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

Department of Electrical and Electronics Engineering

List of courses offered during 2023-24

Even Semester

Sl. No.	Semester	Course	Course Code / Course Name
1	4	Theory	22GE401-Universal Human Values –II Understanding Harmony
2	4	Theory	22EE401-Digital Signal Processing
3	4	Theory-Lab Integrated	22EE402-Operating Systems
4	4	Theory-Lab Integrated	22EE403-Transmission and Distribution
5	4	Theory-Lab Integrated	22EE404-Microprocessors
6	4	Theory-Lab Integrated	22EE405-Electrical Machines -II
7	4	Theory	22EE951-Special Electrical Machines
8	4	Laboratory Course	22CS411-Aptitude and Coding Skills II
9	4	Laboratory Course	22ME411-Product Development Lab- 4
10	6	Practical	20EE932-Energy Storage and Battery Management System
11	6	Practical	20EE603-Digital Signal Processing
12	6	Practical	20EE917-EV Architecture
13	6	Theory	20AI009-Machine learning
14	6	Theory	20EE912- Computer Architecture
15	6	Theory	20EE919- Computer Networks (Professional Elective III)
16	6	Theory	20EE605- Power System Analysis
17	6	Theory	20EE903-Special Electrical Machines - (Professional Elective II)
18	6	Laboratory Course	20CS614 -Advanced Aptitude and Coding Skills – II
19	8	Employability Enhancement Course	EE811 – Project Work Phase-II

Course Code: 22GE301
Course Name: Universal Human Values 2: Understanding Harmony

CO	Course Outcome(CO) – Statements
CO1	Be aware of themselves, and their surroundings (family, society, nature).
CO2	Be more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
CO3	Have better critical ability.
CO4	Become sensitive to their commitment towards what they have understood (human values, human relationships, and human society).

CO5	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: 22EE401 **Course Name: Digital Signal Processing**	
CO	**Course outcome(CO) – Statements**
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 reducing computational complexity of DFT
CO5	Analyze IIR and FIR Filters on digital signal processors
CO6	Summarize the architecture of programmable digital signal processors
Course Code: 22EE402 **Course Name: Operating Systems**	
CO	**Course outcome(CO) – Statements**
CO1	Analyze thread mechanisms
CO2	Analyze various CPU scheduling algorithms
CO3	Implement the concepts of process synchronization and deadlocks
CO4	Design various memory management schemes for a given application
CO5	Implement various I/O and file management techniques
Course Code: 22EE403 **Course Name: Transmission and Distribution**	
CO	**Course outcome(CO) – Statements**
CO1	Understand the structure of power system and various distribution systems
CO2	Discuss the Modelling of the transmission line parameters
CO3	Analyse the equivalent circuits for the transmission lines based on distance
CO4	Explain the different types, characteristics of cables and design the performance parameters of different line insulators
CO5	Interpret the significance of sag on overall design overhead lines
CO6	Ability to explain the type of substation, grounding systems along with the load variation.

Course Code: 22404 **Course Name: Microprocessors**	
CO	**Course outcome(CO) – Statements**
CO1	Understand evolution and architecture microprocessors.
CO2	Understand architecture of 8086 microprocessor.

CO3	Understand and execute programs based on 8086 microprocessor
CO4	Design and interface I/O circuits.
CO5	Design and implement 8086 microprocessor based applications.
Course Code: 22EE405 **Course Name: Electrical Machines -II**	
CO	**Course outcome(CO) – Statements**
CO1	Illustrate the construction and working of alternators and apply various methods to calculate 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
CO5	Identify proper single phase induction motor for specific application requirements.
CO6	Explain the fundamentals of special machines.
Course Code: 22EE951 **Course Name: Special Electrical Machines**	
CO	**Course outcome(CO) – Statements**
CO1	Analyze and design controllers for special Electrical Machines.
CO2	Acquire the knowledge on construction and operation of stepper motor.
CO3	Acquire the knowledge on construction and operation of stepper switched reluctance motors.
CO4	Acquire the knowledge on construction and operation of permanent magnet brushless D.C. motors.
CO5	Acquire the knowledge on construction and operation of permanent magnet synchronous motors.
CO6	Select a special Machine for a particular application.

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: 20EE605 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: 20EE903 Course Name: Special Electrical Machines	
C302.1	Analyze and design controllers for special Electrical Machines.
C302.2	Acquire the knowledge on construction and operation of stepper motor.
C302.3	Acquire the knowledge on construction and operation of stepper switched reluctance motors.
C302.4	Acquire the knowledge on construction and operation of permanent magnet brushless D.C. motors.
C302.5	Acquire the knowledge on construction and operation of permanent magnet synchronous motors.
C302.6	Select a special Machine for a particular application.

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: 20EE919 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

Course Code: 20EE917 **Course Name: EV Architecture**	
CO1	Understand the architecture of Hybrid EVs.
CO2	Describe the various EV components.
CO3	Analyse the details and Specifications for the various EVs developed.

Course code: 20EE932 **Course Name: Energy Storage and Battery Management System**	
CO1	Acquire knowledge of different Li-ion Batteries performance.
CO2	Design a Battery Pack and make related calculations
CO3	Demonstrate a Battery Model or Simulation.
CO4	Estimate State-of-Charges in a Battery Pack.
CO5	Approach different BMS architectures during real world usage.

Course code: 20CS614 **Course Name: Advanced Aptitude and Coding Skills**	
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 VIII

Course Code: 20EE811 **Course Name:** Project Work	
CO1	Explain the engineering concepts
CO2	Solve problems to new situations with knowledge, facts, techniques and 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