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

Department of Electrical and Electronics Engineering

List of courses offered during 2019-20 and 2020 -2021

Even Semester

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1		Theory	MA8491 Numerical Methods
2		Theory	EE8401 Electrical Machines - II
3		Theory	EE8402 Transmission and Distribution
4		Theory	EE8403- Measurements and Instrumentation
5		Theory	EE8451- Linear Integrated Circuits and Applications
6		Theory	IC8451 -control systems
7		Practical	EE8411- Electrical Machines Laboratory – II
8		Practical	EE8461- Linear Integrated Circuits and Applications lab
9		Practical	EE8412-Technical Seminar
10		Theory	EE8601 – Solid State Drives
11		Theory	EE8602- Protection and Switch Gear
12		Theory	EE 8691 – Embedded Systems
13		Theory	EE8002 Design of Electrical Apparatus
14		Theory	EE8005 Special Electrical Machines
15		Practical	EE8661 Power Electronics and Drives Laboratory
16		Practical	EE8681 Microprocessors and Microcontrollers Laboratory
17		Practical	EE8611 Mini Project
18		Theory	EE6801– Electric Energy Generation Conservation and Utilization
19		Theory	EE6009 – Power Electronics for Renewable Energy Systems
		Theory	GE 6757-Total Quality Management
20		Theory	EE6811 – Project work

Semester: 04 **Course Name: Numerical methods (MA8491)** **Year of study: 2019-20 and 2020-21(2017 Regulation)**		**Level of Knowledge**
CO – 1	Find the solutions of algebraic and transcendental equations	K1
CO – 2	Choose power method for Eigen values	K1
CO – 3	Apply the concept of Numerical differentiation and integration in engineering	K3
CO – 4	Examine Initial value problem for Ordinary differential equation	K4
CO – 5	Apply the boundary value problem in PDE and ODE	K3
CO-6	Solve the Linear system of Equation	K3

Semester: 04 **Course Name: Transmission & Distribution (EE8402)** **Year of study: 2019-20& 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO – 1	To understand the importance and the functioning of transmission line parameters.	K2
CO – 2	To understand the concepts of Lines and Insulators.	K2
CO – 3	To acquire knowledge on the performance of Transmission lines.	K2
CO – 4	To understand the importance of distribution of the electric power in power system.	K2
CO – 5	To acquire knowledge on Underground Cabilitys	K2
CO-6	To become familiar with the function of different components used in Transmission and Distribution levels of power system and modeling of these components.	K3

Semester: 04 **Course Name: Electrical Machines-II (EE8401)** **Year of study: 2019-20 & 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO – 1	Ability to understand the construction and working principle of Synchronous Generator	K2
CO – 2	Ability to understand MMF curves and armature windings	K2
CO – 3	Ability to acquire knowledge on Synchronous motor.	K2
CO – 4	Ability to understand the construction and working principle of Three phase Induction Motor	K2
CO – 5	Ability to understand the construction and working principle of Special Machines	K2
CO-6	Ability to predetermine the performance characteristics of Synchronous Machines.	K3

Semester: 04 Course Name: Linear integrated circuits and applications EE8451 Year of study: 2019-20& 2020-21 (2017 Regulation)		Level of Knowledge
CO – 1	Outline the fabrication process of IC	K2
CO – 2	Illustrate the ideal and non ideal characteristics of op-amp	K3
CO – 3	Explain various applications of op-amp.	K3
CO – 4	Design the different types of oscillators and ADC,DAC	K3
CO – 5	Illustrate various application ICs	K2
CO-6	Explain the working of special function ICs.	K2

Semester: 04 Course Name: Measurements and Instrumentation EE8403 Year of study: 2019-20& 2020-21 (2017 Regulation)		Level of Knowledge
CO – 1	Outline the fabrication process of IC	K2
CO – 2	Explain the working principle of electrical measuring instruments	K3
CO – 3	Interpret the resistance, capacitance and inductance using bridges	K3
CO – 4	Select the storage devices for measuring electrical quantities	K3
CO – 5	Choose the analog and digital display devices for measuring electrical quantities	K2
CO-6	Identify the type of electrical transducers for physical quantities	K2

Semester: 04 Course Name: Control Systems-IC 8451 Year of study: 2019-20 (2017 Regulation)		Level of Knowledge
CO – 1	**Develop** various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.	**K3**
CO – 2	**Illustrate** the time response of first and second order systems using standard test signals and the use of PID controller in closed loop system.	**K2**
CO – 3	**Examine** the frequency-domain response of various models of linear system.	**K4**
CO – 4	**Identify** a compensator system for the given specifications.	**K3**
CO – 5	**Interpret** characteristics of the system to develop mathematical model in state-variable form (state variable models)	**K2**
CO-6	**Perceive** the solution for complex control problem.	**K5**

Course Code: EE8411 **Course Name: Electrical Machines Laboratory – II**	
CO	**Course outcome(CO) – Statements**
CO – 1	Ability to understand and analyze EMF and MMF methods
CO – 2	Ability to analyze the characteristics of V and Inverted V curves
CO – 3	Ability to understand the importance of Synchronous machines
CO – 4	Ability to understand the importance of Induction Machines
CO – 5	Ability to acquire knowledge on separation of losses

Course Code: EE8461 **Course Name: Linear and Digital Integrated Circuits Laboratory**	
CO	**Course outcome(CO) – Statements**
CO – 1	Ability to understand and implement Boolean Functions
CO – 2	Ability to understand the importance of code conversion
CO – 3	Ability to Design and implement 4-bit shift registers
CO – 4	Ability to acquire knowledge on Application of Op-Amp
CO – 5	Ability to Design and implement counters using specific counter IC.

Course Code: EE8412 Course Name:Technical Seminar	
CO	**Course outcome(CO) – Statements**
CO 209. 1	To encourage the students to study advanced engineering developments
CO 209. 2	To prepare and present technical reports.
CO 209. 3	To encourage the students to use various teaching aids such as overhead projectors, power point presentation and demonstrative models.

Semester: 06 **CourseName:Design of Electrical Apparatus(EE8002)** **Year of study: 2019-2020& 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO – 1	Ability to understand the design consideration for rotating and static electrical machines	K2
CO – 2	Ability to design field systems for its application	K3
CO – 3	Ability to design single and three phase transformers.	K3
CO – 4	Ability to design field and armature of DC machines.	K3
CO – 5	Ability to design stator and rotor of induction motor.	K3
CO - 6	Ability to design and analyze synchronous machines.	K4

Semester: 06 **Course Name: Solid State Drives (EE8601)** **Year of study: 2019-20 & 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO – 1	Ability to understand and suggest a converter for solid state drive	K2
CO – 2	Ability to select suitability drive for the given application	K2
CO – 3	Ability to study about the steady state operation and transient dynamics of a motor load system	K2
CO – 4	Ability to analyze the operation of the converter/chopper fed dc drive	K3
CO – 5	Ability to analyze the operation and performance of AC motor drives	K3
CO-6	Ability to analyze and design the current and speed controllers for a closed loop solid state DC motor drive	K3

Semester: 06 **Course Name:** ***Protection and Switchgear*** (EE8602) **Year of study: 2019-20& 2020-21 (2017 Regulation)**		**Level of Knowledge**
C302.1	Explain the causes of abnormal operating conditions of the apparatus and system.	K2
C302.2	Illustrate the Characteristics & functions of Electromagnetic Relays.	K2
C302.3	Apply different protection schemes for apparatus protection	K3
C302.4	Explain the characteristics and functions of Static & Numerical Relays	K2
C302.5	Demonstrate the various abnormal behaviour happens during circuit breaker operation	K2
C302.6	Explain the working of different types of Circuit Breakers	K2

Semester: 06 **Course Name: Embedded Systems-EE 8691** **Year of study: 2019-20& 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO1	Understand and Analyze Embedded systems.	**K4**
CO2	Distinguish the bus communication in processors.	**K4**
CO3	Operate various Embedded Development Strategies	**K3**
CO4	Understand basics of Real time operating system.	**K2**
CO5	Classify various processor scheduling algorithms.	**K2**
CO6	Interpret an embedded system for a given application.	**K3**

Semester: 07 **Course Name: SPECIAL ELECTRICAL MACHINES (EE8005)** **Year of study: 2019-20& 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO1	**Explain** the performance characteristics of synchronous reluctance motors.	K2
CO2	**Classify** the excitation modes of stepping motor	K2
CO3	**Construct** the power converter circuits for Switched reluctance motor	K3
CO4	**Analyze** the magnetic characteristics of brushless D.C motor	K4
CO5	**Compare** the control methods of permanent magnet synchronous motor	K4
CO6	**Analyze** the logical sequence operation of special machines by using Software program.	K4

Semester: 06 **Course Name:** Microprocessors and Microcontrollers Laboratory**(**EE8681**)** **Year of study: 2019-20& 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO1	Develop the simple arithmetic operations using 8085 processors	K3
CO2	Explain the interfacing techniques using 8051 microcontrollers	K2
CO3	Analyze two 8051 kits using serial communication.	K4
CO4	Develop simple programs using 8051 controllers	K3
CO5	Demonstrate basic instructions using 8051 microcontroller	K2
CO6	Design and implementation of embedded system based projects	K6

Semester: 06 **Course Name: Power Electronics and Drives Lab(EE8661)** **Year of study: 2019-20& 2020-21 (2017 Regulation)**		**Level of Knowledge**
CO1	Demonstration of firing circuits	K2
CO2	Analyze static and dynamic characteristics of switching devices	K4
CO3	Experiment with converters.	K3
CO4	Experiment with switch mode power supplies.	K3
CO5	Experiment with switching regulators.	K3
CO6	Analyze the converter circuits using simulation software	K4

Semester VIII

Semester: 08 **Course Name:** Electric Energy Generation, Utilization and Conservation (EE6801) Year of study: **2019-20**		**Level of Knowledge**
C4**09**.1	Explain the various concepts of renewable energy resources	K2
C4**09**.2	Interpret energy conservation and energy auditing.	K2
C4**09**.3	Develop the illumination systems based on various lightning system	K2
C4**09**.4	Demonstrate the different methods of electric heating and welding	K2
C4**09**.5	Illustrate the traction system and their performance	K2
C4**09**.6	Organize the engineering aspects of electrical energy generation and utilization.	K2

Semester: 08 **Course Name:** EE6009 Power Electronics for Renewable Energy Systems Year of study: **2019-20**		**Level of Knowledge**
C4**10**.1	Interpret knowledge about the stand alone and grid connected renewable energy systems	K2
C4**10**.2	Derive the criteria for designing the power converters for renewable energy applications	K2
C4**10**.3	Analyze the various operating modes of wind electrical generators and solar energy systems	K4
C4**10**.4	Design different power converters for renewable energy systems	K4
C4**10**.5	Develop maximum power point tracking algorithms	K3
C4**10**.6	Analyze power system operation, stability, control and protection	K3

Semester: 08 **Course Name:** GE6757 Total Quality Management Year of study: **2019-20**		**Level of Knowledge**
C4**11**.1	Facilitate the Quality Management principles and its process	K3
C4**11**.2	Explain the customer care management systems	K2
C4**11**.3	Apply the leadership qualities in management	K3
C4**11**.4	Explain the Benchmark in manufacturing system	K2
C4**11**.5	Explain the ISO Auditing system	K2
C4**11**.6	Design the techniques for quality management in the field of manufacturing and services processes.	K4

Semester: 08 **Course Name:** Project Work(EE6811) Year of study: **2019-20**		**Level of Knowledge**
C412.1	Explain the engineering concepts	K2
C412.2	Solve problems to new situations with knowledge, facts, techniques and rules in a different way	K3
C412.3	Discover new computational platform in electrical & electronics fields	K4
C412.4	Determine the performance of complex power network	K5
C412.5	Formulate real world problem with global outlook	K6
C412.6	Improve the managerial skills to meet the industry	A3