



**R.M.K. ENGINEERING COLLEGE**  
**RSM Nagar, Kavaraipettai – 601 206**



**Department of Electrical and Electronics Engineering**

**List of courses offered during 2021-22**

**Even Semester**

<b>Sl. No.</b>	<b>Semester</b>	<b>Theory/Practical</b>	<b>Course Code / Course Name</b>
1		Theory	20MA403 Numerical Methods
2		Theory	20EE404 AC Machines
3		Theory	20EE8402 Microprocessor and Microcontrollers
4		Theory	20EE403 Measurements and Instrumentation
5		Theory	20GE 301 Universal Human values –Understanding Harmony
6		Theory	20EE401 -control systems
7		Practical	20EE411- Microprocessor and Microcontrollers Laboratory
8		Practical	20EE 412 AC Machines lab
9		Practical	20EE413-Control and Instrumentation lab
10		Practical	20CS414 Aptitude and coding skills -II
11		Theory	EE8601 – Solid State Drives
12		Theory	EE8602- Protection and Switch Gear
13		Theory	EE 8691 – Embedded Systems
14		Theory	EE8002 Design of Electrical Apparatus
15		Theory	EE8005 Special Electrical Machines
16		Practical	EE8661 Power Electronics and Drives Laboratory
17		Practical	EE8681 Microprocessors and Microcontrollers Laboratory
18		Practical	EE8611 Mini Project
19		Theory	MG 8591– Principles of management
20		Theory	EE8018–Microcontroller Based System Design
21		Theory	EE8811 – Project work

**Course Code:** 20MA403  
**Course Name:** Numerical Methods

<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Compute the solutions of algebraic, transcendental and the system of equations
<b>CO – 2</b>	Implement the numerical techniques of interpolation in equal and unequal intervals.
<b>CO – 3</b>	Apply the concept of Numerical differentiation and integration in engineering applies the numerical techniques of differentiation and integration for engineering problems.
<b>CO – 4</b>	Employ the various techniques and methods for solving first and second order ordinary differential equations.
<b>CO – 5</b>	Solve the partial differential equations with initial and boundary conditions by using certain techniques with engineering applications

**Course Code:** 20EE404  
**Course Name:** AC Machines

<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Illustrate the construction and working of alternators and apply various methods to calculate voltage regulation
<b>CO – 2</b>	Explain the operation and derive the power equations of synchronous motor
<b>CO – 3</b>	Illustrate the construction and operation of three phase induction motor and to calculate the performance characteristics using circle diagram
<b>CO – 4</b>	Examine various starting methods, speed control methods and breaking of three phase induction motor
<b>CO – 5</b>	Identify proper single phase induction motor for specific application requirements
<b>CO-6</b>	Explain the fundamentals of special machines

**Course Code:** 20EE8402  
**Course Name:** Microprocessor and Microcontrollers

<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Demonstrate the functional blocks of 8085 microprocessor
<b>CO – 2</b>	Develop simple assembly language programs of 8085 microprocessor
<b>CO – 3</b>	Summarize the architecture and the memory organization of 8051 microcontroller.
<b>CO – 4</b>	Utilize the peripherals and interfacing concepts with 8085 microprocessor and 8051 microcontroller
<b>CO – 5</b>	Analyze the data transfer information through serial and parallel ports.
<b>CO- 6</b>	Design and simulate microcontroller based systems used for control and monitoring

<b>Course Code:</b> 20GE 301	
<b>Course Name:</b> Universal Human values –Understanding Harmony	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Would become more aware of themselves, and their surroundings (family, society,nature)
<b>CO – 2</b>	Would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind
<b>CO – 3</b>	Would have better critical ability
<b>CO – 4</b>	Would become sensitive to their commitment towards what they have understood(human values, human relationship and human society)
<b>CO – 5</b>	Would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction

<b>Course Code:</b> 20EE403	
<b>Course Name:</b> Measurements and Instrumentation	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Understand the fundamental aspects of measurement in engineering
<b>CO – 2</b>	Describe the working principle of measuring instruments
<b>CO – 3</b>	Interpret the importance of bridge circuits in measurements
<b>CO – 4</b>	Explain the operation of storage devices
<b>CO – 5</b>	Illustrate the functions of display devices
<b>CO- 6</b>	Describe various transducers, their characteristics and applications

<b>Course Code:</b> 20EE401	
<b>Course Name:</b> control systems	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Develop mathematical model of linear mechanical and electrical systems
<b>CO – 2</b>	Summarize the time response analysis of first and second order systems
<b>CO – 3</b>	Determine the applications of P, PI, PID controllers
<b>CO – 4</b>	Analyze the frequency response of open and closed loop systems
<b>CO – 5</b>	Estimate the stability and suitable compensators for the given system
<b>CO- 6</b>	Examine the state variables, controllability and observability of linear and time invariant systems

**Lab**

<b>Course Code: 20EE411</b>	
<b>Course Name: Microprocessor and Microcontroller Laboratory</b>	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Develop Assembly Language Programming with control instructions
<b>CO – 2</b>	Experimentally analyze with ADC and DAC interfacing techniques
<b>CO – 3</b>	Experimentally analyze interfacing of DC and AC motors
<b>CO – 4</b>	Determine the serial and parallel interfacing for communication with I/O ports
<b>CO – 5</b>	Utilize IDE for microcontrollers programming
<b>CO-6</b>	Analyze simple solutions for real time applications

<b>Course Code: 20EE412</b>	
<b>Course Name: AC Machines Laboratory</b>	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Compare the voltage regulation results of alternator.(EMF, MMF, ZPF and ASA methods)
<b>CO – 2</b>	Interpret the characteristics of synchronous motor and to know its importance in power system.
<b>CO – 3</b>	Compare the characteristics of three phase induction motor
<b>CO – 4</b>	Interpret the equivalent circuit parameters and losses of induction motor
<b>CO – 5</b>	Compare the characteristics of single phase induction motor
<b>CO-6</b>	Identify the suitable starting methods of induction motor

<b>Course Code: 20EE413</b>	
<b>Course Name: Control and Instrumentation Laboratory</b>	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Understand control theory and apply them to electrical engineering problems
<b>CO – 2</b>	Analyze the frequency response of the given system
<b>CO – 3</b>	Design compensators for a given system
<b>CO – 4</b>	Examine the basic concepts of bridge networks and transducers
<b>CO – 5</b>	Interpret the basics of signal conditioning circuits
<b>CO-6</b>	Undergo hands on training on MATLAB simulation

<b>Course Code: 20CS414</b>	
<b>Course Name: Aptitude and Coding skills –II</b>	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Develop advanced vocabulary for effective communication and reading skills
<b>CO – 2</b>	Build an enhanced level of logical reasoning and quantitative skills
<b>CO – 3</b>	Develop error correction and debugging skills in programming
<b>CO – 4</b>	Apply data structures and algorithms in problem solving

**Semester: 06**

<b>Semester: 06</b>	
<b>Course Name: Design of Electrical Apparatus(EE8002)</b>	
<b>Year of study: 2021-2022</b>	
<b>CO – 1</b>	Ability to understand the design consideration for rotating and static electrical machines
<b>CO – 2</b>	Ability to design field systems for its application
<b>CO – 3</b>	Ability to design single and three phase transformers.
<b>CO – 4</b>	Ability to design field and armature of DC machines.
<b>CO – 5</b>	Ability to design stator and rotor of induction motor.
<b>CO - 6</b>	Ability to design and analyze synchronous machines.

<b>Semester: 06</b>	
<b>Course Name: Solid State Drives ( EE8601)</b>	
<b>Year of study: 2021-2022</b>	
<b>CO – 1</b>	Ability to understand and suggest a converter for solid state drive
<b>CO – 2</b>	Ability to select suitability drive for the given application
<b>CO – 3</b>	Ability to study about the steady state operation and transient dynamics of a motorload system
<b>CO – 4</b>	Ability to analyze the operation of the converter/chopper fed dc drive
<b>CO – 5</b>	Ability to analyze the operation and performance of AC motor drives
<b>CO-6</b>	Ability to analyze and design the current and speed controllers for a closed loop solidstate DC motor drive

<b>Semester: 06</b>	
<b>Course Name: Protection and Switchgear (EE8602)</b>	
<b>Year of study: 2021-2022</b>	
<b>C302.1</b>	Explain the causes of abnormal operating conditions of the apparatus and system.
<b>C302.2</b>	Illustrate the Characteristics & functions of Electromagnetic Relays.
<b>C302.3</b>	Apply different protection schemes for apparatus protection
<b>C302.4</b>	Explain the characteristics and functions of Static & Numerical Relays
<b>C302.5</b>	Demonstrate the various abnormal behaviour happens during circuit breaker operation
<b>C302.6</b>	Explain the working of different types of Circuit Breakers

<b>Semester: 06</b>	
<b>Course Name: Embedded Systems-EE 8691</b>	
<b>Year of study: 2021-2022</b>	
<b>CO1</b>	Understand and Analyze Embedded systems.
<b>CO2</b>	Distinguish the bus communication in processors.
<b>CO3</b>	Operate various Embedded Development Strategies
<b>CO4</b>	Understand basics of Real time operating system.
<b>CO5</b>	Classify various processor scheduling algorithms.
<b>CO6</b>	Interpret an embedded system for a given application.

<b>Semester: 06</b>	
<b>Course Name: SPECIAL ELECTRICAL MACHINES (EE8005)</b>	
<b>Year of study: 2021-2022</b>	
<b>CO1</b>	<b>Explain</b> the performance characteristics of synchronous reluctance motors.
<b>CO2</b>	<b>Classify</b> the excitation modes of stepping motor
<b>CO3</b>	<b>Construct</b> the power converter circuits for Switched reluctance motor
<b>CO4</b>	<b>Analyze</b> the magnetic characteristics of brushless D.C motor
<b>CO5</b>	<b>Compare</b> the control methods of permanent magnet synchronous motor
<b>CO6</b>	<b>Analyze</b> the logical sequence operation of special machines by using Software program.

**Semester: 06****Course Name:** Microprocessors and Microcontrollers Laboratory(EE8681)**Year of study:** 2021-2022

<b>CO1</b>	Develop the simple arithmetic operations using 8085 processors
<b>CO2</b>	Explain the interfacing techniques using 8051 microcontrollers
<b>CO3</b>	Analyze two 8051 kits using serial communication.
<b>CO4</b>	Develop simple programs using 8051 controllers
<b>CO5</b>	Demonstrate basic instructions using 8051 microcontroller
<b>CO6</b>	Design and implementation of embedded system based projects

**Semester: 06****Course Name:** Power Electronics and Drives Lab(EE8661)Year of study: 2021-2022

<b>CO1</b>	Demonstration of firing circuits
<b>CO2</b>	Analyze static and dynamic characteristics of switching devices
<b>CO3</b>	Experiment with converters.
<b>CO4</b>	Experiment with switch mode power supplies.
<b>CO5</b>	Experiment with switching regulators.
<b>CO6</b>	Analyze the converter circuits using simulation software

**Semester VIII****Semester: 08****Course Name:** PRINCIPLES OF MANAGEMENT (MG8591)**Year of study:** 2021-2022

<b>CO1</b>	Define the concept of management
<b>CO2</b>	Identify current trends and issues in management
<b>CO3</b>	Explain the importance of planning and objective setting
<b>CO4</b>	Identify the authority and responsibility among people
<b>CO5</b>	Apply leadership and motivation theories
<b>CO6</b>	Examine qualitative and quantitative information to control methods

**Semester: 08**

**Course Name: Microcontroller Based System Design (EE8018)Year of study: 2021-2022**

<b>CO1</b>	Impart knowledge about Architecture of PIC microcontroller
<b>CO2</b>	Interrupts and timers
<b>CO3</b>	Peripheral devices for data communication and transfer
<b>CO4</b>	Functional blocks of ARM processor
<b>CO5</b>	Architecture of ARM processors
<b>CO6</b>	Design and programming of microcontroller based system design-casestudies and exercises

**Semester: 08**

**Course Name: Project Work(EE8811)Year of study:2021-2022**

<b>CO1</b>	Explain the engineering concepts
<b>CO2</b>	Solve problems to new situations with knowledge, facts, techniquesand rules in a different way
<b>CO3</b>	Discover new computational platform in electrical & electronicsfields
<b>CO4</b>	Determine the performance of complex power network
<b>CO5</b>	Formulate real world problem with global outlook
<b>CO6</b>	Improve the managerial skills to meet the industry