principles and System Design (Lab Integrated)
<b>LABORATORY COURSES</b>			
6	1	24ME111	Idea Lab I (Non Credit)
<b>MANDATORY COURSES</b>			
7	1	24GE101	Heritage of Tamils
8	1	24HS111	Interpersonal skills, Psychometric Analysis and Career Development
9	1		Induction Program (Non Credit)

## First Semester B.Tech. / IT

24MA101 - Matrices and Calculus	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	compute the matrix inverse and their higher powers.
<b>CO2</b>	solve second and higher order differential equations.
<b>CO3</b>	determine the maxima and minima of functions of two variables.
<b>CO4</b>	determine the volume and surface area using multiple integrals.
<b>CO5</b>	evaluate integrals using the concept of vector calculus.
<b>CO6</b>	apply matrix algebra techniques to diagonalize the matrix.

24CS101- Programming in C++ (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Solve problems using basic constructs in C++.
<b>CO2</b>	Implement C++ programs using pointers and functions.
<b>CO3</b>	Apply object-oriented concepts and solve real world problems.
<b>CO4</b>	Develop C++ programs using operator overloading and polymorphism.
<b>CO5</b>	Implement C++ programs using Files and exceptions.
<b>CO6</b>	Develop applications using C++ concepts.

24CS102 - Software Development Practices (Lab Integrated)	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Understand basic software engineering practices effectively.
<b>CO2</b>	Apply version control using Git and GitHub, and manage code repositories proficiently.
<b>CO3</b>	Design web applications using HTML, CSS, and JavaScript.
<b>CO4</b>	Analyze problems and create solutions using CSS for better web page presentation and usability.
<b>CO5</b>	Develop interactive web pages using JavaScript with an event-handling mechanism.
<b>CO6</b>	Apply the technological changes and improve skills continuously.

<b>24CH101 - Engineering Chemistry (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	To examine the role of polymers in different industrial sectors.
<b>CO2</b>	To identify the suitability of batteries for various fields.
<b>CO3</b>	To apply the fundamental principles of chemical sensors, cheminformatics and their applications across various industries.
<b>CO4</b>	To analyze the types of smart materials used in various engineering fields.
<b>CO5</b>	To explore the applications of nanomaterials in various fields, considering their advantages and limitations.
<b>CO6</b>	To integrate the concepts of chemistry for various engineering applications.

<b>24EC102 - Digital Principles and System Design (Lab Integrated)</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Apply Boolean algebra to simplify and implement digital circuits.
<b>CO2</b>	Design combinational circuits to meet specific functional requirements using logic gates.
<b>CO3</b>	Demonstrate the operation of counters and shift registers using flip-flops in sequential circuits.
<b>CO4</b>	Analyze synchronous sequential circuits to determine their behavior and performance characteristics.
<b>CO5</b>	Evaluate various types of memory devices, discussing their roles and functionalities in digital systems.
<b>CO6</b>	Construct combinational circuits using Programmable Logic Devices (PLDs) to solve complex digital design problems.

### **Laboratory Courses**

<b>24ME111 - Idea Lab I</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon the completion of this course the students will be able to
<b>CO1</b>	Describe the working of the 3D Printer.
<b>CO2</b>	Explain the operation of the CNC router and laser cutting machines.
<b>CO3</b>	Explain the basic parts and PCB fabrication process.
<b>CO4</b>	Develop the ability to handle delicate electronic components carefully, minimizing damage during the soldering process.
<b>CO5</b>	Describe the process for converting ideas into prototypes.

## Mandatory Courses

24GE101 – Heritage of Tamils	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	State the role of Tamil literature in shaping Tamil Cultural roots.
<b>CO2</b>	Express the cultural and religious significance of Tamil art and sculptures.
<b>CO3</b>	Identify and describe the techniques of folk and martial arts.
<b>CO4</b>	Classify the role of Thinaï concept in Tamil culture and literature.
<b>CO5</b>	Compare the idea of cultural and intellectual contributions of Tamils.

24HS111 - Interpersonal skills, Psychometric Analysis and Career Development	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Assess and improve their English language proficiency using SMART Vox, gaining insights into their communication skills and linguistic competence.
<b>CO2</b>	Understand future engineering trends, emerging technologies, importance of solving real-time problems, and the process of campus recruitment.
<b>CO3</b>	Evaluate their behavioral work style, cognitive abilities, emotional intelligence, cultural preferences, and work competencies.
<b>CO4</b>	Understand the current engineering landscape, placement opportunities, and higher education prospects to develop effective career path plans.
<b>CO5</b>	Develop a clear and actionable vision for their future career path.

Induction Program	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Achieve a smooth transition where students feel comfortable and confident in their new environment.
<b>CO2</b>	Demonstrate a strong understanding and practice of the institution's ethos and culture within the campus community.
<b>CO3</b>	Build meaningful and supportive relationships with peers and faculty members.
<b>CO4</b>	Develop a clear sense of purpose and engage in self-exploration, leading to a deeper understanding of personal goals and aspirations.