R.M.K. ENGINEERING COLLEGE
RSM Nagar, Kavaraipettai - 601206

## 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 |  | EE8461- Linear Integrated Circuits and Applications lab |  |
| 9 |  | Theory | EE8412-Technical Seminar |
| 10 |  | Theory | EE8601 - Solid State Drives |
| 11 |  | Theory | EE 8691- Embetion and Switch Gear |
| 12 |  | Practical | EE8002 Design of Electrical Apparatus Special Electrical Machines |
| 13 |  | Practical | EE86681 Power Electronics and Drives Laboratory |
| 14 |  | Theory | EE8611 Mini Projest |
| 15 |  | Theory and Microcontrollers Laboratory |  |
| 16 |  | Theory | EE6801- Electric Energy Generation Conservation <br> and Utilization |
| 17 |  | EE6009 - Power Electronics for Renewable Energy |  |
| 18 |  | Systems |  |
| 19 |  | Theory | EE6757-Total Quality Management - Project work |
|  |  |  |  |


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


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


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


| Semester: 04 <br> Course Name: Linear integrated circuits and applications EE8451 <br> Year of study: 2019-20\& 2020-21 (2017 Regulation) | Level of <br> Knowledge |  |
| :---: | :--- | :---: |
| $\mathbf{C O - 1}$ | Outline the fabrication process of IC | $\mathbf{K 2}$ |
| $\mathbf{C O}-\mathbf{2}$ | Illustrate the ideal and non ideal characteristics of op-amp | $\mathbf{K 3}$ |
| $\mathbf{C O}-\mathbf{3}$ | Explain various applications of op-amp. | $\mathbf{K 3}$ |
| $\mathbf{C O}-\mathbf{4}$ | Design the different types of oscillators and ADC,DAC | $\mathbf{K 3}$ |
| $\mathbf{C O}-\mathbf{5}$ | Illustrate various application ICs | $\mathbf{K 2}$ |
| $\mathbf{C O - 6}$ | Explain the working of special function ICs. | $\mathbf{K 2}$ |


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


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


| Course Code: EE8411 <br> Course Name: Electrical Machines Laboratory - II <br> $\mathbf{C O}$ <br> Course outcome(CO) - Statements <br> $\mathbf{C O}-\mathbf{1}$ | Ability to understand and analyze EMF and MMF methods |
| :---: | :--- |
| $\mathbf{C O}-\mathbf{2}$ | Ability to analyze the characteristics of V and Inverted V curves |
| $\mathbf{C O}-\mathbf{3}$ | Ability to understand the importance of Synchronous machines |
| $\mathbf{C O}-\mathbf{4}$ | Ability to understand the importance of Induction Machines |
| $\mathbf{C O}-\mathbf{5}$ | Ability to acquire knowledge on separation of losses |


| Course Code: EE8461 <br> Course Name: <br> Linear and Digital Integrated Circuits Laboratory <br> $\mathbf{C O}-\mathbf{1}$ <br> Course outcome(CO) - Statements <br> $\mathbf{C O}-\mathbf{2}$ <br> $\mathbf{C O}-\mathbf{3}$ <br> Ability to understand and implement Boolean Functions <br> $\mathbf{C O}-\mathbf{4}$ | Ability to Design and implement 4-bit shift tegisters acquire knowledge on Application of Op-Amp |
| :---: | :--- |
| $\mathbf{C O}-\mathbf{5}$ | Ability to Design and implement counters using specific counter IC. |


| Course Code: EE8412 <br> Course Name:Technical Seminar <br> CO <br> CO 209.1 <br> CO 209.2 <br> To encourage the students to study advanced engineering developments <br> CO 209.3To encourage the students to use various teaching aids such as overhead projectors, power point <br> presentation and demonstrative models. |
| :--- | :--- |


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


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


| Semester: 06 <br> Course Name: Protection and Switchgear (EE8602) <br> Year of study: 2019-20\& 2020-21 (2017 Regulation) | Level of <br> 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 <br> operation | K 2 |
| C302.6 | Explain the working of different types of Circuit Breakers | K 2 |


| Semester: 06 <br> Course Name: Embedded Systems-EE 8691 <br> Year of study: 2019-20\& 2020-21 (2017 Regulation) | Level of Knowledge <br> 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 <br> Course Name: SPECIAL ELECTRICAL MACHINES (EE8005) <br> Year of study: 2019-20\& 2020-21 (2017 Regulation) | Level of <br> Knowledge |  |
| :--- | :--- | :---: |
| CO1 | Explain the performance characteristics of synchronous reluctance <br> motors. | K 2 |
| CO2 | Classify the excitation modes of stepping motor | K 2 |
| CO3 | Construct the power converter circuits for Switched reluctance <br> motor | K 3 |
| CO4 | Analyze the magnetic characteristics of brushless D.C motor | K 4 |
| CO5 | Compare the control methods of permanent magnet synchronous <br> motor | K 4 |
| CO6 | Analyze the logical sequence operation of special machines by <br> using Software program. | K 4 |


| Semester: 06 <br> Course Name: Microprocessors and Microcontrollers Laboratory(EE8681) <br> Year of study: 2019-20\& 2020-21 (2017 Regulation) | Level of <br> 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 <br> Course Name: Power Electronics and Drives Lab(EE8661) <br> Year of study: 2019-20\& 2020-21 (2017 Regulation) | Level of <br> 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 <br> Course Name: Electric Energy Generation, Utilization and Conservation <br> (EE6801) <br> Year of study: 2019-20 | Level of <br> Knowledge |  |
| :--- | :--- | :---: |
| C409.1 | Explain the various concepts of renewable energy resources | K2 |
| C409.2 | Interpret energy conservation and energy auditing. | K2 |
| C409.3 | Develop the illumination systems based on various lightning system | K2 |
| C409.4 | Demonstrate the different methods of electric heating and welding | K 2 |
| C409.5 | Illustrate the traction system and their performance | K 2 |
| C409.6 | Organize the engineering aspects of electrical energy generation and <br> utilization. | K 2 |


| Semester: 08 <br> Course Name: EE6009 Power Electronics for Renewable Energy Systems Year <br> of study: 2019-20 |  | Level of <br> Knowledge |
| :--- | :--- | :--- |
| C410.1 | Interpret knowledge about the stand alone and grid connected <br> renewable energy systems | K2 |
| C410.2 | Derive the criteria for designing the power converters for renewable <br> energy applications | K2 |
| C410.3 | Analyze the various operating modes of wind electrical generators and <br> solar energy systems | K4 |
| C410.4 | Design different power converters for renewable energy systems | K4 |
| C410.5 | Develop maximum power point tracking algorithms | K3 |
| C410.6 | Analyze power system operation, stability, control and protection | K3 |


| Semester: 08 <br> Course Name: GE6757 Total Quality Management <br> Year of study: 2019-20 | Level of <br> Knowledge |  |
| :--- | :--- | :--- |
| C411.1 | Facilitate the Quality Management principles and its process | K3 |
| C411.2 | Explain the customer care management systems | K2 |
| C411.3 | Apply the leadership qualities in management | K2 |
| C411.4 | Explain the Benchmark in manufacturing system | K2 |
| C411.5 | Explain the ISO Auditing system | K4 |
| C411.6 | Design the techniques for quality management in the field of manufacturing <br> and services processes. |  |


| Semester: 08 <br> Course Name: Project Work(EE6811) <br> Year of study: 2019-20 |  | Level of <br> Knowledge |
| :--- | :--- | :--- |
| C412.1 | Explain the engineering concepts | K2 |
| C412.2 | Solve problems to new situations with knowledge, facts, techniques <br> and rules in a different way | K3 |
| C412.3 | Discover new computational platform in electrical \& electronics <br> 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 |  |

