

**MARTHANDAM COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**Course Outcomes – Odd Semester 2020-21**

| Sl. No. | Semester | Theory/<br>Practical | Course Code / Course Name                            |
|---------|----------|----------------------|------------------------------------------------------|
| 1)      | 3        | Theory               | MA8353 Transforms and Partial Differential Equations |
| 2)      | 3        | Theory               | EE8351 Digital Logic Circuits                        |
| 3)      | 3        | Theory               | EE8391 Electromagnetic Theory                        |
| 4)      | 3        | Theory               | EE8301 Electrical Machines - I                       |
| 5)      | 3        | Theory               | EC8353 Electron Devices and Circuits                 |
| 6)      | 3        | Theory               | ME8792 Power Plant Engineering                       |
| 7)      | 3        | Practical            | EC8311 Electronics Laboratory                        |
| 8)      | 3        | Practical            | EE8311 Electrical Machines Laboratory – I            |
| 9)      | 5        | Theory               | EE8501 Power System Analysis                         |
| 10)     | 5        | Theory               | EE8551 Microprocessors and Microcontrollers          |
| 11)     | 5        | Theory               | EE8552 Power Electronics                             |
| 12)     | 5        | Theory               | EE8591 Digital Signal Processing                     |
| 13)     | 5        | Theory               | CS8392 Object Oriented Programming                   |
| 14)     | 5        | Theory               | OMD551 Basics of biomedical Instrumentation          |
| 15)     | 5        | Practical            | EE8511 Control and Instrumentation Laboratory        |
| 16)     | 5        | Practical            | HS8581 Professional Communication                    |
| 17)     | 5        | Practical            | CS8383 Object Oriented Programming Laboratory        |
| 18)     | 7        | Theory               | EE8701 High Voltage Engineering                      |
| 19)     | 7        | Theory               | EE8702 Power System Operation and Control            |
| 20)     | 7        | Theory               | EE8703 Renewable Energy Systems                      |
| 21)     | 7        | Theory               | GE8071 Disaster Management                           |
| 22)     | 7        | Theory               | EE8009 Control of Electrical Drives                  |
| 23)     | 7        | Theory               | OML751 Testing of Materials                          |
| 24)     | 7        | Practical            | EE8711 Power System Simulation Laboratory            |
| 25)     | 7        | Practical            | EE8712 Renewable Energy Systems Laboratory           |

**Course Outcomes – EVEN Semester 2020-21**

| Sl. No. | Semester | Theory/ Practical | Course Code / Course Name                                |
|---------|----------|-------------------|----------------------------------------------------------|
| 1)      | 4        | Theory            | MA8491 Numerical Methods                                 |
| 2)      | 4        | Theory            | EE8401 Electrical Machines - II                          |
| 3)      | 4        | Theory            | EE8402 Transmission and Distribution                     |
| 4)      | 4        | Theory            | EE8403 Measurements and Instrumentation                  |
| 5)      | 4        | Theory            | EE8451 Linear Integrated Circuits and Applications       |
| 6)      | 4        | Theory            | IC8451 Control Systems                                   |
| 7)      | 4        | Practical         | EE8411 Electrical Machines Laboratory - II               |
| 8)      | 4        | Practical         | EE8461 Linear and Digital Integrated Circuits Laboratory |
| 9)      | 4        | Practical         | EE8412 Technical Seminar                                 |
| 10)     | 6        | Theory            | EE8601 Solid State Drives                                |
| 11)     | 6        | Theory            | EE8602 Protection and Switchgear                         |
|         | 6        | Theory            | EE8691 Embedded Systems                                  |
| 12)     | 6        | Theory            | EE8002 Design of Electrical Apparatus                    |
| 13)     | 6        | Theory            | EE8005 Special Electrical Machines                       |
| 14)     | 6        | Practical         | EE8661 Power Electronics and Drives Laboratory           |
| 15)     | 6        | Practical         | EE8681 Microprocessors and Microcontrollers Laboratory   |
| 16)     | 6        | Practical         | EE8611 Mini Project                                      |
| 17)     | 8        | Theory            | EE8011 Flexible AC Transmission Systems                  |
| 18)     | 8        | Theory            | EI8073 Biomedical Instrumentation                        |
| 19)     | 8        | Practical         | EE8811 Project Work                                      |

## ODD Semester 2020-2021

### III Semester B.E. EEE

#### MA8353 Transforms and Partial Differential Equations

**COs Course Outcome :** The students, after the completion of the course, are expected to

**CO1-Understand** how to solve the given standard partial differential equations

**CO2-Solve** differential equations using Fourier series analysis which plays a vital role in engineering applications

**CO3-Appreciate** the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.

**CO4-Understand** the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.

**CO5-Use** the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

#### EE8351 DIGITAL LOGIC CIRCUITS

**Course Outcome :** At the end of the course students will have the

**CO1-Ability** to design combinational and sequential Circuits.

**CO2-Ability** to simulate using software package.

**CO3-Ability** to study various number systems and simplify the logical expressions using Boolean functions

**CO4-Ability** to design various synchronous and asynchronous circuits.

**CO5-Ability** to introduce digital simulation for development of application oriented logic circuits.

#### EE8391 Electromagnetic Theory

**COs Course Outcome :** The students, after the completion of the course, are expected to

**CO1: Introduce** the basic mathematical concepts related to electromagnetic vector fields

**CO2: Impart** knowledge on the concepts of Electrostatic fields, electrical potential, energy density and their applications.

**CO3: Impart** knowledge on the concepts of Magneto static fields, magnetic flux density, vector potential and its applications.

**CO4: Impart** knowledge on the concepts of Different methods of EMF generation and Maxwell's equations

**CO5: Impart** knowledge on the concepts of Electromagnetic waves and characterizing parameters

#### EE8301 Electrical Machines - I

**Course Outcome :** The students, after the completion of the course, are having the

**CO1-Ability** to analyze the magnetic-circuits.

**CO2-Ability** to acquire the knowledge in constructional details of transformers.

**CO3-Ability** to understand the concepts of electromechanical energy conversion.

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| <b>CO4-Ability to acquire the knowledge in working principles of DC Generator.</b>          |
| <b>CO5-Ability to acquire the knowledge in working principles of DC Motor</b>               |
| <b>CO6-Ability to acquire the knowledge in various losses taking place in D.C. Machines</b> |

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| <b>EC 8353-Electron Devices And Circuits</b>                                                      |
| <b>COs Course Outcome : The students, after the completion of the course, are expected to</b>     |
| <b>CO1-Ability to understand the structure and working operation of basic electronic devices.</b> |
| <b>CO2-Ability to identify and differentiate both active and passive elements</b>                 |
| <b>CO3- Ability to Understand the operation and applications of transistor like BJT and FET</b>   |
| <b>CO4-Choose and adapt the required components to construct an amplifier circuit</b>             |
| <b>CO5-Employ the acquired knowledge in design and analysis of oscillators</b>                    |

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| <b>ME8792 Power Plant Engineering</b>                                                                                                                                                       |
| <b>Course Outcome : Upon the completion of this course the students will be able to</b>                                                                                                     |
| <b>CO1-Explain the layout, construction and working of the components inside a thermal power plant.</b>                                                                                     |
| <b>CO2-Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.</b>                                                             |
| <b>CO3-Explain the layout, construction and working of the components inside nuclear power plants.</b>                                                                                      |
| <b>CO4-Explain the layout, construction and working of the components inside Renewable energy power plants.</b>                                                                             |
| <b>CO5-Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.</b> |

### Laboratory

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| <b>EC8311 Electronics Laboratory</b>                                                           |
| <b>COs Course Outcome : The students, after the completion of the course, are expected the</b> |
| <b>CO1-Ability to understand and analyze Diodes</b>                                            |
| <b>CO2-Ability to understand and analyze Transistors</b>                                       |
| <b>CO3-Ability to understand and analyze Rectifiers</b>                                        |
| <b>CO4-Ability to understand and analyze Oscillators.</b>                                      |
| <b>CO5-Ability to understand and analyze Photo semiconductor Device</b>                        |

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| <b>EE8311 Electrical Machines Laboratory – I</b>                                         |
| <b>Course Outcome : The students, after the completion of the course, are having the</b> |
| <b>CO1-Ability to understand and analyze DC Generator</b>                                |
| <b>CO2-Ability to understand and analyze DC Motor</b>                                    |
| <b>CO3-Ability to understand and analyze Transformers.</b>                               |

### **EE8501 Power System Analysis**

**COs Course Outcome :** The students, after the completion of the course, are having the

**CO1.Ability to model the power system under steady state operating condition.**

**CO2.Ability to understand and apply iterative techniques for power flow analysis.**

**CO3.Ability to model and carry out short circuit studies on power system.**

**CO4.Ability to model and analyze stability problems in power system and to acquire knowledge on Fault analysis**

**CO5.Ability to model and understand various power system components and carry out power flow, short circuit and stability studies.**

### **EE8551 MICROPROCESSORS AND MICROCONTROLLERS**

**COs Course Outcome :** The students, after the completion of the course, are expected to

**CO1.Ability to acquire knowledge in Addressing modes & instruction set of 8085 & 8051.**

**CO2.Ability to need & use of Interrupt structure 8085 & 8051.**

**CO3.Ability to understand the importance of Interfacing**

**CO4.Ability to explain the architecture of Microprocessor and Microcontroller.**

**CO5.Ability to write the assembly language programme.**

**CO6.Ability to develop the Microprocessor and Microcontroller based applications.**

### **EE8552 POWER ELECTRONICS**

**COs Course Outcome :** The students, after the completion of the course, are expected to

**CO1:Understand different types of power semiconductor devices, their switching characteristics and driver circuits**

**CO2:Classify the various performance parameters in controlled rectifiers with different load conditions**

**CO3:Analyze DC –DC switching regulators with its Commutation Techniques and apply it for real time applications like SMPS**

**CO4:Explain the various pulse width modulated inverters for different loads and infer the effect of power quality disturbances over the system.**

**CO5:Analyze AC voltage controllers, Matrix Converters & Cyclo converters with various loads and infer its various configurations.**

### **EE8591 Digital Signal Processing**

**Course Outcome :** The students, after the completion of the course, are expected to

**CO1-Ability to understand the importance of Fourier transform, digital filters and DS Processors.**

**CO2-Ability to acquire knowledge on Signals and systems & their mathematical representation.**

**CO3-Ability to understand and analyze the discrete time systems.**

**CO4-Ability to analyze the transformation techniques & their computation**

**CO5-Ability to understand the types of filters and their design for digital implementation.**

**CO6-Ability to acquire knowledge on programmability digital signal processor & quantization effects.**

| <b>CS8392 Object Oriented Programming</b>                                                 |
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| <b>Course Outcome :</b> The students, after the completion of the course, are expected to |
| <b>CO1-Develop Java programs using OOP principles</b>                                     |
| <b>CO2-Develop Java programs with the concepts inheritance and interfaces</b>             |
| <b>CO3-Build Java applications using exceptions and I/O streams</b>                       |
| <b>CO4-Develop Java applications with threads and generics classes</b>                    |
| <b>CO5-Develop interactive Java programs using swings</b>                                 |

| <b>OMD551 Basics of biomedical Instrumentation</b>                                                   |
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| <b>Course Outcome :</b> The students, after the completion of the course, are expected to            |
| <b>CO1: To Learn the different bio potential and its propagation.</b>                                |
| <b>CO2: To get Familiarize the different electrode placement for various physiological recording</b> |
| <b>CO3: Students will be able design bio amplifier for various physiological recording</b>           |
| <b>CO4: Students will understand various technique non electrical physiological measurements</b>     |
| <b>CO5: Understand the different biochemical measurements</b>                                        |

### Laboratory

| <b>HS8581 - Professional Communication</b>                                                |
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| <b>Course Outcome :</b> The students, after the completion of the course, are expected to |
| <b>CO1-Make effective presentations.</b>                                                  |
| <b>CO2-Participate confidently in Group Discussions.</b>                                  |
| <b>CO3-Attend job interviews and be successful in them.</b>                               |
| <b>CO4-Develop adequate Soft Skills required for the workplace.</b>                       |
| <b>CO5-Improve the ability to understand the nuances of Grammar.</b>                      |

| <b>EE8511 Control and Instrumentation Laboratory</b>                                          |
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| <b>COs Course Outcome :</b> The students, after the completion of the course, are expected to |
| <b>CO1: Design compensators</b>                                                               |
| <b>CO2: Analyze the various types of converters.</b>                                          |
| <b>CO3: Understand control theory and apply them to electrical engineering problems.</b>      |
| <b>CO4: Study the simulation packages.</b>                                                    |
| <b>CO5: The basics of signal conditioning circuits.</b>                                       |
| <b>CO6: Understand the basic concepts of bridge networks.</b>                                 |

| <b>CS8383 Object Oriented Programming Laboratory</b>                                      |
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| <b>Course Outcome :</b> The students, after the completion of the course, are expected to |
| <b>CO1-Develop simple java programs that make use of classes and objects</b>              |
| <b>CO2-Construct java programs using predefined classes and packages</b>                  |

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| <b>CO3-Make use of Inheritances and Interfaces to develop java application</b>                                |
| <b>CO4-Model exception handling, multithreading, generic programming and file processing concepts in java</b> |
| <b>CO5-Build java application for real-time problems using Event Handling</b>                                 |

#### VII Semester B.E. EEE

| <b>EE8701- High Voltage Engineering</b>                                                                      |
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| <b>COs Course Outcome : The students, after the completion of the course, are having the</b>                 |
| <b>CO1-Ability to understand various types of over voltages in power system.</b>                             |
| <b>CO2-Ability to Understand the concept of Breakdown mechanism in solid, liquid and gaseous dielectrics</b> |
| <b>CO3-Ability to understand Generation of high voltages.</b>                                                |
| <b>CO4-Ability to understand measurement of high voltages.</b>                                               |
| <b>CO5-Ability to test power apparatus and insulation coordination</b>                                       |

| <b>EE8702 Power System Operation and Control</b>                                                                                          |
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| <b>COs Course Outcome : The students, after the completion of the course, are having the</b>                                              |
| <b>CO1.Ability to understand the day-to-day operation of electric power system.</b>                                                       |
| <b>CO2.Ability to analyze the control actions to be implemented on the system to meet theminute-to-minute variation of system demand.</b> |
| <b>CO3.Ability to understand the significance of power system operation and control.</b>                                                  |
| <b>CO4.Ability to acquire knowledge on real power-frequency interaction.</b>                                                              |
| <b>CO5.Ability to understand the reactive power-voltage interaction.</b>                                                                  |
| <b>CO6.Ability to design SCADA and its application for real time operation.</b>                                                           |

| <b>EE8703 Renewable Energy Systems</b>                                                                |
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| <b>Course Outcome : The students, after the completion of the course, are having the</b>              |
| <b>CO1-Ability to create awareness about renewable Energy Sources and technologies.</b>               |
| <b>CO2-Ability to explain the Wind energy resources and technologies and their applications.</b>      |
| <b>CO3-Ability to explain the solar energy resources and technologies and their applications.</b>     |
| <b>CO4-Ability to explain the basics about biomass energy</b>                                         |
| <b>CO5-Ability to explain the other renewable energy sources technologies and their applications.</b> |

| <b>GE8071 Disaster Management</b>                                                                     |
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| <b>Course Outcome : The students, after the completion of the course, are expected to</b>             |
| <b>CO1-Differentiate the types of disasters, causes and their impact on environment and society.</b>  |
| <b>CO2-Assess vulnerability and various methods of risk reduction measures as well as mitigation.</b> |
| <b>CO3-Draw the vulnerability profile of India, Scenarios in Indian context, disaster damage</b>      |

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| assessment and management. |
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| <b>EE8009 Control of Electrical Drives</b> |
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| <b>COs Course Outcome : The students, after the completion of the course, are having the</b> |
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| <b>CO1.Ability to understand the DC drives control.</b> |
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| <b>CO2.Ability to study and analyze the Induction motor drive control.</b> |
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| <b>CO3.Ability to study and understand the Synchronous motor drive control.</b> |
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| <b>CO4.Ability to study and analyze the SRM and BLDC motor drive control.</b> |
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| <b>CO5.Ability to analyze and design the Digital control for drives.</b> |
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| <b>OML751 Testing of Materials</b> |
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| <b>Course Outcome : The students, after the completion of the course, are expected to</b> |
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| <b>CO1-Identify suitable testing technique to inspect industrial component</b> |
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| <b>CO2-Possess the ability to use mechanical testing technique and know its applications and limitations</b> |
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| <b>CO3-Possess the ability to use non destructive testing technique and know its applications and limitations</b> |
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| <b>CO4-Possess the ability to use material characterization testing technique and know its applications and limitations</b> |
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| <b>CO5-Possess the ability to use thermal and chemical testing technique and know its applications and limitations</b> |
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**Laboratory**

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| <b>EE8712 Renewable Energy Systems Laboratory</b> |
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| <b>Course Outcome : The students, after the completion of the course, are having the</b> |
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| <b>CO1-Ability to understand and analyze Renewable energy systems</b> |
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| <b>CO2-Ability to train the students in Renewable Energy Sources and technologies.</b> |
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| <b>CO3-Ability to provide adequate inputs on a variety of issues in harnessing Renewable Energy.</b> |
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| <b>CO4-Ability to simulate the various Renewable energy sources.</b> |
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| <b>CO5-Ability to recognize current and possible future role of Renewable energy sources.</b> |
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| <b>CO6-Ability to understand basics of Intelligent Controllers.</b> |
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| <b>EE8711-Power System Simulation Laboratory</b> |
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| <b>COs Course Outcome : The students, after the completion of the course, are having the</b> |
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| <b>CO1. Ability to understand power system planning and operational studies</b> |
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| <b>CO2. Ability to acquire knowledge on Formation of Bus Admittance and Impedance Matricesand Solution of Networks.</b> |
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| <b>CO3. Ability to analyze the power flow using GS and NR method</b> |
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| <b>CO4. Ability to find Symmetric and Unsymmetrical fault</b> |
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| <b>CO5. Ability to understand the economic dispatch.</b> |
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| <b>CO6. Ability to analyze the electromagnetic transients.</b> |
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**EVEN Semester**

**IV Semester – B.E. EEE**

**MA8491 Numerical Methods**

**Course Outcome :** Upon successful completion of the course, students should be able to:

**CO1:** Understand the basic concepts and techniques of solving algebraic and transcendental equations.

**CO2:** Appreciate the numerical techniques of interpolation and error approximations in various intervals in real life situations.

**CO3:** Apply the numerical techniques of differentiation and integration for engineering problems.

**CO4:** Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.

**CO5:** Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.

**EE8401 Electrical Machines - II**

**Course Outcome :** The students, after the completion of the course, are expected to

**CO1:** Understand the constructional details and the performance of salient and non-salient type synchronous generators.

**CO2:** Discuss the Principle of operation and analyse the performance of synchronous motor

**CO3:** Understand the construction, principle of operation and performance analysis of induction machines

**CO4:** Explain the starting, Braking and speed control of three-phase induction motors.

**CO5:** Discuss the construction, principle of operation and performance of single phase induction motors and special

**EE8402 Transmission and Distribution**

**COs Course Outcome :** The students, after the completion of the course, are expected to

**CO1:** To understand the importance and the functioning of transmission line parameters.

**CO2:** To understand the concepts of Lines and Insulators.

**CO3:** To acquire knowledge on the performance of Transmission lines and to understand the importance of distribution of the electric power in power system.

**CO4:** To acquire knowledge on Underground Cables

**CO5:** To become familiar with the function of different components used in Transmission and Distribution levels of power system and modelling of these components.

**EE8403- Measurements And Instrumentation**

**COs Course Outcome :** The students, after the completion of the course, are expected

**CO1:** To acquire knowledge on Basic functional elements of instrumentation

**CO2:** To understand the concepts of Fundamentals of electrical and electronic components

**CO3:** Ability to compare between various measurement techniques

**CO4:** To acquire knowledge on Various storage and display devices

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| <b>CO5: To understand the concepts Various transducers and the data acquisition systems</b> |
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| <b>EE8451 Linear Integrated Circuits and Applications</b> |
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| <b>Course Outcome : The students, after the completion of the course, are expected to got the</b> |
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| <b>CO1:Ability to acquire knowledge in IC fabrication procedure Ability to analyze the characteristics of Op-Amp</b> |
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| <b>CO2: To understand the importance of Signal analysis using Op-amp based circuits.</b> |
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| <b>CO3: Functional blocks and the applications of special ICs like Timers, PLL circuits, Regulator Circuits.</b> |
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| <b>CO4: To understand and acquire knowledge on the Applications of Op-amp</b> |
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| <b>CO5: Ability to understand and analyse, linear integrated circuits their Fabrication and Application.</b> |
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| <b>IC 8451 – Control Systems</b> |
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| <b>COs Course Outcome : The students, after the completion of the course, are expected to</b> |
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| <b>CO1: Develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.</b> |
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| <b>CO2: Do time domain analysis of various models of linear system.</b> |
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| <b>CO3: Do frequency domain analysis of various models of linear system.</b> |
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| <b>CO4: Interpret characteristics of the system to develop mathematical model and design appropriate compensator for the given specifications to understand use of PID controller in closed loop system.</b> |
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| <b>CO5: Ability to come out with solution for complex control problem.</b> |
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**Laboratory**

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| <b>EE8411 Electrical Machines Laboratory-II</b> |
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| <b>COs Course Outcome : The students, after the completion of the course, are expected to</b> |
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| <b>CO1: Understand the regulation of three phase alternator by various methods like EMF, MMF, ZPF and ASA methods.</b> |
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| <b>CO2: Describe the regulation of three phase salient pole alternator by slip test and measuring its negative and zero sequence impedance.</b> |
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| <b>CO3: Understand the fundamental characteristics of synchronous motor by relating parameters like field current, armature current.</b> |
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| <b>CO4: Explain the performance characteristics of three phase induction motor</b> |
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| <b>CO5: Analyse the performance characteristics of single phase induction motor Learning the various types of starters using</b> |
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| <b>EE8461 -Linear and Digital Integrated circuits Laboratory</b> |
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| <b>COs Course Outcome : At the end of the course, the student should have the :</b> |
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| <b>CO1: Ability to understand and implement Boolean Functions.</b> |
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| <b>CO2: Ability to understand the importance of code conversion</b>             |
| <b>CO3: Ability to Design and implement 4-bit shift registers.</b>              |
| <b>CO4: Ability to acquire knowledge on Application of Op-Amp.</b>              |
| <b>CO5: Ability to Design and implement counters using specific counter IC.</b> |

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| <b>EE8412 Technical Seminar</b>                                                                   |
| <b>Course Outcome : The students, after the completion of the course, are expected to got the</b> |
| <b>CO1: Ability to review, prepare and present technological developments</b>                     |
| <b>CO2: Ability to face the placement interviews</b>                                              |

## VI Semester B.E. EEE

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| <b>EE8601 Solid State Drives</b>                                                                               |
| <b>COs Course Outcome : The students, after the completion of the course, are expected to</b>                  |
| <b>CO1: Study about the steady state operation and transient dynamics of a motor load system.</b>              |
| <b>CO2: Analyze the operation of the converter/chopper fed dc drive.</b>                                       |
| <b>CO3: Analyze the operation and performance of induction motor drives.</b>                                   |
| <b>CO4: Analyze the operation and performance of synchronous motor drives.</b>                                 |
| <b>CO5: Analyze and design the current and speed controllers for a closed loop solid state DC motor drive.</b> |

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| <b>EE8602 – Protection And Switchgear</b>                                                           |
| <b>COs Course Outcome : The students, after the completion of the course, are having the</b>        |
| <b>CO1-Ability to find the causes of abnormal operating conditions of the apparatus and system.</b> |
| <b>CO2 -Ability to analyze the characteristics and functions of Electromagnetic Relays.</b>         |
| <b>CO3 -Ability to study about the apparatus protection</b>                                         |
| <b>CO4 -Ability to study about the static and numerical relays.</b>                                 |
| <b>CO5 -Ability to acquire knowledge on functioning of circuit breaker.</b>                         |

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| <b>EE8691 Embedded Systems</b>                                                                                                                    |
| <b>Course Outcome : The students, after the completion of the course, have the</b>                                                                |
| <b>CO1-Ability to understand and analyze Embedded systems.</b>                                                                                    |
| <b>CO2-Ability to suggest an embedded system for a given application.</b>                                                                         |
| <b>CO3-Ability to operate various Embedded Development Strategies</b>                                                                             |
| <b>CO4-Ability to study about the bus Communication in processors and ability to acquire knowledge on various processor scheduling algorithms</b> |
| <b>CO5-Ability to understand basics of Real time operating system.</b>                                                                            |

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| <b>EE8002 Design of Electrical Apparatus</b>                                                        |
| <b>Course Outcome : The students, after the completion of the course, are expected to</b>           |
| <b>CO1-Ability to understand basics of design considerations for rotating and static electrical</b> |

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| <b>machines</b>                                                   |
| <b>CO2-Ability to design of field system for its application.</b> |
| <b>CO3-Ability to design sing and three phase transformer.</b>    |
| <b>CO4-Ability to design armature and field of DC machines.</b>   |
| <b>CO5-Ability to design stator and rotor of induction motor.</b> |
| <b>CO6-Ability to design and analyze synchronous machines.</b>    |

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| <b>EE8005 Special Electrical Machines</b>                                                                            |
| <b>Course Outcome : The students, after the completion of the course, are having the</b>                             |
| <b>CO1-Ability to acquire the knowledge on construction and operation of stepper motor.</b>                          |
| <b>CO2-Ability to construction, principle of operation, switched reluctance motors.</b>                              |
| <b>CO3-Ability to acquire the knowledge on construction and operation of permanent magnet brushless D.C. motors.</b> |
| <b>CO4-Ability to acquire the knowledge on construction and operation of permanent magnet synchronous motors.</b>    |
| <b>CO5-Ability to select a special Machine for a particular application.</b>                                         |

### Laboratory

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| <b>EE8661Power Electronics and Drives Laboratory</b>                                                                       |
| <b>COs Course Outcome : The students, after the completion of the course, are having the</b>                               |
| <b>CO1: Ability to practice and understand converter and inverter circuits and apply software forengineering problems.</b> |
| <b>CO2: Ability to experiment about switching characteristics various switches.</b>                                        |
| <b>CO3: Ability to analyze about AC to DC converter circuits.</b>                                                          |
| <b>CO4: Ability to analyze about DC to AC circuits.</b>                                                                    |
| <b>CO5: Ability to acquire knowledge on AC to AC converters</b>                                                            |
| <b>CO6: Ability to acquire knowledge on simulation software.</b>                                                           |

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| <b>EE8681 – Microprocessors and Microcontrollers Laboratory</b>                                       |
| <b>COs Course Outcome : The students, after the completion of the course, are expected to</b>         |
| <b>CO1: Ability to understand and apply computing platform and software for engineering problems.</b> |
| <b>CO2: Ability to programming logics for code conversion.</b>                                        |
| <b>CO3: Ability to acquire knowledge on A/D and D/A.</b>                                              |
| <b>CO4: Ability to understand basics of serial communication.</b>                                     |
| <b>CO5: Ability to understand and impart knowledge in DC and AC motor interfacing.</b>                |
| <b>CO6: Ability to understand basics of software simulators.</b>                                      |

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| <b>EE8611 Mini Project</b>                                                                                                                                                      |
| <b>Course Outcome :</b>                                                                                                                                                         |
| <b>CO1: On Completion of the mini project work students will be in a position to take up their final year project work and find solution by formulating proper methodology.</b> |

### VIII Semester B.E. EEE

| EE8011 Flexible AC Transmission system                                                        |
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| <b>Course Outcome :</b> The students, after the completion of the course, they have the       |
| <b>C01:</b> Ability to understand, analyze and develop analytical model of FACTS controllers. |
| <b>C02:</b> Ability to understand the power system application.                               |
| <b>C03:</b> Ability to understand the concepts about load compensation techniques.            |
| <b>C04:</b> Ability to acquire knowledge on facts devices.                                    |
| <b>C05:</b> Ability to understand the start-of-art of the power system.                       |

| EI8073 Biomedical Instrumentation                                                                              |
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| <b>Course Outcome :</b> At the end of the course students will have the                                        |
| <b>CO1:</b> Ability to understand the philosophy of the heart, lung, blood circulation and respiration system. |
| <b>CO2:</b> Ability to provide latest ideas on devices of non-electrical devices.                              |
| <b>CO3:</b> Ability to gain knowledge on various sensing and measurement devices of electrical origin.         |
| <b>CO4:</b> Ability to bring out the important and modern methods of imaging techniques and their analysis.    |
| <b>CO5:</b> Ability to explain the medical assistance/techniques, robotic and therapeutic equipments.          |

### Laboratory

| EE8811- PROJECT WORK                                                                                                                                                           |
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| <b>COs Course Outcome :</b> The students, after the completion of the course, are expected to                                                                                  |
| <b>CO1:</b> On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology |