## Department of Electrical and Electronics Engineering

## List of Course Outcomes for 2017 Regulation

| S.No | Year and Semester | Course Code | Course Name | Course Outcomes |
|---|---|---|---|---|
| 1 | 1st Year 1st Semester | HS8151 | Communicative English | 1. Organize ideas logically and write cohesively on a given topic. <br> 2. Develop and explain a process and frame a set of instructions on a given situation. <br> 3. Enrich their vocabulary and adopt the grammar rules appropriately. <br> 4. Comprehend and interpret the data given in the form of charts, tables, graphs, etc. <br> 5. Transfer the information from verbal to visual and visual to verbal. |
| 2 | 1st Year 1st Semester | MA8151 | Engineering Mathematics- I | 1. To find eigenvalues, eigenvectors, canonical form and inverse of a matrix. <br> 2. Acquire the knowledge of infinite and finite series and their convergence. <br> 3. Evaluate radius of curvature, evolute and envelope of given curves using differential calculus. <br> 4. Examine the concepts of functions of several variables and to find extremum value of a given function. <br> 5. Develop an ability to trace the curve and find area, volume using multiple integrals. |
| 3 | 1st Year 1st Semester | PH8151 | Engineering Physics | 1. Recall and infer various types of crystal systems and crystal growth techniques. <br> 2. Analyze the various properties of materials and their thermal behavior. <br> 3. Acquaint with the basic concepts and theories in Quantum Physics. <br> 4. Acquire the knowledge of classification and properties of sound. <br> 5. Recognize the principle of laser & Fiber Optics and to know their real time applications |
| 4 | 1st Year 1st Semester | CY8151 | Engineering Chemistry | 1. Define the Principles of polymer chemistry and its applications in the field of engineering. <br> 2. Apply the second law of thermodynamics and their application to a wide range of systems. |

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|------|------------------|-------------|-------------|-----------------|
|  |  |  |  | 3. Outline the working principles of spectroscopy and mechanism of photochemical reactions. |
|  |  |  |  | 4. Demonstrate the laws of photochemistry and phase rule and their correlation with various applications. |
|  |  |  |  | 5. Explain the various methods of synthesizing nonmaterial and its real time practical applications |
| 5 | 1st Year 1st Semester | GE8151 | Problem Solving and Python Programming | 1. Develop algorithmic solutions to simple computational problems. |
|  |  |  |  | 2. Demonstrate programs using simple Python statements and expressions. |
|  |  |  |  | 3. Explain control flow and functions concept in Python for solving problems. |
|  |  |  |  | 4. Use Python data structures – lists, tuples & dictionaries for representing compound data. |
|  |  |  |  | 5. Explain files, exception, modules and packages in Python for solving problems. |
| 6 | 1st Year 1st Semester | GE8152 | Engineering Graphics | 1. Explain the need, use of standards and instruments in engineering graphics. |
|  |  |  |  | 2. Construct plane curves in engineering. |
|  |  |  |  | 3. Project and find the true shape and orientation of objects |
|  |  |  |  | 4. Plan and design 2D shapes which when folded will give required 3D objects |
|  |  |  |  | 5. Draw a isometric views and prepare perspective projection of a given drawing. |
| 7 | 1st Year 1st Semester | GE8161 | Problem Solving and Python Programming Laboratory | 1. Write, test, and debug simple Python programs. |
|  |  |  |  | 2. Implement Python programs with conditionals and loops. |
|  |  |  |  | 3. Develop Python programs step-wise by defining functions and calling them. |
|  |  |  |  | 4. Use Python lists, tuples, dictionaries for representing compound data. |
|  |  |  |  | 5. Read and write data from/to files in Python. |
| 8 | 1st Year 1st Semester | BS8161 | Physics and Chemistry Laboratory | 1. An ability to observe, record, analyzes and interprets data with regard to mechanical and optical properties of materials. |
|  |  |  |  | 2. Performing the experiments to analyze the properties of sound and heat. |
|  |  |  |  | 3. Apply proper laboratory practices including safety, waste management, and record keeping. |
|  |  |  |  | 4. Validate the basics concepts involved in the analyses during titration. |

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| 9 | 1st Year 2nd Semester | HS8251 | Technical English | 1. Skim and scan through an article and respond suitably to the questions.<br>2. Grasp the interview skills and prepare the resume' and cover letter.<br>3. Acquire the language skills by learning the conjugation of verbs and different forms of vocabulary.<br>4. Infer the contexts of a given situation and frame dialogues accordingly.<br>5. Write various types of reports and achieve coherence by analyzing them. |
| 10 | 1st Year 2nd Semester | MA8251 | Engineering Mathematics- II | 1. Estimate vector identities and interpret some integral theorems in a vector field.<br>2. Develop an ability to solve ordinary differential equations.<br>3. Examine the concepts of Laplace transformation and solve differential equations with given boundary conditions.<br>4. Identify and construct analytic function and application of conformal mapping.<br>5. Apply complex integration to evaluate contour integrals. |
| 11 | 1st Year 2nd Semester | PH8253 | Physics for Electronics Engineering | 1. Gain knowledge on conducting materials and their applications.<br>2. Know the basic properties of semiconductors and their relevance to engineering applications.<br>3. Categorize the basics of magnetic properties and to realize the principle of superconductors and their applications.<br>4. Explain the different types of polarization mechanisms, properties and applications of dielectrics.<br>5. Acquire the knowledge on modern engineering materials and their applications in different domains. |
| 12 | 1st Year 2nd Semester | BE8252 | Basic Civil and Mechanical Engineering | 1. To explain the usage of construction material, proper selection of construction materials and instruments used for building construction<br>2. To design building structures.<br>3. To identify the components use in power plant cycle.<br>4. To demonstrate working principles of petrol and diesel engine.<br>5. To explain the components of refrigeration and Air conditioning cycle. |
| 13 | 1st Year | BE8251 | Circuit Theory | 1. Realize the basic laws governing the electric circuits |

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|------|-------------------|-------------|-------------|-----------------|
|      | 2nd Semester      |             |             | 2. Apply and solve the network problems using network theorems |
|      |                   |             |             | 3. Classify the resonance circuits and coupled circuits |
|      |                   |             |             | 4. Analyze the transient response of an electric circuits and two port networks |
|      |                   |             |             | 5. Compare the three phase circuits and Three Phase Power Measurements |
| 14   | 1st Year 2nd Semester | GE8291 | Environmental Science and Engineering | 1. Realize the Environmental problems and various types of eco-systems and other classes of bio-diversity |
|      |                   |             |             | 2. Relate the various environmental pollution and their effect on environment on rural and urban areas |
|      |                   |             |             | 3. Summarize the importance of natural resources in the environment and the degradation effects |
|      |                   |             |             | 4. Identify the social issues in the environment and laws created to improve the surrounding |
|      |                   |             |             | 5. classify the population in the environment based on various levels and predicting the issues due to explosion of population |
| 15   | 1st Year 2nd Semester | GE8261 | Engineering Practices Laboratory | 1. An ability to observe, record, analyze and interpret data with regard to mechanical and optical properties of materials. |
|      |                   |             |             | 2. Realize the different carpentry operations |
|      |                   |             |             | 3. Explain the different process of industrial moulding techniques |
|      |                   |             |             | 4. construct the house wiring, industrial wiring circuits |
|      |                   |             |             | 5. Identify the different types of electronic circuits and unit measurement techniques |
| 16   | 1st Year 2nd Semester | EE8261 | Electric Circuits Laboratory | 1. Apply KVL,KCL in Series and Parallel circuit |
|      |                   |             |             | 2. Use various theorems for solving complex networks |
|      |                   |             |             | 3. Design and analysis the resonance circuits and coupled circuits |
|      |                   |             |             | 4. Plot the transient response and steady state response |
|      |                   |             |             | 5. Study the three phase power and power factor measurement |
| 17   | 2nd Year 3rd Semester | MA8353 | Transforms and Partial Differential Equations | 1. To solve partial differential equations that arises in many engineering application and real time problems to interpret the result effectively. |
|      |                   |             |             | 2. Apply the concept of Fourier series in many of the engineering discipline such as signals and systems and network analysis. |

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| | | | | 3. Apply the concept of Fourier series and PDE to find the vibration and temperature in one dimensional and two dimensional bodies. |
| | | | | 4. Apply the concept of Fourier transform in many engineering and research field. To evaluate auto correlation, spectral density etc that arises in Random processes. |
| | | | | 5. Apply the Z transform technique in many engineering field widely such as to find stability of control system, and pulse transfer function that arises in control system, network analysis, signals and systems. |
| 18 | 2nd Year 3rd Semester | EE8351 | Digital Logic Circuits | 1. Realize various number systems; simplify the logical expressions using Boolean functions. |
| | | | | 2. Implement combinational and sequential circuit and design a circuit for a specific application. |
| | | | | 3. Design various synchronous and asynchronous circuits. |
| | | | | 4. Realize and Analyze asynchronous sequential circuits and PLCs. |
| | | | | 5. Apply the concepts of various digital simulation techniques for the development of application oriented logic circuit. |
| 19 | 2nd Year 3rd Semester | EE8391 | Electromagnetic Theory | 1. Identify the basic concepts related to electrostatics and its related laws |
| | | | | 2. Realize the concepts of electrical potential, energy density and their application |
| | | | | 3. Analyze the concepts of magneto statics, magnetic flux density, scalar and vector potential and its applications for energy conversion applications. |
| | | | | 4. Apply the concepts of Faraday's laws induced emf and Maxwell's equation in magnetic circuits |
| | | | | 5. Use the concepts of electromagnetic waves and Poynting vector in various applications |
| 20 | 2nd Year 3rd Semester | EE8301 | Electrical Machines- I | 1. Realize the various concepts of magnetic-circuit analysis and magnetic materials |
| | | | | 2. Explain the constructional details, principle of operation, prediction of performance, methods of testing of transformers and three phase transformer connections. |
| | | | | 3. Apply the concepts of electromechanical energy conversion principles to derive expressions for generated voltage and torque developed in all Electrical Machines. |

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| | | | | 4. Describe the principles of DC machines as generators, determination of their no load/load characteristics, starting and methods of speed control of motors. |
| | | | | 5. Analyze the various losses taking place in D.C. Motor and to know the different testing methods to derive their performance. |
| 21 | 2nd Year 3rd Semester | EE8353 | Electronic Devices and Circuits | 1. Recall the construction theory and characteristics of p-n junction diode and analyze its breakdown process |
| | | | | 2. Explain the construction theory and characteristics of Bipolar transistor and model the BJT |
| | | | | 3. Develop the concepts of amplifiers and design a suitable amplifier for a specific application |
| | | | | 4. Make use of the concepts of multistage and differential amplifiers and analyze their types. |
| | | | | 5. Identify the concepts of feedback amplifiers, oscillators and create the oscillators with a specific frequency |
| 22 | 2nd Year 3rd Semester | ME8792 | Power Plant Engineering | 1. Explain the working concepts, components and technologies that are implemented in coal power plants |
| | | | | 2. Compare and select various cycles, diesel, gas turbine plants and optimizing the efficiency using combined cycle plants with its applications. |
| | | | | 3. Summarize the working of nuclear plants, types of reactors and proper safety measures and environmental measures related to it. |
| | | | | 4. Show and explain the adaptation of power resources from various renewable energy sources. |
| | | | | 5. Apply the tariff structure in electricity and explain the role of electrical engineers in operation and maintenance and provide adequate knowledge on economic and environmental issues in power plants. |
| 23 | 2nd Year 3rd Semester | EC8311 | Electronics Laboratory | 1. Construct Simulation circuits to verify the working of Semiconductor devices/systems. |
| | | | | 2. Illustrate the circuit model for electron devices and observe their characteristics |
| | | | | 3. Build Rectifier circuits and study their performance parameters. |
| | | | | 4. Analyze the behavior of various types of filters. |

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| | | | | 5. Design and testing of Oscillators and Multivibrators. |
| 24 | 2nd Year 3rd Semester | EE8311 | Electrical Machines Laboratory- I | 1. Demonstrate the operation of DC machines and transformers |
| | | | | 2. Conduct various tests on the DC machines and transformers and plot their performance characteristics |
| | | | | 3. Identify the different types of connections of three phase transformers |
| | | | | 4. Analyze the peformance characteristics of DC machines and transformers to predetermine their efficiency |
| | | | | 5. Explain the various types of starters used for DC machines |
| 25 | 2nd Year 4th Semester | MA8491 | Numerical Methods | 1. Apply the methods for solving simultaneous, algebraic and transcendental equations. |
| | | | | 2. Estimate the unknown values using interpolating methods. |
| | | | | 3. Evaluate length and area of irregular objects using numerical integration. |
| | | | | 4. Solve first order linear differential equations using single and multi-step methods. |
| | | | | 5. Solve Boundary value problems both in ordinary and partial cases. |
| 26 | 2nd Year 4th Semester | EE8401 | Electrical Machines- II | 1. Realize the construction, working principle of synchronous generators and various voltage regulation predetermination techniques |
| | | | | 2. Explain the construction and working principle of synchronous motors |
| | | | | 3. Infer the construction, working principle and performance analyze of induction motors |
| | | | | 4. Analyze the different types of speed control techniques employed in induction motors |
| | | | | 5. Demonstrate the construction and working of single phase induction |
| 27 | 2nd Year 4th Semester | EE8402 | Transmission and Distribution | 1. Realize the operation and performance of power systems, HVDC & FACTS. |
| | | | | 2. Compute the various transmission line parameters. |
| | | | | 3. Analyze the modeling & performance of transmission line. |
| | | | | 4. Classify various types of insulators and cables. |
| | | | | 5. Explain the mechanical design and operation of substation and various types of grounding systems |

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| 28 | 2nd Year 4th Semester | EE8403 | Measurements and Instrumentation | 1. Realize the basic laws governing the operation of the instruments, relevant circuits and their working.<br>2. Explain the fundamentals of electrical and electronic instruments used to measure voltage, current, energy and power etc.<br>3. Use various comparison methods of measurement.<br>4. Compare the various storage & display devices.<br>5. Classify various transducers and data acquisition system. |
| 29 | 2nd Year 4th Semester | EE8451 | Linear Integrated Circuits and Applications | 1. Realize the concepts of various functional building blocks in IC fabrications.<br>2. Explain the characteristics, realize circuits, design for signal analysis using Op amp ICs.<br>3. Apply the characteristics of Op amp in various applications.<br>4. Design the applications of special ICs.<br>5. Demonstrate the functions of application ICs. |
| 30 | 2nd Year 4th Semester | IC8451 | Control Systems | 1. Analyze the transfer function models for physical systems and its components<br>2. Identify the time response of the systems and steady state error<br>3. Predict the system performance using various plots<br>4. Design and analyze the stability of compensators<br>5. Identify the state variable representation of physical systems and study the effect of state feedback |
| 31 | 2nd Year 4th Semester | EE8411 | Electrical Machines Laboratory- II | 1. Demonstrate the operation of Synchronous and Induction Machines<br>2. Compare the voltage regulation of alternators obtained in different methods by conducting suitable tests<br>3. Design and analyze the equivalent circuit of three phase and single phase induction motor and their performance characteristics<br>4. Develop power factor correction techniques using synchronous motor for leading and lagging load condition<br>5. Explain the various types of starters used for AC machines |
| 32 | 2nd Year 4th Semester | EE8461 | Linear and Digital Integrated Circuits Laboratory | 1. Realize the basics of Digital IC's usage and implementation of Boolean Functions.<br>2. Design counter circuit by using FFIC's. |

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| | | | | 3. Implement the design procedure in shift registers using FF IC's. |
| | | | | 4. Apply and design the application circuits of IC 555 & IC 741. |
| | | | | 5. Construct ADC, DAC, VCO & PLL circuits. |
| 33 | 2nd Year 4th Semester | EE8412 | Technical Seminar | 1. Analyze advanced engineering developments |
| | | | | 2. Use various teaching aids such as overhead projectors, power point presentation and demonstrative models |
| | | | | 3. Build confidence level to face the interview |
| | | | | 4. Discover the do's and the don'ts of the professional presentation |
| | | | | 5. Develop presentation skills and learn the technological development |
| 34 | 3rd Year 5th Semester | EE8501 | Power System Analysis | 1. Model the power system under steady state operating condition |
| | | | | 2. Apply efficient numerical methods to solve the power flow problem |
| | | | | 3. Analyze the power systems under balanced fault condition. |
| | | | | 4. Examine the power systems under unbalanced fault condition. |
| | | | | 5. Inspect the transient behavior of power system when it is subjected to a fault condition. |
| 35 | 3rd Year 5th Semester | EE8551 | Microprocessors and Microcontrollers | 1. Realize Architecture of 8085 , 8086 and 8051 |
| | | | | 2. List out the various addressing modes of 8085 , 8086 and 8051 |
| | | | | 3. Make use of Interrupt structures of 8085 & 8051. |
| | | | | 4. Apply the instruction set of 8085 & 8051and develop their skills in simple program writing for 8051 & 8085 and applications |
| | | | | 5. Explain the commonly used peripheral / interfacing ICs. |
| 36 | 3rd Year 5th Semester | EE8552 | Power Electronics | 1. Realize the different types of power semi-conductor devices plot their switching characteristics. |
| | | | | 2. Explain the operation, characteristics and performance parameters of phase controlled converters |
| | | | | 3. Illustrate the operation, switching techniques and basic topologies of DC to DC converters |
| | | | | 4. Apply the different PWM modulation techniques to inverters and to realize the harmonic reduction methods. |

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|------|-------------------|-------------|-------------|-----------------|
| | | | | 5. Illustrate the operation of AC to AC Converters |
| 37 | 3rd Year 5th Semester | CS8392 | Object Oriented Programming | 1. Define principles of object oriented programming. |
| | | | | 2. Explain about class, object concepts. |
| | | | | 3. Utilize various inheritance concepts to develop applications |
| | | | | 4. Construct applications by applying the object oriented concepts of Java |
| | | | | 5. Make use of Exception handling mechanism to solve complex problems |
| 38 | 3rd Year 5th Semester | OAN551 | Sensors and Transducers | 1. Understand the basics of a measurement system and its characteristics. |
| | | | | 2. Classify the different types of sensors used for measuring motion and displacement. |
| | | | | 3. Explain the operation of sensors used for measuring force and direction of movement. |
| | | | | 4. Illustrate the use of various sensors for measuring pressure and temperature. |
| | | | | 5. Outline the use of signal conditioning systems and DAQ for real time applications. |
| 39 | 3rd Year 5th Semester | EE8511 | Control and Instrumentation Laboratory | 1. Construct the circuit model of various network bridges and plot its performance characteristics |
| | | | | 2. Analyze the different types of transducers, converters and position of servo motors |
| | | | | 3. Demonstrate the system stability of a system using MATLAB |
| | | | | 4. Evaluate the stability of linear systems using Bode / Root locus / Nyquist plot |
| | | | | 5. Derive the transfer function of the given DC separately excited generator |
| 40 | 3rd Year 5th Semester | HS8581 | Professional Communication | 1. Realize the different methods of analog communication and their significance |
| | | | | 2. Compare the various digital communication methods for high bit rate transmission |
| | | | | 3. Explain the concepts of source and line coding techniques for enhancing the rate of transmission and minimizing the errors in transmission. |
| | | | | 4. Analyze the various Multiple access techniques used in communication |
| | | | | 5. Utilize the various media for digital communication |
| 41 | 3rd Year 5th Semester | CS8383 | Object Oriented Programming Laboratory | 1. Demonstrate class, object concepts and significance of constructors and destructor |
| | | | | 2. Implement the concept of Polymorphism and file handling |

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| | | | | 3. Develop simple java application using interfaces and exception handling mechanism |
| | | | | 4. Experiment with the concept of threads |
| | | | | 5. Utilize the existing packages and model user defined packages |
| 42 | 3rd Year 6th Semester | EE8601 | Solid State Drives | 1. Realize the various types of Electric drives and their characteristics |
| | | | | 2. Analyze the operation of converter / chopper fed dc drives |
| | | | | 3. Differentiate the operation of conventional and modern induction motor drives |
| | | | | 4. Explain the operation of synchronous motor drives |
| | | | | 5. Design the current and speed controllers for a closed loop solid-state DC motor drive. |
| 43 | 3rd Year 6th Semester | EE8602 | Protection and Switchgear | 1. Realize the various protection schemes for power system protection |
| | | | | 2. Analyze the characteristics and functions of relays and protection schemes. |
| | | | | 3. Identify the different protection techniques for electrical apparatus |
| | | | | 4. Design the microcontroller based protection system using static relays and numerical protection |
| | | | | 5. Realize the different types of circuit breakers and select them for suitable application |
| 44 | 3rd Year 6th Semester | EE8691 | Embedded Systems | 1. Realize the Building Blocks of Embedded System |
| | | | | 2. Explain various Embedded networking techniques |
| | | | | 3. Illustrate the embedded firmware development environment. |
| | | | | 4. Create RTOS based embedded system |
| | | | | 5. Develop applications using embedded systems |
| 45 | 3rd Year 6th Semester | PE1: EE8003 | Power Systems Stability | 1. Summarize the concept of stability in power system network |
| | | | | 2. Analyze the small-signal stabilty using Eigen properties of state matrix. |
| | | | | 3. Apply numerical integrations to study the transient stability in power system networks. |
| | | | | 4. Examine voltage stability in power system network. |
| | | | | 5. Explain the enhancement of small-signal stability and transient stabilty. |
| 46 | 3rd Year | PE2: | | 1. Outline the basic concept of robotics. |

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|      | 6th Semester | RO8591 | Principles of Robotics | 2. Infer the various kinematics of robot movements |
|      |              |        |                        | 3. Illustrate manipulators motion and statics |
|      |              |        |                        | 4. Explain the path planning techniques |
|      |              |        |                        | 5. Make use of the concepts for the control of manipulators |
| 47 | 3rd Year 6th Semester | PE2: EE8005 | Special Electrical Machines | 1. Realize the Construction, principle of operation and performance of synchronous reluctance motors |
|    |                       |             |                             | 2. Explain the Construction, principle of operation, control, performance of stepping motors and its application |
|    |                       |             |                             | 3. Analyze the performance of switched reluctance motors and design of its driver circuit |
|    |                       |             |                             | 4. Illustrate the Construction, principle of operation, control performance of permanent magnet brushless D.C. motors and analyze its switching techniques |
|    |                       |             |                             | 5. Analyze the Construction, principle of operation and performance of permanent magnet synchronous motors |
| 48 | 3rd Year 6th Semester | EE8661 | Power Electronics and Drives Laboratory | 1. Realize power electronic converter design and testing |
|    |                       |        |                                          | 2. Design linear and digital electronic circuits |
|    |                       |        |                                          | 3. Examine the characteristics of MOSFET, IGBT and analyze its switching behaviors |
|    |                       |        |                                          | 4. Analyze the working of Switched mode power converter and Step down and step up MOSFET based choppers |
|    |                       |        |                                          | 5. Simulate PE circuits and create the driver circuits for different converters in MATLAB |
| 49 | 3rd Year 6th Semester | EE8681 | Microprocessors and Microcontrollers Laboratory | 1. Realize the concepts of instruction sets of 8085 and create simple programs for various applications |
|    |                       |        |                                                  | 2. Create various digital & linear circuits |
|    |                       |        |                                                  | 3. Develop programs using instruction sets of 8051 |
|    |                       |        |                                                  | 4. Design real time projects using interfacing programming and 8051 controller |
|    |                       |        |                                                  | 5. Design driver circuits for various power electronic converters and inverters |
| 50 | 3rd Year 6th Semester | EE8611 | Mini Project | 1. Identify the solution to solve a specific problem right from its identification |
|    |                       |        |              | 2. Discover alternative method to solve the related problems |
|    |                       |        |              | 3. Apply the engineering knowledge in solving the problem |

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| | | | | 4. Agree and work as a team to come to a common conclusion |
| 51 | 4th Year 7th Semester | EE8701 | High Voltage Engineering | 1. Realize the causes of over voltage and its protection methods used in Power System |
| | | | | 2. Illustrate the Breakdown mechanism in solid, liquid and gaseous dielectrics |
| | | | | 3. Identify the suitable methods for generating High Voltage in Laboratory |
| | | | | 4. Classify the high voltage measurement techniques |
| | | | | 5. Summarize the different High Voltage testing methods applied on Electrical apparatus |
| 52 | 4th Year 7th Semester | EE8702 | Power System Operation and Control | 1. Realize the basic concepts of power system operation and control. |
| | | | | 2. Model power frequency dynamics and design power frequency controller. |
| | | | | 3. Implement power-voltage interaction and the control actions for maintaining the voltage profile against varying system load. |
| | | | | 4. Formulate the unit commitment and economic dispatch problems and its solution methods |
| | | | | 5. Analyze the computer control of entire power system and real time application of power system using SCADA |
| 53 | 4th Year 7th Semester | EE8703 | Renewable Energy Systems | 1. Create awareness and to get adequate inputs about renewable Energy Sources and technologies. |
| | | | | 2. Illustrate about wind energy conversion systems |
| | | | | 3. Acquire knowledge about solar energy |
| | | | | 4. Understand the basics about Biomass Energy Resources |
| | | | | 5. Explain the various renewable energy resources and technologies and their applications |
| 54 | 4th Year 7th Semester | OE II OCS752 | Introduction to C Programming | 1. Illustratethe basic organization of computers, the number systems and create the pseudo code, algorithms and flow chart |
| | | | | 2. Solve problems with fundamental looping statements and Arrays |
| | | | | 3. Construct C Programs using arrays and strings |
| | | | | 4. Develop C Programs using functions and pointers in computer applications |
| | | | | 5. Make use of Structure and Union in real world applications |

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| 55 | 4<sup>th</sup> Year 7<sup>th</sup> Semester | PE III: GE8071 | Disaster Management | 1. Revise the basic concepts in science and engineering that occurs during and after a disaster. <br> 2. Explain the measures that are adapted for mitigating a disaster using various implementations. <br> 3. Categorizing various measures that are envisaging the relationship between various types of disasters and developmental issues. <br> 4. Apply various technological components to access the vulnerability profile of a nation to reduce the risk during pre & post disaster scenarios. <br> 5. Interpret the data from various case studies to enhance the strategies on various disaster mitigation strategies. |
| 56 | 4<sup>th</sup> Year 7<sup>th</sup> Semester | PE III: GE8074 | Human Rights | 1. Explain the Meaning, Origin and Development and classification of Human Rights. <br> 2. Summarize the concepts and theories of Human Rights. <br> 3. Outline the theories and perspectives of UN laws and the agencies to monitor the compliance pertaining to Human Rights <br> 4. Illustrate the constitutional provisions and guarantees of Human Rights in <br> 5. Describe the concepts and implementation of human rights applicable for different categories of people. |
| 57 | 4<sup>th</sup> Year 7<sup>th</sup> Semester | PE IV: GE8077 | Total Quality Management | 1. Realize the need and evolution of quality <br> 2. Explain the different Total Quality Management Principles <br> 3. Analyze the Total Quality Management tools and Six sigma &amp; Benchmarking techniques <br> 4. Analyze the Total Quality Management tools and Six Sigma &amp; QFD &amp; TPM techniques <br> 5. Apply the tools and techniques of quality management to manufacturing and service process. |
| 58 | 4<sup>th</sup> Year 7<sup>th</sup> Semester | EE8711 | Power System Simulation Laboratory | 1. Develop simple C programs for the basic requirements <br> 2. Implement the Formation of bus admittance and impedance matrices and derive the solution for electrical network problems <br> 3. Analyze the Power flow solution of small systems using simple method, Gauss-Seidel P.F. method. |

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|  |  |  |  | 4. Implement the Unit Commitment and Economic Dispatch using MATLAB simulation |
|  |  |  |  | 5. Use software development skills in Power system analysis |
| 59 | 4th Year 7th Semester | EE8712 | Renewable Energy System Laboratory | 1. Explain Renewable Energy Sources and technologies |
|  |  |  |  | 2. Experiment with solar PV and wind Energy Generation systems |
|  |  |  |  | 3. Examine the process ofharnessing Renewable energy sources with Simulation |
|  |  |  |  | 4. Outline thePresent and future role of Renewable energy sources. |
|  |  |  |  | 5. Make use ofbasics of Intelligent Controllers. |
| 60 | 4th Year 8th Semester | Professional Elective –V EE8015 | Electric Energy Generation, Utilization and Conservation | 1. Realize the concepts of electric drives and traction |
|  |  |  |  | 2. Design lighting schemes for different applications |
|  |  |  |  | 3. Analyze different methods of electric heating and electric welding process |
|  |  |  |  | 4. Realize the concepts of solar radiation and solar energy collectors |
|  |  |  |  | 5. Explain the concepts of wind energy and its types |
| 61 | 4th Year 8th Semester | Professional Elective –V EE8076 | Professional Ethics in Engineering | 1. Illustrate the importance of human values |
|  |  |  |  | 2. Outline the engineering ethics to be followed |
|  |  |  |  | 3. Classify the Codes of Ethics and Industrial Standards |
|  |  |  |  | 4. Explain the safety concepts and social responsibility with rights to be followed in professional career |
|  |  |  |  | 5. Summarize the various global issues and its importance related to professional ethics |
| 62 | 4th Year 8th Semester | Professional Elective –VI EI8073 | Biomedical Instrumentation | 1. Provide an acquaintance of the physiology of the heart, lung, blood circulation and |
|  |  |  |  | 2. Circulation respiration. Biomedical applications of different transducers used. |
|  |  |  |  | 3. Introduce the student to the various sensing and measurement devices of electrical origin. |
|  |  |  |  | 4. To provide awareness of electrical safety of medical equipment |
|  |  |  |  | 5. To provide the latest ideas on devices of non-electrical devices. |
| 63 | 4th Year | NT EE8811 | Project work | 1. Develop the ability to solve a specific problem right from its identification and |

| S.No | Year and Semester | Course Code | Course Name | Course Outcomes |
|------|-------------------|-------------|-------------|-----------------|
| | 8<sup>th</sup> Semester | | | literature review till the successful solution of the same. |
| | | | | 2. Discover new method to solve the related problems |
| | | | | 3. Apply the engineering knowledge in solving the problem |
| | | | | 4. Agree and work as a team to come to a common conclusion |

**HoD/EEE**