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

Department of Electrical and Electronics Engineering

List of courses offered during 2022-23

Even Semester

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1	4	Theory	20MA403 Numerical Methods
2	4	Theory	20EE404 AC Machines
3	4	Theory	20EE8402 Microprocessor and Microcontrollers
4	4	Theory	20EE403 Measurements and Instrumentation
5	4	Theory	20GE 301 Universal Human values –Understanding Harmony
6	4	Theory	20EE401 -Control systems
7	4	Practical	20EE411- Microprocessor and Microcontrollers Laboratory
8	4	Practical	20EE 412 AC Machines lab
9	4	Practical	20EE413-Control and Instrumentation lab
10	4	Practical	20CS414 Aptitude and coding skills -II
11	6	Theory	20EE601-Solid State Drives
12	6	Theory	20EE602-Power System Analysis
13	6	Theory	20EE603-Digital Signal Processing
14	6	Theory	20EE604-Automotive Electronics
15	6	Theory	20EE912-Computer Architecture (Professional Elective II)
16	6	Theory	20EE919-Computer Networks (Professional Elective III)
17	6	Practical	20EE611 -Power Electronics Laboratory
18	6	Practical	20CS614 -Advanced Aptitude and Coding Skills – II
19	8	Theory	MG 8591– Principles of management
21	8	Practical	EE8811 – Project work

Course Code: 20MA403	
Course Name: Numerical Methods	
CO	**Course Outcome(CO) – Statements**
CO1	Compute the solutions of algebraic, transcendental and the system of equations
CO2	Implement the numerical techniques of interpolation in equal and unequal intervals.
CO3	Apply the concept of Numerical differentiation and integration in engineering applies the numerical techniques of differentiation and integration for engineering problems.
CO4	Employ the various techniques and methods for solving first and second order ordinary differential equations.
CO5	Solve the partial differential equations with initial and boundary conditions by using certain techniques with engineering applications

Course Code: 20EE404	
Course Name: AC Machines	
CO	**Course outcome(CO) – Statements**
CO1	Illustrate the construction and working of alternators and apply various methods tocalculate voltage regulation
CO2	Explain the operation and derive the power equations of synchronous motor
CO3	Illustrate the construction and operation of three phase induction motor and to calculate the performance characteristics using circle diagram
CO4	Examine various starting methods, speed control methods and breaking of three phase induction motor
CO5	Identify proper single phase induction motor for specific application requirements
CO6	Explain the fundamentals of special machines

Course Code: 20EE8402	
Course Name: Microprocessor and Microcontrollers	
CO	**Course outcome(CO) – Statements**
CO1	Demonstrate the functional blocks of 8085 microprocessor
CO2	Develop simple assembly language programs of 8085 microprocessor
CO3	Summarize the architecture and the memory organization of 8051 microcontroller.
CO4	Utilize the peripherals and interfacing concepts with 8085microprocessor and 8051 microcontroller
CO5	Analyze the data transfer information through serial and parallel ports.
CO6	Design and simulate microcontroller based systems used for control and monitoring

Course Code: 20GE301	
Course Name: Universal Human values –Understanding Harmony	
CO	**Course outcome(CO) – Statements**
CO1	Would become more aware of themselves, and their surroundings (family, society, nature)
CO2	Would become more responsible in life, and in handling problems with sustainable solutions, whilekeeping human relationships and human nature in mind
CO3	Would have better critical ability
CO4	Would become sensitive to their commitment towards what they have understood (human values, human relationship and human society)
CO5	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

Course Code: 20EE403	
Course Name: Measurements and Instrumentation	
CO	**Course outcome(CO) – Statements**
CO1	Understand the fundamental aspects of measurement in engineering
CO2	Describe the working principle of measuring instruments
CO3	Interpret the importance of bridge circuits in measurements
CO4	Explain the operation of storage devices
CO5	Illustrate the functions of display devices
CO6	Describe various transducers, their characteristics and applications

Course Code: 20EE401	
Course Name: Control systems	
CO	**Course outcome(CO) – Statements**
CO1	Develop mathematical model of linear mechanical and electrical systems
CO2	Summarize the time response analysis of first and second order systems
CO3	Determine the applications of P, PI, PID controllers
CO4	Analyze the frequency response of open and closed loop systems
CO5	Estimate the stability and suitable compensators for the given system
CO6	Examine the state variables, controllability and observability of linear and time invariant systems

Lab

Course Code: 20EE411	
Course Name: Microprocessor and Microcontroller Laboratory	
CO	**Course outcome(CO) – Statements**
CO1	Develop Assembly Language Programming with control instructions
CO2	Experimentally analyze with ADC and DAC interfacing techniques
CO3	Experimentally analyze interfacing of DC and AC motors
CO4	Determine the serial and parallel interfacing for communication with I/O ports
CO5	Utilize IDE for microcontrollers programming
CO6	Analyze simple solutions for real time applications

Course Code: 20EE412	
Course Name: AC Machines Laboratory	
CO	**Course outcome(CO) – Statements**
CO1	Compare the voltage regulation results of alternator.(EMF, MMF, ZPF and ASA methods)
CO2	Interpret the characteristics of synchronous motor and to know its importance inpower system.
CO3	Compare the characteristics of three phase induction motor
CO4	Interpret the equivalent circuit parameters and losses of induction motor
CO5	Compare the characteristics of single phase induction motor
CO6	Identify the suitable starting methods of induction motor

Course Code: 20EE413	
Course Name: Control and Instrumentation Laboratory	
CO	**Course outcome(CO) – Statements**
CO1	Understand control theory and apply them to electrical engineering problems
CO2	Analyze the frequency response of the given system
CO3	Design compensators for a given system
CO4	Examine the basic concepts of bridge networks and transducers
CO5	Interpret the basics of signal conditioning circuits
CO6	Undergo hands on training on MATLAB simulation

Course Code: 20CS414	
Course Name: Aptitude and Coding skills –II	
CO	**Course outcome(CO) – Statements**
CO1	Develop advanced vocabulary for effective communication and reading skills
CO2	Build an enhanced level of logical reasoning and quantitative skills
CO3	Develop error correction and debugging skills in programming
CO4	Apply data structures and algorithms in problem solving

Semester: 06

Course Code: 20EE601	
Course Name: Solid State drives	
CO1	Illustrate the characteristics of electric drive
CO2	Analyze Converter fed Dc motor Drives
CO3	Analyze Chopper fed Dc motor Drives
CO4	Describe the performance of Induction motor Drives
CO5	Describe the performance of Synchronous motor Drives
CO6	Design the controller for electrical drives.

Course Code: 20EE602	
Course Name: Power system Analysis	
CO1	Model the power system under steady state operating conditions
CO2	Apply numerical methods to solve the power flow problem.
CO3	Model and analyze the system under balanced fault
CO4	Model and analyze the system under unbalanced fault
CO5	Classify the power system stability
CO6	Model and analyze the transient behaviour of power system when it is subjected to a fault

Course Code: 20EE603	
Course Name:Digital Signal Processing	
CO1	Analyze the properties of Signals and Systems.
CO2	Apply Z transform in Discrete Time signal analysis.
CO3	Analyze Discrete Time LTI systems using DTFT
CO4	Compute decimation-in time - FFT and decimation-in-frequency - FFT for reducingcomputational complexity of DFT
CO5	Analyze IIR and FIR Filters on digital signal processors
CO6	Summarize the architecture of programmable digital signal processors

Course Code: 20EE604	
Course Name: Automotive Electronics	
C302.1	Explain the Fundamentals of automotive electrical and electronic systems and their components
C302.2	Apply the concepts of electrical and electronic subsystems to small vehicle system
C302.3	Explain the working principles of sensors and actuators in automotive
C302.4	Analyze the principles and functionalities of various Automotive Communication Protocols (ACPs)
C302.5	Explain the Safety aspects of automotive electrical and electronic system requirements
C302.6	Engage in independent study as a member o f a team and make an effective presentation on the usage of software tools/ mini project

Course Code: 20EE912	
Course Name: Computer	
Architecture	
CO1	Explain the basic principles and operations of digital computers
CO2	Design arithmetic and Logic Unit for various fixed- and floating-Point operations
CO3	Construct Pipeline architectures
CO4	Apply the concept of Interrupt and Exception handling
CO5	Recognize parallel processor and multiprocessor architecture

Course Code: 20EE912	
Course Name: Computer Networks	
CO1	Implement the basic concepts of Networking
CO2	Analyze OSI & TCP/IP layer of Networking
CO3	Implement Network / Ethernet Phy Drive
CO4	Implement MAC Layer in Network / Ethernet Driver
CO5	Implement various Networking Protocols
CO6	Analyze the logical sequence operation of special machines by using Software program.

Course Code: 20EE912	
Course Name: Computer Networks	
CO1	Develop the simple arithmetic operations using 8085 processors
CO2	Explain the interfacing techniques using 8051 microcontrollers
CO3	Analyze two 8051 kits using serial communication.
CO4	Develop simple programs using 8051 controllers
CO5	Demonstrate basic instructions using 8051 microcontroller
CO6	Design and implementation of embedded system based projects

Lab

Course code: 20EE611	
Course Name: Power Electronics Laboratory	
CO1	Determine the characteristics of SCR, IGBT, TRIAC, MOSFET and IGBT
CO2	Find the transfer characteristics of full converter, semi converter
CO3	Find the transfer characteristics of step up and step-down choppers by simulation experimentation.
CO4	Analyze the voltage waveforms for PWM inverter using various modulation techniques.
CO5	Design and experimentally verify the performance of basic DC/DC converter topologies usedfor SMPS.
CO6	Understand the performance of AC voltage controllers by simulation and experimentation

Semester VIII

Course Code: MG8591	
Course Name: Principles Of Management	
CO1	Define the concept of management
CO2	Identify current trends and issues in management
CO3	Explain the importance of planning and objective setting
CO4	Identify the authority and responsibility among people
CO5	Apply leadership and motivation theories
CO6	Examine qualitative and quantitative information to control methods

Course Code: EE8811	
Course Name: Project Work	
CO1	Explain the engineering concepts
CO2	Solve problems to new situations with knowledge, facts, techniquesand rules in a different way
CO3	Discover new computational platform in electrical & electronics fields
CO4	Determine the performance of complex power network
CO5	Formulate real world problem with global outlook
CO6	Improve the managerial skills to meet the industry