



# 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 9001:2015 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 – Odd semester - 2021 -22

**B.E., - Civil Engineering – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20ME103 - Computer Aided Engineering Graphics
4.	1	Theory	20CH102 - Environmental Science and Engineering
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20EE101 - Basic Electrical, Electronics and Instrumentation Engineering
7.	1	Practical	20EM111 - Engineering Practices Lab
8.	1	Practical	20GE111 - C Programming Lab
9	1	Practical	20EL111 - Interpersonal Skills - Listening and Speaking Lab

## First Semester B.E., / CE

20EL101 - Communicative English & Life Skills	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

20MA101-Engineering Mathematics - I	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

20ME103 - Computer Aided Engineering Graphics	
<b>COs</b>	<b>Course Outcome: On successful completion of this course, the student will be able to</b>
<b>CO1</b>	Illustrate the fundamentals and standards of engineering drawing and apply the concepts of orthographic projections using CAD software
<b>CO2</b>	Interpret and construct various plane curves
<b>CO3</b>	Develop orthographic projections of points, lines and plane surfaces.
<b>CO4</b>	Make use of concepts in projection to draw projections of solids and interpret the concept in section of solids.
<b>CO5</b>	Interpret and visualize development of surfaces.
<b>CO6</b>	Interpret and visualize isometric projection of simple solids

<b>20CH102-Environmental Science and Engineering</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Illustrate the importance and conservation of natural resources.
<b>CO2</b>	Assess the impact of various pollutants and suggest appropriate pollution control methods.
<b>CO3</b>	Explain the basic structure of ecosystem and the conservation of biodiversity.
<b>CO4</b>	Analyze the social issues related to environment and recommend suitable solutions.
<b>CO5</b>	Investigate the trends in population explosion and assess its impact.

<b>20GE101 - Problem solving and C Programming</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Develop algorithmic solutions to simple computational problems
<b>CO2</b>	Develop simple applications using basic constructs
<b>CO3</b>	Write programs using arrays and strings
<b>CO4</b>	Design and implement applications using functions, pointers and structures.
<b>CO5</b>	Design applications using sequential and random-access file processing.

<b>20EE101- Basic Electrical, Electronics and Instrumentation Engineering</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Analyze the DC and AC electrical circuits and its components using fundamental laws.
<b>CO2</b>	Analyze the performance characteristics of electrical machines.
<b>CO3</b>	Design rectifiers and amplifiers using semiconductor devices and IC's.
<b>CO4</b>	Design and analyze the digital logic circuits and converters
<b>CO5</b>	Choose suitable transducers for measuring specific physical quantities
<b>CO6</b>	Select appropriate indicating instrument for measuring electrical quantities

## Laboratory

20EM111 - Engineering Practices Laboratory	
<b>COs</b>	<b>Course Outcome: On successful completion of this course, the student will be able to</b>
<b>CO1</b>	Develop carpentry components and pipe connections including plumbing works.
<b>CO2</b>	Make use of welding equipments to join the structures
<b>CO3</b>	Analyse the basic machining operations
<b>CO4</b>	Develop the models using sheet metal works
<b>CO5</b>	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry
<b>CO6</b>	and fittings
<b>CO7</b>	Fabricate carpentry components and pipe connections including plumbing works.
<b>CO8</b>	Carry out simple wiring as per the layout given
<b>CO9</b>	Measures various electrical parameters like Voltage, Current, Power factor, Energy, Earth resistance etc.

20GE111 - C Programming Lab	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

20EL111-Interpersonal Skills - Listening and Speaking Lab	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions.
<b>CO3</b>	Make effective presentations.
<b>CO4</b>	Participate confidently and appropriately in conversations both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Interpret contextual knowledge clearly.



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## DEPARTMENT OF SCIENCE & HUMANITIES

Course Outcomes – Odd semester - 2021 -22

**B.E., - Computer Science and Design – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20PH101 - Physics for Computer Science and Information Technology
4.	1	Theory	20CH101 - Engineering Chemistry
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20EE102 - Basic Electrical, Electronics & Measurements Engineering
7.	1	Practical	20PC111 - Physics & Chemistry Laboratory
8.	1	Practical	20GE111- C Programming Lab
9	1	Practical	20EL111 - Interpersonal Skills - Listening and Speaking Lab

## First Semester B.E., / CSD

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20PH101-Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcome: On completion of this course, the students will gain knowledge and will be able to</b>
<b>CO1</b>	know the principle, construction and working of lasers and their applications in fibre optic communication.
<b>CO2</b>	understand the magnetic properties of materials and their specific applications in computer data storage.
<b>CO3</b>	analyze the classical and quantum electron theories and energy band structures.
<b>CO4</b>	evaluate the conducting properties of semiconductors and its applications in various devices.
<b>CO5</b>	comprehend the knowledge on quantum confinement effects.
<b>CO6</b>	apply optical, magnetic and conducting properties of materials, quantum concepts at the nanoscale in various applications

<b>20CH101-Engineering Chemistry</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Illustrate the role of chemistry in everyday life and the industrial uses of water.
<b>CO2</b>	Construct electrochemical cells and to determine the cell potential.
<b>CO3</b>	Compare and analyse the different energy storage devices and to explain potential energy sources.
<b>CO4</b>	Classify different types of polymeric materials and to discuss their properties and applications.
<b>CO5</b>	Explain basic concepts of nanochemistry and to enumerate the applications of nanomaterials in engineering and technology.

<b>20GE101 - Problem solving and C Programming</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Develop algorithmic solutions to simple computational problems
<b>CO2</b>	Develop simple applications using basic constructs
<b>CO3</b>	Write programs using arrays and strings
<b>CO4</b>	Design and implement applications using functions, pointers and structures.
<b>CO5</b>	Design applications using sequential and random-access file processing.

<b>20EE102 - Basic Electrical, Electronics &amp; Measurements Engineering</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Analyze the essentials of electric circuits
<b>CO2</b>	Study the different types of renewable sources and common domestic loads
<b>CO3</b>	Classify the different types of electric machines and transformers
<b>CO4</b>	Acquire the knowledge in basics of electronic circuits
<b>CO5</b>	Describe the different types of measuring instruments and transducers

## Laboratory

<b>20PC111-Physics &amp; Chemistry Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, based on hands-on experience of the students, they will be able to</b>
<b>CO1</b>	Determine the wavelength of mercury spectrum and also determine the wavelength of a laser source, particle size, divergence angle of semiconductor laser source using diffraction grating and to analyze the numerical aperture and acceptance angle of an optical fibre.
<b>CO2</b>	Examine the Young's modulus of a beam by uniform and non-uniform bending and to estimate the moment of inertia of the disc and rigidity modulus of wire by torsional pendulum.
<b>CO3</b>	Determine the band gap of a semiconductor.
<b>CO4</b>	Analyse the given hard water sample, change in conductivity of an acid(s) when added with base.
<b>CO5</b>	Examine the change in pH when an acid is added with a base, Understand the redox reactions and its impact on emf values.
<b>CO6</b>	Assess the corrosion rate of a given metal, construct an electrochemical cell to determine the concentration of the given solution.

<b>20GE111 - C Programming Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

<b>20EL111-Interpersonal Skills - Listening and Speaking Lab</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions.
<b>CO3</b>	Make effective presentations.
<b>CO4</b>	Participate confidently and appropriately in conversations both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Interpret contextual knowledge clearly.





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## DEPARTMENT OF SCIENCE & HUMANITIES

Course Outcomes – Odd semester - 2021 -22

**B.E., - Computer Science Engineering – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20PH101 - Physics for Computer Science and Information Technology
4.	1	Theory	20CH101 - Engineering Chemistry
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20EE102 - Basic Electrical, Electronics & Measurements Engineering
7.	1	Practical	20PC111 - Physics & Chemistry Laboratory
8.	1	Practical	20GE111- C Programming Lab
9	1	Practical	20EL111 - Interpersonal Skills - Listening and Speaking Lab

## First Semester B.E., / CSE

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20PH101-Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcome: On completion of this course, the students will gain knowledge and will be able to</b>
<b>CO1</b>	know the principle, construction and working of lasers and their applications in fibre optic communication.
<b>CO2</b>	understand the magnetic properties of materials and their specific applications in computer data storage.
<b>CO3</b>	analyze the classical and quantum electron theories and energy band structures.
<b>CO4</b>	evaluate the conducting properties of semiconductors and its applications in various devices.
<b>CO5</b>	comprehend the knowledge on quantum confinement effects.
<b>CO6</b>	apply optical, magnetic and conducting properties of materials, quantum concepts at the nanoscale in various applications

<b>20CH101-Engineering Chemistry</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Illustrate the role of chemistry in everyday life and the industrial uses of water.
<b>CO2</b>	Construct electrochemical cells and to determine the cell potential.
<b>CO3</b>	Compare and analyse the different energy storage devices and to explain potential energy sources.
<b>CO4</b>	Classify different types of polymeric materials and to discuss their properties and applications.
<b>CO5</b>	Explain basic concepts of nanochemistry and to enumerate the applications of nanomaterials in engineering and technology.

<b>20GE101 - Problem solving and C Programming</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Develop algorithmic solutions to simple computational problems
<b>CO2</b>	Develop simple applications using basic constructs
<b>CO3</b>	Write programs using arrays and strings
<b>CO4</b>	Design and implement applications using functions, pointers and structures.
<b>CO5</b>	Design applications using sequential and random-access file processing.

<b>20EE102 - Basic Electrical, Electronics &amp; Measurements Engineering</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Analyze the essentials of electric circuits
<b>CO2</b>	Study the different types of renewable sources and common domestic loads
<b>CO3</b>	Classify the different types of electric machines and transformers
<b>CO4</b>	Acquire the knowledge in basics of electronic circuits
<b>CO5</b>	Describe the different types of measuring instruments and transducers

## Laboratory

20PC111-Physics & Chemistry Lab	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, based on hands-on experience of the students, they will be able to</b>
<b>CO1</b>	Determine the wavelength of mercury spectrum and also determine the wavelength of a laser source, particle size, divergence angle of semiconductor laser source using diffraction grating and to analyze the numerical aperture and acceptance angle of an optical fibre.
<b>CO2</b>	Examine the Young's modulus of a beam by uniform and non-uniform bending and to estimate the moment of inertia of the disc and rigidity modulus of wire by torsional pendulum.
<b>CO3</b>	Determine the band gap of a semiconductor.
<b>CO4</b>	Analyse the given hard water sample, change in conductivity of an acid(s) when added with base.
<b>CO5</b>	Examine the change in pH when an acid is added with a base, Understand the redox reactions and its impact on emf values.
<b>CO6</b>	Assess the corrosion rate of a given metal, construct an electrochemical cell to determine the concentration of the given solution.

20GE111 - C Programming Lab	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

20EL111-Interpersonal Skills - Listening and Speaking Lab	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions.
<b>CO3</b>	Make effective presentations.
<b>CO4</b>	Participate confidently and appropriately in conversations both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Interpret contextual knowledge clearly.



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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Odd semester - 2021 -22

### **B.E., - Electrical and Electronics Engineering – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20ME103 - Computer Aided Engineering Graphics
4.	1	Theory	20CH102 - Environmental Science and Engineering
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20CM106 - Basic Civil & Mechanical Engineering
7.	1	Practical	20GE111 - C Programming Lab
8	1	Practical	20EL112 - Listening, Speaking, Reading and Writing Lab

## First Semester B.E., / EEE

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20ME103 - Computer Aided Engineering Graphics</b>	
<b>COs</b>	<b>Course Outcome: On successful completion of this course, the student will be able to</b>
<b>CO1</b>	Illustrate the fundamentals and standards of engineering drawing and apply the concepts of orthographic projections using CAD software
<b>CO2</b>	Interpret and construct various plane curves
<b>CO3</b>	Develop orthographic projections of points, lines and plane surfaces.
<b>CO4</b>	Make use of concepts in projection to draw projections of solids and interpret the concept in section of solids.
<b>CO5</b>	Interpret and visualize development of surfaces.
<b>CO6</b>	Interpret and visualize isometric projection of simple solids

### 20CH102-Environmental Science and Engineering

COs	Course Outcome: Upon completion of the course, the students will be able to:
CO1	Illustrate the importance and conservation of natural resources.
CO2	Assess the impact of various pollutants and suggest appropriate pollution control methods.
CO3	Explain the basic structure of ecosystem and the conservation of biodiversity.
CO4	Analyze the social issues related to environment and recommend suitable solutions.
CO5	Investigate the trends in population explosion and assess its impact.

### 20GE101 - Problem solving and C Programming

COs	Course Outcome: Upon completion of the course, the students will be able to
CO1	Develop algorithmic solutions to simple computational problems
CO2	Develop simple applications using basic constructs
CO3	Write programs using arrays and strings
CO4	Design and implement applications using functions, pointers and structures.
CO5	Design applications using sequential and random-access file processing.

### 20CM106 - Basic Civil & Mechanical Engineering

COs	Course Outcome: On successful completion of this course, the student will be able to
CO1	Apply the knowledge on Civil engineering fundamentals for practical applications
CO2	Understand various building components, structures and infrastructural facilities
CO3	Elaborate the mechanical engineering fundamentals for practical applications and Air Standard cycles
CO4	Identify the components used in power plant cycle
CO5	Interpret the working principles of petrol and diesel engine.
CO6	Elaborate the components of refrigeration and Air conditioning cycle

## Laboratory

<b>20GE111 - C Programming Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

<b>20EL112-Interpersonal Skills – Listening, Speaking, Reading and Writing Lab</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions and make effective presentations.
<b>CO3</b>	Read and comprehend various texts effectively.
<b>CO4</b>	Participate confidently and appropriately in conversations, both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Develop writing skills and enrich their reading skills.





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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Odd semester - 2021 -22

### **B.E., - Electronics and Communication Engineering – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20PH102 - Physics for Electronics Engineering
4.	1	Theory	20CH101 - Engineering Chemistry
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20ME103 - Computer Aided Engineering Graphics
7.	1	Practical	20PC111 - Physics & Chemistry Laboratory
8.	1	Practical	20GE111 - C Programming Lab
9.	1	Practical	20EL111 - Interpersonal Skills - Listening and Speaking Lab

## First Semester B.E., / ECE

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20PH102-Physics for Electronics Engineering</b>	
<b>COs</b>	<b>Course Outcome : On completion of this course, the students will be able to</b>
<b>CO1</b>	estimate the conducting properties of materials based on CFE and QFE theories and understand the formation of energy band structures.
<b>CO2</b>	understand the basic properties of semiconducting materials and apply the concepts to determine Hall coefficient.
<b>CO3</b>	elucidate the principle and working of various opto and nanoelectronic devices and their applications.
<b>CO4</b>	attain basic knowledge on the concepts of lasers and apply in fibre optics communication.
<b>CO5</b>	correlate electric and magnetic field behavior of electro-magnetostatics and electro-dynamics.
<b>CO6</b>	understand the concepts of conducting materials, semiconducting materials and apply the same to determine resistivity and bandgap, explicate the principle and working of opto and nanoelectronic devices and analyze Maxwell's equation in different forms (differential and integral) in Electro-Magnetostatics and Electro-dynamics.

<b>20CH101-Engineering Chemistry</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Illustrate the role of chemistry in everyday life and the industrial uses of water.
<b>CO2</b>	Construct electrochemical cells and to determine the cell potential.
<b>CO3</b>	Compare and analyse the different energy storage devices and to explain potential energy sources.
<b>CO4</b>	Classify different types of polymeric materials and to discuss their properties and applications.
<b>CO5</b>	Explain basic concepts of nanochemistry and to enumerate the applications of nanomaterials in engineering and technology.

<b>20GE101 - Problem solving and C Programming</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Develop algorithmic solutions to simple computational problems
<b>CO2</b>	Develop simple applications using basic constructs
<b>CO3</b>	Write programs using arrays and strings
<b>CO4</b>	Design and implement applications using functions, pointers and structures.
<b>CO5</b>	Design applications using sequential and random-access file processing.

<b>20ME103 - Computer Aided Engineering Graphics</b>	
<b>COs</b>	<b>Course Outcome: On successful completion of this course, the student will be able to</b>
<b>CO1</b>	Illustrate the fundamentals and standards of engineering drawing and apply the concepts of orthographic projections using CAD software
<b>CO2</b>	Interpret and construct various plane curves
<b>CO3</b>	Develop orthographic projections of points, lines and plane surfaces.
<b>CO4</b>	Make use of concepts in projection to draw projections of solids and interpret the concept in section of solids.
<b>CO5</b>	Interpret and visualize development of surfaces.
<b>CO6</b>	Interpret and visualize isometric projection of simple solids

## Laboratory

20PC111-Physics & Chemistry Lab	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, based on hands-on experience of the students, they will be able to</b>
<b>CO1</b>	Determine the wavelength of mercury spectrum and also determine the wavelength of a laser source, particle size, divergence angle of semiconductor laser source using diffraction grating and to analyze the numerical aperture and acceptance angle of an optical fibre.
<b>CO2</b>	Examine the Young's modulus of a beam by uniform and non-uniform bending and to estimate the moment of inertia of the disc and rigidity modulus of wire by torsional pendulum.
<b>CO3</b>	Determine the band gap of a semiconductor.
<b>CO4</b>	Analyse the given hard water sample, change in conductivity of an acid(s) when added with base.
<b>CO5</b>	Examine the change in pH when an acid is added with a base, Understand the redox reactions and its impact on emf values.
<b>CO6</b>	Assess the corrosion rate of a given metal, construct an electrochemical cell to determine the concentration of the given solution.

20GE111 - C Programming Lab	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

20EL111-Interpersonal Skills - Listening and Speaking Lab	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions.
<b>CO3</b>	Make effective presentations.
<b>CO4</b>	Participate confidently and appropriately in conversations both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Interpret contextual knowledge clearly.



# R.M.K. ENGINEERING COLLEGE (An Autonomous Institution)



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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Odd semester - 2021 -22

### **B.E., - Electronics and Instrumentation Engineering – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20ME103 - Computer Aided Engineering Graphics
4.	1	Theory	20CH102 - Environmental Science and Engineering
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20CM106 - Basic Civil & Mechanical Engineering
7.	1	Practical	20GE111 - C Programming Lab
8	1	Practical	20EL112 - Listening, Speaking, Reading and Writing Lab

## First Semester B.E., / EIE

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20ME103 - Computer Aided Engineering Graphics</b>	
<b>COs</b>	<b>Course Outcome: On successful completion of this course, the student will be able to</b>
<b>CO1</b>	Illustrate the fundamentals and standards of engineering drawing and apply the concepts of orthographic projections using CAD software
<b>CO2</b>	Interpret and construct various plane curves
<b>CO3</b>	Develop orthographic projections of points, lines and plane surfaces.
<b>CO4</b>	Make use of concepts in projection to draw projections of solids and interpret the concept in section of solids.
<b>CO5</b>	Interpret and visualize development of surfaces.
<b>CO6</b>	Interpret and visualize isometric projection of simple solids

### 20CH102-Environmental Science and Engineering

COs	Course Outcome: Upon completion of the course, the students will be able to:
CO1	Illustrate the importance and conservation of natural resources.
CO2	Assess the impact of various pollutants and suggest appropriate pollution control methods.
CO3	Explain the basic structure of ecosystem and the conservation of biodiversity.
CO4	Analyze the social issues related to environment and recommend suitable solutions.
CO5	Investigate the trends in population explosion and assess its impact.

### 20GE101 - Problem solving and C Programming

COs	Course Outcome: Upon completion of the course, the students will be able to
CO1	Develop algorithmic solutions to simple computational problems
CO2	Develop simple applications using basic constructs
CO3	Write programs using arrays and strings
CO4	Design and implement applications using functions, pointers and structures.
CO5	Design applications using sequential and random-access file processing.

### 20CM106 - Basic Civil & Mechanical Engineering

COs	Course Outcome: On successful completion of this course, the student will be able to
CO1	Apply the knowledge on Civil engineering fundamentals for practical applications
CO2	Understand various building components, structures and infrastructural facilities
CO3	Elaborate the mechanical engineering fundamentals for practical applications and Air Standard cycles
CO4	Identify the components used in power plant cycle
CO5	Interpret the working principles of petrol and diesel engine.
CO6	Elaborate the components of refrigeration and Air conditioning cycle

## Laboratory

<b>20GE111 - C Programming Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

<b>20EL112-Interpersonal Skills – Listening, Speaking, Reading and Writing Lab</b>	
<b>COs</b>	<b>Course Outcome : At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions and make effective presentations.
<b>CO3</b>	Read and comprehend various texts effectively.
<b>CO4</b>	Participate confidently and appropriately in conversations, both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Develop writing skills and enrich their reading skills.





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## DEPARTMENT OF SCIENCE & HUMANITIES

Course Outcomes – Odd semester - 2021 -22

**B.E., - Mechanical Engineering – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20ME103 - Computer Aided Engineering Graphics
4.	1	Theory	20CH102 - Environmental Science and Engineering
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20EE101 - Basic Electrical, Electronics and Instrumentation Engineering
7.	1	Practical	20EM111 - Engineering Practices Lab
8.	1	Practical	20GE111 - C Programming Lab
9.	1	Practical	20EL111 - Interpersonal Skills - Listening and Speaking Lab

## First Semester B.E., / MECH

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20ME103 - Computer Aided Engineering Graphics</b>	
<b>COs</b>	<b>Course Outcome: On successful completion of this course, the student will be able to</b>
<b>CO1</b>	Illustrate the fundamentals and standards of engineering drawing and apply the concepts of orthographic projections using CAD software
<b>CO2</b>	Interpret and construct various plane curves
<b>CO3</b>	Develop orthographic projections of points, lines and plane surfaces.
<b>CO4</b>	Make use of concepts in projection to draw projections of solids and interpret the concept in section of solids.
<b>CO5</b>	Interpret and visualize development of surfaces.
<b>CO6</b>	Interpret and visualize isometric projection of simple solids

### 20CH102-Environmental Science and Engineering

COs	Course Outcome: Upon completion of the course, the students will be able to:
CO1	Illustrate the importance and conservation of natural resources.
CO2	Assess the impact of various pollutants and suggest appropriate pollution control methods.
CO3	Explain the basic structure of ecosystem and the conservation of biodiversity.
CO4	Analyze the social issues related to environment and recommend suitable solutions.
CO5	Investigate the trends in population explosion and assess its impact.

### 20GE101 - Problem solving and C Programming

COs	Course Outcome: Upon completion of the course, the students will be able to
CO1	Develop algorithmic solutions to simple computational problems
CO2	Develop simple applications using basic constructs
CO3	Write programs using arrays and strings
CO4	Design and implement applications using functions, pointers and structures.
CO5	Design applications using sequential and random-access file processing.

### 20EE101- Basic Electrical, Electronics and Instrumentation Engineering

COs	Course Outcome: Upon completion of the course, the students will be able to
CO1	Analyze the DC and AC electrical circuits and its components using fundamental laws.
CO2	Analyze the performance characteristics of electrical machines.
CO3	Design rectifiers and amplifiers using semiconductor devices and IC's.
CO4	Design and analyze the digital logic circuits and converters
CO5	Choose suitable transducers for measuring specific physical quantities
CO6	Select appropriate indicating instrument for measuring electrical quantities

## Laboratory

<b>20EM111 - Engineering Practices Laboratory</b>	
<b>COs</b>	<b>Course Outcome: On successful completion of this course, the student will be able to</b>
<b>CO1</b>	Develop carpentry components and pipe connections including plumbing works.
<b>CO2</b>	Make use of welding equipments to join the structures
<b>CO3</b>	Analyse the basic machining operations
<b>CO4</b>	Develop the models using sheet metal works
<b>CO5</b>	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry
<b>CO6</b>	and fittings
<b>CO7</b>	Fabricate carpentry components and pipe connections including plumbing works.
<b>CO8</b>	Carry out simple wiring as per the layout given
<b>CO9</b>	Measures various electrical parameters like Voltage, Current, Power factor, Energy, Earth resistance etc.

<b>20GE111 - C Programming Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

<b>20EL111-Interpersonal Skills - Listening and Speaking Lab</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions.
<b>CO3</b>	Make effective presentations.
<b>CO4</b>	Participate confidently and appropriately in conversations both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Interpret contextual knowledge clearly.



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## DEPARTMENT OF SCIENCE & HUMANITIES

Course Outcomes – Odd semester - 2021 -22

### B.Tech. - Information Technology – 1<sup>st</sup> semester

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20PH101 - Physics for Computer Science and Information Technology
4.	1	Theory	20CH101 - Engineering Chemistry
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20EE102 - Basic Electrical, Electronics & Measurements Engineering
7.	1	Practical	20PC111 - Physics & Chemistry Laboratory
8.	1	Practical	20GE111 - C Programming Lab
9.	1	Practical	20EL111 - Interpersonal Skills - Listening and Speaking Lab

## First Semester B.Tech. / IT

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20PH101-Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcome: On completion of this course, the students will gain knowledge and will be able to</b>
<b>CO1</b>	know the principle, construction and working of lasers and their applications in fibre optic communication.
<b>CO2</b>	understand the magnetic properties of materials and their specific applications in computer data storage.
<b>CO3</b>	analyze the classical and quantum electron theories and energy band structures.
<b>CO4</b>	evaluate the conducting properties of semiconductors and its applications in various devices.
<b>CO5</b>	comprehend the knowledge on quantum confinement effects.
<b>CO6</b>	apply optical, magnetic and conducting properties of materials, quantum concepts at the nanoscale in various applications

<b>20CH101-Engineering Chemistry</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Illustrate the role of chemistry in everyday life and the industrial uses of water.
<b>CO2</b>	Construct electrochemical cells and to determine the cell potential.
<b>CO3</b>	Compare and analyse the different energy storage devices and to explain potential energy sources.
<b>CO4</b>	Classify different types of polymeric materials and to discuss their properties and applications.
<b>CO5</b>	Explain basic concepts of nanochemistry and to enumerate the applications of nanomaterials in engineering and technology.

<b>20GE101 - Problem solving and C Programming</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Develop algorithmic solutions to simple computational problems
<b>CO2</b>	Develop simple applications using basic constructs
<b>CO3</b>	Write programs using arrays and strings
<b>CO4</b>	Design and implement applications using functions, pointers and structures.
<b>CO5</b>	Design applications using sequential and random-access file processing.

<b>20EE102 - Basic Electrical, Electronics &amp; Measurements Engineering</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Analyze the essentials of electric circuits
<b>CO2</b>	Study the different types of renewable sources and common domestic loads
<b>CO3</b>	Classify the different types of electric machines and transformers
<b>CO4</b>	Acquire the knowledge in basics of electronic circuits
<b>CO5</b>	Describe the different types of measuring instruments and transducers

## Laboratory

<b>20PC111-Physics &amp; Chemistry Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, based on hands-on experience of the students, they will be able to</b>
<b>CO1</b>	Determine the wavelength of mercury spectrum and also determine the wavelength of a laser source, particle size, divergence angle of semiconductor laser source using diffraction grating and to analyze the numerical aperture and acceptance angle of an optical fibre.
<b>CO2</b>	Examine the Young's modulus of a beam by uniform and non-uniform bending and to estimate the moment of inertia of the disc and rigidity modulus of wire by torsional pendulum.
<b>CO3</b>	Determine the band gap of a semiconductor.
<b>CO4</b>	Analyse the given hard water sample, change in conductivity of an acid(s) when added with base.
<b>CO5</b>	Examine the change in pH when an acid is added with a base, Understand the redox reactions and its impact on emf values.
<b>CO6</b>	Assess the corrosion rate of a given metal, construct an electrochemical cell to determine the concentration of the given solution.

<b>20GE111 - C Programming Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

<b>20EL111-Interpersonal Skills - Listening and Speaking Lab</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions.
<b>CO3</b>	Make effective presentations.
<b>CO4</b>	Participate confidently and appropriately in conversations both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Interpret contextual knowledge clearly.





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## DEPARTMENT OF SCIENCE & HUMANITIES

Course Outcomes – Odd semester - 2021 -22

### B.Tech. - Artificial Intelligence & Data Science – 1<sup>st</sup> semester

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20EL101 - Communicative English & Life Skills
2.	1	Theory	20MA101 - Engineering Mathematics – I
3.	1	Theory	20PH101 - Physics for Computer Science and Information Technology
4.	1	Theory	20CH101 - Engineering Chemistry
5.	1	Theory	20GE101 - Problem solving and C Programming
6.	1	Theory	20EE102 - Basic Electrical, Electronics & Measurements Engineering
7.	1	Practical	20PC111 - Physics & Chemistry Laboratory
8.	1	Practical	20GE111 - C Programming Lab
9.	1	Practical	20EL111 - Interpersonal Skills - Listening and Speaking Lab

## First Semester - B.Tech. / ADS

<b>20EL101 - Communicative English &amp; Life Skills</b>	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to:</b>
<b>CO1</b>	Read articles of a general kind in magazines and newspapers efficiently and identify different life skills.
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
<b>CO3</b>	Comprehend conversations and short talks delivered in English.
<b>CO4</b>	Write short essays of a general kind and personal letters and emails in English.
<b>CO5</b>	Develop vocabulary of a general kind by enriching their reading skills.
<b>CO6</b>	Use appropriate thinking and problem- solving techniques to solve new problems.

<b>20MA101-Engineering Mathematics - I</b>	
<b>COs</b>	<b>Course Outcome: After the successful completion of the course, the student will be able to</b>
<b>CO1</b>	Diagonalize a matrix by orthogonal transformation.
<b>CO2</b>	Determine the Evolute and Envelope of curves.
<b>CO3</b>	Examine the maxima and minima of function of several variables.
<b>CO4</b>	Apply Gamma and Beta integrals to evaluate improper integrals.
<b>CO5</b>	Evaluate the area and volume by using multiple integrals.

<b>20PH101-Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcome: On completion of this course, the students will gain knowledge and will be able to</b>
<b>CO1</b>	know the principle, construction and working of lasers and their applications in fibre optic communication.
<b>CO2</b>	understand the magnetic properties of materials and their specific applications in computer data storage.
<b>CO3</b>	analyze the classical and quantum electron theories and energy band structures.
<b>CO4</b>	evaluate the conducting properties of semiconductors and its applications in various devices.
<b>CO5</b>	comprehend the knowledge on quantum confinement effects.
<b>CO6</b>	apply optical, magnetic and conducting properties of materials, quantum concepts at the nanoscale in various applications

<b>20CH101-Engineering Chemistry</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Illustrate the role of chemistry in everyday life and the industrial uses of water.
<b>CO2</b>	Construct electrochemical cells and to determine the cell potential.
<b>CO3</b>	Compare and analyse the different energy storage devices and to explain potential energy sources.
<b>CO4</b>	Classify different types of polymeric materials and to discuss their properties and applications.
<b>CO5</b>	Explain basic concepts of nanochemistry and to enumerate the applications of nanomaterials in engineering and technology.

<b>20GE101 - Problem solving and C Programming</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Develop algorithmic solutions to simple computational problems
<b>CO2</b>	Develop simple applications using basic constructs
<b>CO3</b>	Write programs using arrays and strings
<b>CO4</b>	Design and implement applications using functions, pointers and structures.
<b>CO5</b>	Design applications using sequential and random-access file processing.

<b>20EE102 - Basic Electrical, Electronics &amp; Measurements Engineering</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Analyze the essentials of electric circuits
<b>CO2</b>	Study the different types of renewable sources and common domestic loads
<b>CO3</b>	Classify the different types of electric machines and transformers
<b>CO4</b>	Acquire the knowledge in basics of electronic circuits
<b>CO5</b>	Describe the different types of measuring instruments and transducers

## Laboratory

20PC111-Physics & Chemistry Lab	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, based on hands-on experience of the students, they will be able to</b>
<b>CO1</b>	Determine the wavelength of mercury spectrum and also determine the wavelength of a laser source, particle size, divergence angle of semiconductor laser source using diffraction grating and to analyze the numerical aperture and acceptance angle of an optical fibre.
<b>CO2</b>	Examine the Young's modulus of a beam by uniform and non-uniform bending and to estimate the moment of inertia of the disc and rigidity modulus of wire by torsional pendulum.
<b>CO3</b>	Determine the band gap of a semiconductor.
<b>CO4</b>	Analyse the given hard water sample, change in conductivity of an acid(s) when added with base.
<b>CO5</b>	Examine the change in pH when an acid is added with a base, Understand the redox reactions and its impact on emf values.
<b>CO6</b>	Assess the corrosion rate of a given metal, construct an electrochemical cell to determine the concentration of the given solution.

20GE111 - C Programming Lab	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to</b>
<b>CO1</b>	Write programs for simple applications making use of basic constructs, arrays and strings.
<b>CO2</b>	Develop programs involving functions, recursion, pointers, and structures.
<b>CO3</b>	Create applications using sequential and random access file processing.

20EL111-Interpersonal Skills - Listening and Speaking Lab	
<b>COs</b>	<b>Course Outcome: At the end of the course learners will be able to</b>
<b>CO1</b>	Listen and respond appropriately.
<b>CO2</b>	Participate in group discussions.
<b>CO3</b>	Make effective presentations.
<b>CO4</b>	Participate confidently and appropriately in conversations both formal and informal.
<b>CO5</b>	Utilize mass media and technology effectively.
<b>CO6</b>	Interpret contextual knowledge clearly.



# 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 9001:2015 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 – Odd semester - 2021 -22

### **B.Tech. - Computer Science & Business Systems – 1<sup>st</sup> semester**

S. No.	Semester	Theory/ Practical	Course Code / Course Name
1.	1	Theory	20MA102 - Discrete Mathematics
2.	1	Theory	20MA103 - Introduction to Statistics, Probability and Calculus
3.	1	Theory	20IT101 - Fundamentals of Computer Science + Lab
4.	1	Theory & Practical	20EE103 - Principles of Electrical Engineering + Lab
5.	1	Theory & Practical	20PH103 - Fundamentals of Physics + Lab
6.	1	Theory & Practical	20EL102 - Business Communication and Value Sciences - I

## First Semester - B.Tech. / CSBS

<b>20MA102-Discrete Mathematics</b>	
<b>COs</b>	<b>Course Outcome: The student will be able to</b>
<b>CO1</b>	Check the validity of the argument
<b>CO2</b>	Construct truth tables and optimize logic by maps
<b>CO3</b>	Define various algebraic structures, axioms and properties
<b>CO4</b>	Analyze various proof techniques and application of principles
<b>CO5</b>	Apply graph theory techniques to solve real life problems

<b>20MA103- Introduction to Statistics, Probability and Calculus</b>	
<b>COs</b>	<b>Course Outcome: The student will be able to</b>
<b>CO1</b>	Apply the concepts of basic statistics, find mean, median, mode, standard deviation, mean deviation, quartile deviation and range for a given data.
<b>CO2</b>	Make use of probability concepts in problems of uncertainty.
<b>CO3</b>	Identify and apply the discrete and continuous distributions concepts in real life problems
<b>CO4</b>	Evaluate the area and volume by using multiple integrals

<b>20IT101 - Fundamentals of Computer Science + Lab</b>	
<b>COs</b>	<b>Course Outcome: Upon completion of the course, the students will be able to:</b>
<b>CO1</b>	Apply problem solving techniques to simple computational problems
<b>CO2</b>	Understand the syntax and constructs of C language
<b>CO3</b>	Develop structured programs using basic constructs in C
<b>CO4</b>	Understand pointers and arrays in C
<b>CO5</b>	Understand Unix system interface
<b>CO6</b>	Apply various programming methods

**20EEE103-Principles of Electrical Engineering + Lab**

<b>COs</b>	<b>Course Outcome: After successful completion of the course, the student will be able to:</b>
<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

**20PH103- Fundamentals of Physics + Lab**

<b>COs</b>	<b>Course Outcome: On completion of this course, the students will be able to:</b>
<b>CO1</b>	Obtain solution of the oscillator using differential equation.
<b>CO2</b>	Analyze the intensity variation of light due to Polarization and interference
<b>CO3</b>	Explain fundamentals of electromagnetism and quantum mechanics and apply it in engineering problems
<b>CO4</b>	Find solution to thermal and electrical problems faced in computer devices.
<b>CO5</b>	Analyze working principle of lasers and to summarize its applications

**20EL102 - Business Communication and Value Sciences I**

<b>COs</b>	<b>Course Outcome: After completion of the course, the student will be able to</b>
<b>CO1</b>	Recognize the need for life skills and values
<b>CO2</b>	Recognize own strengths and opportunities
<b>CO3</b>	Apply the life skills to different situations
<b>CO4</b>	Understand the basic tenets of communication
<b>CO5</b>	Apply the basic communication practices in different types of communication
<b>CO6</b>	Evaluate the importance of self-awareness, confidence and communication.