

**BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**

Deviyakurichi ,Thalaivasal, Attur-TK, Salem - 636112.

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING****REG-2013****SECOND YEAR**

<b>SUBJECT</b>	<b>CO</b>	<b>Course Outcomes</b>
C201/ MA8353& TRANSFORMS PARTIAL AND DIFFERENTIAL EQUATIONS	C201.1	Formulate the partial differential equations and solve linear partial differential equations of second and higher order with constant coefficients
	C201.2	Develop Fourier series of functions defined in any interval and make use of it in finding root mean square value
	C201.3	Solve the boundary value problems such as one dimensional wave equation, one dimensional equation of heat conduction and two dimensional equation of heat conduction
	C201.4	Evaluate the Fourier transform pair, Fourier sine transform pair and Fourier cosine transform pair of functions
	C201.5	Estimate the value of some indefinite integrals using Convolution theorem and Parseval's identity on Fourier transforms
	C201.6	Determine the Z-transform of discrete functions and solve the difference equations by using Z-transform properties
C202/ EE8351& DIGITAL LOGIC CIRCUITS	C202.1	Recall the use of number systems and its conversion and compare the operation, characteristics of digital logic families
	C202.2	Apply the minimal SOP and POS forms of logic expression using K map and implement it with the combinational logic
	C202.3	Analyze and design a synchronous sequential circuit to obtain a state table, state diagram for the time sequence of all the variables
	C202.4	Analyze and design an asynchronous sequential circuit and describe the race conditions, hazards and errors in digital circuits
	C202.5	Explain the assembly of combinational circuits by programmable logic memories and implementation using PLA and PAL
	C202.6	Explain the assembly of combinational circuits by programmable logic memories and implementation using PLA and PAL
	C203.1	Explain the sources and effects of electromagnetic fields and apply the basic mathematical concepts to analyze the vector fields

	C203.2	Discuss the electric field intensity due to discrete and continuous charge distributions by applying appropriate laws
C203/EE8391 & ELECTRO MAGNETIC THEORY	C203.3	Explain the concept of electric potential, polarization, energy density, capacitance for different applications
	C203.4	Describe the concepts of magnetic fields, magnetic materials, magnetization, magnetic torque, inductance, energy density and its applications
	C203.5	Describe and apply Faraday's law, Maxwell's equations for electromagnetic field applications and differentiate field and circuit theory related applications
	C203.6	Describe and analyze electromagnetic wave propagation, power in conductor, free-space, dielectric medium and its applications
C204/ GE6351& ENVIRONMENT AL SCIENCE AND ENGINEERING	C204.1	Infer the importance of environment and explain the concept, types, structure and functions of ecosystem
	C204.2	Recall the various functions, different values, measurement, levels, threats and the need for conservation of biodiversity
	C204.3	Analyze the different types of pollution and propose the suitable methods to prevent the same to enhance the environment
	C204.4	Discuss the different types of natural resources, characteristics, optimum usage and its importance of conservation
	C204.5	List the various social issues, environmental protection acts, different disasters and possible solutions to protect the environment for sustainable development
	C204.6	Describe the effects of population explosion, trend of population in various countries and explain the role of IT in environment and human health
C205/ EC6202& ELECTRONIC DEVICES AND CIRCUITS	C205.1	Illustrate the structure, operation and characteristics of PN junction diode and its applications
	C205.2	Explain the structure, operation and characteristics of various transistors with its biasing concept
	C205.3	Explain the gain and frequency response of various configurations of BJT and MOSFET
	C205.4	Describe the concepts of differential amplifiers with its gain and frequency response and explain the concepts of neutralization methods and power amplifiers
	C205.5	Illustrate the concepts of various positive and negative feedback amplifiers and derive its parameters

	C205.6	Illustrate the conditions for oscillation and explain the various types of oscillators
C206/ EE6303&LINEAR INTEGRATED CIRCUITS AND APPLICATIONS	C206.1	Explain the fundamentals, classification, procedures for the realization of monolithic ICs and discuss the fabrication of diodes, capacitance, resistance, FETs
	C206.2	Describe the characteristics of operational amplifier and explain the basic applications of OP-Amp
	C206.3	Explain the concepts of amplifiers, filters, comparators, multivibrators, waveform generators, peak detectors, S/H circuit, A/D and D/A converters using OP-Amp
	C206.4	Describe the internal functional blocks, characteristics and applications of timer, voltage controlled oscillator, phase lock loop and analog multiplier ICs
	C206.5	Discuss the internal functional blocks, working principle and applications of voltage regulators and SMPS
	C206.6	Describe the internal functional blocks, characteristics and application of power amplifier and function generator IC
	C207&EC6361 ELECTRONICS LABORATORY	C207.1
C207.2		Draw the equivalent circuit of JFET and sketch the V-I characteristics of UJT and also develop the saw tooth waveform using UJT
C207.3		Design the Common Emitter amplifier and develop the circuit for light activated relay using photo diode and photo transistor
C207.4		Compare the theoretical and practical frequency response of oscillators and estimate the ripple factor of rectifier
C207.5		Design Astable and Monostable multivibrators for generation of different waveforms
C207.6		Estimate the frequency, phase using CRO and draw frequencies versus gain characteristics of passive filters
C208/EE6311& LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY	C208.1	Apply Boolean functions to implement adder, subtractor circuits and convert Excess 3 to BCD, Binary to Gray code and vice versa
	C208.2	Design parity generator, parity checker, encoder and decoder circuits
	C208.3	Design and implement 4-bit modulo synchronous, Asynchronous counters and implement 4-bit shift registers in SISO, SIPO, PISO, PIPO modes

	C208.4	Explain multiplexer, demultiplexer circuits and demonstrate 555 timer in Monostable and Astable operation
	C208.5	Design and demonstrate inverting amplifier, non-inverting amplifier, adder, comparator, integrator and differentiator circuits using Op-Amp
	C208.6	Explain voltage to frequency characteristics of NE/ SE 566 IC and frequency multiplication using NE/SE 565 PLL IC
C209&MA6459 NUMERICAL METHODS	C209.1	Find the solution of algebraic equations and simultaneous linear system of equations using numerical analysis technique
	C209.2	Evaluate interpolated values in a data using Lagrangian method, Newton forward & backward and divided difference method
	C209.3	Determine the numerical differentiation of a given data by Newton forward & backward method
	C209.4	Formulate single and double integration of a given data by trapezoidal, Simpson, Romberg and Gaussian methods
	C209.5	Apply single step and multi step method to solve initial value problems for ordinary differential equations
	C209.6	Solve boundary value problems differential equations by using finite difference method, explicit and implicit methods
C210& EE6401 ELECTRICAL MACHINES-I	C210.1	Explain the basic concept of magnetic materials and circuits used in an electric machines
	C210.2	Explain the construction, working principle of single and three phase transformers and analyze their performance for different loading conditions
	C210.3	Examine the diversified parameters of single phase transformer through various testing methods
	C210.4	Illustrate the concepts of electromechanical energy conversion principles and formulate the expressions for voltage and torque in all rotating machines
	C210.5	Explain the construction, working principle, types, characteristics and applications of DC generators
	C210.6	Explain the working principle, speed control methods of DC motor and estimate the performance of DC motors through various testing methodologies
	C211.1	Explain the overview of object oriented programming, use of pointers, functions and abstract data types
	C211.2	Recall the basic knowledge on object oriented concepts and its characteristics

C211& CS6456/OBJECT ORIENTED PROGRAMMING	C211.3	Develop programs using advanced programming concepts like templates, STL, Exceptions, etc
	C211.4	Design and implement the basic concepts of object oriented programming in Java
	C211.5	Explain the exception handling in Java
	C211.6	Develop, debug and document well-structured programs using C++ and Java
C212/EE6402& TRANSMISSION AND DISTRIBUTION	C212.1	Explain the basic elements, types of distributor and different transmission system of electrical power systems
	C212.2	Estimate the transmission line parameters for different spacing and transposition of conductors
	C212.3	Evaluate the performance of transmission lines based on the classification of lines
	C212.4	Illustrate the various types of insulators, underground cables and analyze the voltage distribution
	C212.5	Estimate the mechanical design of transmission lines for different weather conditions
	C212.6	Interpret the tower spotting, types of towers, substation layout and different methods of grounding in power systems
C213&EE6403/DI SCRETE TIME SYSTEMS AND SIGNAL PROCESSING	C213.1	Classify different types of signals and systems
	C213.2	Apply Z transform to solve problems on DT systems
	C213.3	Compute Discrete Fourier transform using Fast Fourier transform
	C213.4	Design of IIR digital filters for the given specifications
	C213.5	Design of FIR digital filters for the given specifications
	C213.6	Compare various types of Digital Signal Processors
	C214.1	Explain the operation and performance characteristics of measuring instruments

C214/EE6404&M MEASUREMENTS AND INSTRUMENTATION	C214.2	Identify the analog and digital techniques to measure voltage, current, energy and power in the instruments
	C214.3	Describe the measurement techniques of various instruments and explain the operation of instrument transformers
	C214.4	Distinguish between the DC and AC type instruments and classify the external interference signals
	C214.5	Explain the most versatile laboratory instrument used for making a permanent record of electrical quantities and for display purpose
	C214.6	Classify the different types of transducers and describe the signal measurement recording using data acquisition system
C215&CS6461 OBJECT ORIENTED LABORATORY	C215.1	Apply the basic knowledge on object oriented theory and develop basic programs
	C215.2	Develop applications using object oriented programming concepts
	C215.3	Develop programs using advanced programming skills such as file handling, Exceptions, etc.
	C215.4	Build simple and nested packages in Java
	C215.5	Develop user and pre defined interfaces in Java
	C215.6	Create threading applications in Java
C216& EE6411 ELECTRICAL MACHINES LABORATORY-I	C216.1	Analyze the characteristics of DC shunt generator DC compound generator and calculate critical resistance and critical speed
	C216.2	Examine load characteristics of DC shunt, series and compound motor and identify its maximum efficiency operating point
	C216.3	Estimate the efficiency of DC machines in different methods
	C216.4	Sketch the load characteristics of single phase and three phase transformer, separate the different losses and find the efficiency
	C216.5	Predetermine the equivalent circuit parameters of single phase transformer in two different methods and compare the results
	C216.6	Examine the types of starters and 3-phase transformer connections

SUBJECT	CO	Course Outcomes
C301 / EE6501 & Power System Analysis	C301.1	Explain the concept of the nature of the modern power system, including the behaviour of the constituent components and sub-systems
	C301.2	Apply load flow analysis to an electrical power network and interpret the results of the analysis
	C301.3	Analyze the network under balanced fault conditions and interpret the results
	C301.4	Analyze a network under unbalanced fault conditions and interpret the results
	C301.5	Describe the concept of transient stability of a single machine/infinite bus system using both analytical and time simulation methods
	C301.6	Explain the factors which determine transient stability in both single machine and multi-machine systems
C302/ EE6502 & Microprocessors and Microcontrollers	C302.1	Explain about the architecture of 8085 microprocessor, pin configuration, interrupts and the timing diagram of 8085
	C302.2	Develop the assembly language program using mnemonics and corresponding machine code based on architecture of 8085 microprocessor
	C302.3	Define the 8051 microcontroller with its architecture, pin outs, memory organization, interrupts and compare the programming concepts with 8085
	C302.4	Illustrate the interfacing of 8085 with various peripheral devices for transmission, reception and control of data
	C302.5	Make use of the data conversion technique such as ADC and DAC and to interface with 8085 processor and 8051 microcontroller
	C302.6	Develop the microcontroller assembly language program for various real time applications
C303 / ME6701 & Power Plant	C303.1	Explain the layout of modern thermal power plant and list the various components used in thermal power plant
	C303.2	Identify the components of diesel and gas turbine power plants and explain the layout of integrated gassifier based combined cycle systems

Engineering	C303.3	Describe the layout of subsystems of various nuclear power plants and explain safety measures for nuclear power plants
	C303.4	Distinguish different hydroelectric power plants and explain the layout for various renewable energy power generation such as wind, tidal, solar PV, solar thermal, geo thermal, biogas and fuel cell
	C303.5	Explain the objectives and requirements to decide tariff and write the general form of tariff
	C303.6	Explain the working of Rankine, Otto, Diesel, Dual and Brayton cycle and describe the pollution control techniques for Coal and Nuclear power plants
C304 / EE6503 &Power Electronics	C304.1	Explain the constructional details of various power semi-conductor devices, characteristics and protection circuits
	C304.2	Analyze the topologies of single, three phase power converter circuits and comprehend its applications
	C304.3	Categorize different dc-dc converters with respect to their operation and application along with their characteristics
	C304.4	Examine the operation of single and three phase inverters with different switching techniques
	C304.5	Illustrate the operation of single and three phase ac voltage controllers and its control strategies
	C304.6	Explain the operation and applications of cycloconverter and matrix converters
C305 / EE6504 & Electrical Machines II	C305.1	Interpret the construction and analyse the performance of synchronous generators and can predict the voltage regulation by various methods
	C305.2	Explain the working of synchronous motor and analyze the performance of motor under different loading and excitation conditions
	C305.3	Outline the construction and working principle of three phase induction motor and predict its performance by conducting various testing procedures
	C305.4	Select the appropriate method of starting, speed control and braking for efficient operation of three phase induction motors
	C305.5	Explain the working, equivalent circuit and also categorize the different types of single phase induction motor based on its starting methods
	C305.6	Summarize the constructional and operating principle of various special electrical machines and can use it appropriately

C306 / IC6501 & Control Systems	C306.1	Derive the transfer function of electrical and mechanical systems using various reduction techniques
	C306.2	Analyze the response of the control system by investigating steady state error and time domain specifications
	C306.3	Construct the root locus to find the stability of the system and explain the effects of different types of controller
	C306.4	Construct the frequency response of the system using various plots and correlate the time and frequency domain specifications and effect of compensation
	C306.5	Design the different types of compensators using frequency response plots to stabilize the control system
	C306.6	Explain the state variable representation of physical systems with the effects of state feedback
C307 / EE6511 & Control and Instrumentation Laboratory	C307.1	Design and simulate the different types of controllers and compensators and analyse the stability of the given system
	C307.2	Model and analyse the stability response of machines, sensors and transducers
	C307.3	Explain the concept of position control systems, synchro and analyse its characteristics
	C307.4	Measure the various parameters such as R, L and C using bridge circuits and also measure the power and energy of electrical circuits
	C307.5	Illustrate the concept of sensors/transducers and signal conditioning elements
	C307.6	Model and simulate the characteristics, response and stability of the given system
C308 / GE6563 & Communication Skills - Laboratory Based	C308.1	Demonstrate to communicate confidently, fluently and effectively in English
	C308.2	Motivate to familiarise with different types of reading strategies with a clear awareness of purpose
	C308.3	Adapt for the corporate environment
	C308.4	Utilize the English language in the official context

	C308.5	Listing out various vocabularies and inferring the meanings through listening
	C308.6	Formulating with all the skills needed for academic and workplace situations
C309 / EE6512 & Electrical Machines Laboratory II	C309.1	Compare the different indirect testing methods to predetermine the voltage regulation of three phase salient and non-salient pole alternator
	C309.2	Determine the positive, negative and zero sequence impedance of alternators
	C309.3	Analyze the operation of synchronous motor on infinite bus for different excitation condition
	C309.4	Assess the performance of three phase induction motor by conducting direct and indirect testing
	C309.5	Assess the performance of single phase induction motor by conducting direct and indirect testing
	C309.6	Choose the appropriate induction motor starter for various industrial and commercial applications
C310 / EC6651 & Communicatio n Engineering	C310.1	Design and analyze Analog transmission systems
	C310.2	Design and analyze Digital transmission systems for high bit bit rate transmission
	C310.3	Analyze Coding techniques to minimize the transmission errors
	C310.4	Analyze MAC protocols and its implementation in various Access techniques
	C310.5	Analyze the digital communication techniques in satellite and optical systems
	C310.6	Analyze the communication technique using SCADA systems
C311/EE6601 & Solid State Drives	C311.1	Explain the steady-state operation, transient dynamics of motor-load system and interpret the load characteristics of different loads
	C311.2	Explain the concepts of converter and chopper fed separately excited DC motor drives

	C311.3	Discuss the closed loop speed control methods of induction motor drive
	C311.4	Discuss the closed loop speed control methods of synchronous motor drive
	C311.5	Derive the transfer function of converter fed motor drive with speed and voltage feedback systems
	C311.6	Design the speed and current controller for various electrical drives system
C312 / EE6602& Embedded Systems	C312.1	Illustrate the functional blocks of embedded systems
	C312.2	Explain bus communication involved in processors, and input/output interfacing
	C312.3	Compare various embedded development strategies for designing an embedded system
	C312.4	Relate the basics of real time operating system and its tools as a part of product development
	C312.5	Summarize various processor scheduling algorithms implemented in embedded systems.
	C312.6	Interpret the development of embedded systems used in real time applications
C313 / EE6603 & Power System Operation and Control	C313.1	Illustrate the concept of day-to-day operation of power system on varying system load demand
	C313.2	Infer the control actions on the power system to meet the minute-to-minute variation of system load demand
	C313.3	Explain the basic concepts and methods of reactive power control
	C313.4	Interpret the basic concepts, types and modelling of excitation systems
	C313.5	Formulate the mathematical model of economic load dispatch for any power system
	C313.6	Explain the role of computers in the power system operation and control

C314 / EE6604 & Design Of Electrical Machines	C314.1	Select the proper engineering materials with electrical properties for the effective and efficient machine design
	C314.2	Analyse the temperature rise in electrical (Rotating and Static) machine and to follow the standard specifications for system design
	C314.3	Develop the design parameters of DC machines (motor and generator) as per the industry standard
	C314.4	Predict the performance of transformer both single and three phase using design parameters
	C314.5	Develop the design parameters for stator and rotor core, winding structure for squirrel cage and wound rotor induction motor and analyse the performance of the motor
	C314.6	Develop the design parameters for the core, field and armature winding, damper winding for synchronous motor and analyse the thermal behaviour of the motor
EE6002 & Power System Transients	C315.1	Summarize the basic concepts and effects of transients in power system
	C315.2	Discuss the generation of switching transients and their control circuits
	C315.3	Analyze the mechanism of lightning strokes and the production of lightning surges
	C315.4	Analyze the propagation, reflection and refraction of travelling waves with lattice diagrams.
	C315.5	Interpret the transients in integrated power system during overvoltage induced by faults
	C315.6	Summarize the advanced simulation tools for the study of transient analysis in power systems
C316 / EE6611 & Power Electronics and Drives Laboratory	C316.1	Design the triggering circuits for Thyristor and can analyze the static and dynamic switching behavior of power semiconductor devices
	C316.2	Classify the different configurations of power converters according to the power application
	C316.3	Analyze the working and characteristics of step up and step down choppers
	C316.4	Evaluate the performance of IGBT based single phase and three phase inverter with resistive load

	C316.5	Analyze the working of different configurations three phase AC voltage controller with resistive load
	C316.6	Analyze the simulation results for 1 $\Phi$ & 3 $\Phi$ semiconverter, 1 $\Phi$ &3 $\Phi$ fullconverter, dc-dc Converters, ac voltage controllers for various load condition
C317 / EE6612 & Microprocessors and Microcontrollers Laboratory	C317.1	Apply the basic arithmetic and logical operations using 8085 microprocessor with the help of assembly language programming
	C317.2	Analyze the performance of different weighted and non weighted codes, its conversions with logic diagram using 8085 microprocessor
	C317.3	Illustrate the interfacing of 8085 with various peripheral devices for serial and parallel communication of data
	C317.4	Demonstrate the basic instructions with 8051 microcontroller execution including conditional jumps, looping and calling subroutines
	C317.5	Make use of the basic conversion techniques of ADC and DAC to interface it with 8085 processor and 8051 microcontroller
	C317.6	Develop a model using processor to apply computing platform and software for engineering problems
C318 / EE6613 & Presentation Skills and Technical Seminar	C318.1	Develop presentation skills to deliver the right content to the interactor
	C318.2	Discuss the technological advancements and present technical topics
	C318.3	Develop the pre-requisites for recruitment process
	C318.4	Make use of the technical resources available
	C318.5	Write technical documents and give oral presentations related to the course completed
	C318.6	Develop interactive platform for technical and non- technical discussion

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## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

REG-2013

FINAL YEAR

SUBJECT	CO	Course Outcomes
C401/ EE6701& HIGH VOLTAGE ENGINEERING	C401.1	Identify the causes of over voltages and its effects and estimate the reflection and refractions of travelling waves in transmission lines.
	C401.2	Discuss the various types of breakdown mechanisms and analyse the breakdown mechanisms in solid, liquid, gases and composite dielectrics
	C401.3	Explain the generation and design of different types of Generating circuits for high voltage and currents of AC, DC and impulse
	C401.4	Measure AC and DC high voltage and current using high resistance with series ammeter, dividers, peak voltmeter and generating voltmeters
	C401.5	Discuss the testing methodologies related to various high voltage equipment with reference to national and international standards
	C401.6	Estimate the AC and DC high voltage and current using CVT, electrostatic voltmeters, sphere gaps, high current shunts and digital techniques in high voltage measurement
C402/ EE6702 & PROTECTION AND SWITCHGEAR	C402.1	Interpret the principles of protection schemes for various natures of faults
	C402.2	Infer the various types of relays to detect the presence of faults, its location and to initiate the action for quick removal of the faults in power systems
	C402.3	Examine the protection schemes for various electrical apparatus using electromagnetic relays
	C402.4	Examine and apply the static and numerical relays for power system protection
	C402.5	Inspect the arc quenching phenomena for fault condition and illustrates various current zero interruption theories
	C402.6	Summarize, compare and select the types of circuit breakers according to the various occurrences of faults
	C403.1	Explain the construction, operating principle and performance characteristics of synchronous reluctance motors and its applications

	C403.2	Discuss the constructional features, modes of excitation for different configuration and narrate the torque equations, closed control operation and its applications
C403/EE6703 & SPECIAL ELECTRICAL MACHINES	C403.3	Describe the constructional features, principle of operation, performance analysis and applications of SRMs and develop control circuits for power converters
	C403.4	Describe the constructional features, principle of operation, performance analysis and applications of PMSM motor and discuss the power converter and controller circuits
	C403.5	Explain the principle and operational characteristics of ideal PMSM
	C403.6	Discuss VA requirements and power converter for PMSM and its applications
C404/ MG6851 & PRINCIPLES OF MANAGEMENT	C404.1	Summarize the principles of Management including planning, organizing and controlling
	C404.2	Illustrate the role of managers and relate it to the strategies of international business
	C404.3	Interpret the nature and purpose of planning and to gain knowledge about decision making
	C404.4	Illustrate the need for human resource management which can be used for management effectiveness
	C404.5	Compare various motivation theories and relate it to leadership and innovation
	C404.6	Explain the controlling techniques and apply it for cost control operation management
C405/ EI6704 & BIOMEDICAL INSTRUMENTATION	C405.1	Identify the functions of human nervous system and describe the basic components of biomedical system.
	C405.2	Illustrate the measurement of non-electrical parameters in human body system.
	C405.3	Illustrate the measurement of important electrical parameters in human body system.
	C405.4	Apply different electrodes and amplifiers in physiological measurements (EEG, ECG, EMG etc.)
	C405.5	Explain the basic principles of imaging techniques and patient monitoring system.
	C405.6	Describe the functions of life assisting and therapeutic equipments.

C406/ EE6008 & MICROCONTROLLER BASED SYSTEM DESIGN	C406.1	Explain the architecture and instruction set of PIC Microcontroller
	C406.2	Develop simple program in assembly language using interrupts and timers
	C406.3	Outline the process for data communication using I2C, SPI and USART
	C406.4	Illustrate the methods for interfacing PIC with real world using ADC, DAC and sensors
	C406.5	Explain the different functional blocks of ARM processor
	C406.6	Understand and apply computing platform and software for engineering problems
C407/ EE6711 & POWER SYSTEM SIMULATION LAB	C407.1	Analyze the various parameters and model a transmission line networks
	C407.2	Apply load flow analysis to an electrical power network and interpret the results using Gauss-Seidel and Newton Raphson Methods
	C407.3	Analyze a network under balanced, unbalanced fault conditions and interpret the results
	C407.4	Explain the transient stability analysis of single and multi machine infinite bus system
	C407.5	Examine the electromagnetic transients and its impact in power system studies
	C407.6	Evaluate the frequency dynamics, economic dispatch of single and two area power systems
C408/ EE6712 & COMPREHENSION LAB	C408.1	Recall and summarize the subject related topics in the field of electrical engineering
	C408.2	Asses their presentation skill by themselves through periodical exercise
	C408.3	Develop the communication skill through sharing of ideas and interaction
	C408.4	Extend knowledge on recent technologies by discussion and presentation
	C408.5	Inhibit the knowledge of effective class room speaking and presentation

	C408.6	Plan and adhere to deadlines while completing the task.
C409/ EE6801 & ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION	C409.1	Interpret the basics of electric traction and their performance
	C409.2	Explain the types of lamps and design the illumination systems for various lighting schemes
	C409.3	Discuss the types of electric heating and welding
	C409.4	Infer the phenomenon of solar radiation and explain the types of solar energy collectors
	C409.5	Explain the basic principles, components of wind energy conversion systems
	C409.6	Discuss the types of wind turbines and analyze the aerodynamic force acting on the blades
C410/ EE6010 & HIGH VOLTAGE DIRECT CURRENT TRANSMISSION	C410.1	Discuss the planning of DC power transmission and compare with AC power transmission
	C410.2	Analyze the effect of various HVDC converters in transmission lines
	C410.3	Evaluate the various types of compounding and regulation methods for power system stability
	C410.4	Explain the effects of harmonics and design suitable filters for power system control and protection
	C410.5	Infer the basic physical phenomenon arising in DC insulation and dielectric stress consideration
	C410.6	Interpret the modeling of HVDC Systems for digital dynamic simulation by using suitable philosophy and tools
C411/ GE6075 & PROFESSIONAL ETHICS IN ENGINEERING	C411.1	Create an awareness on Engineering ethics and human values
	C411.2	Develop a professional ethical identity to carry forward in their working life
	C411.3	Realize the responsibilities and rights in the society
	C411.4	Infer the nature of professional responsibility and apply ethics in the society

	C411.5	Interpret the moral and social values and appreciate the rights of others
	C411.6	Illustrate and resolve problems arising from questionable practice