M.I.E.T. ENGINEERING COLLEGE
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai)
UG - CSE, EEE & MECH Programs Accredited by NBA, New Delhi.
(An ISO 9001:2015 Certified Institution)
TRICHY – PUDUKKOTTAI ROAD, TIRUCHIRAPPALLI – 620 007.
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ELECTRICAL AND ELECTRONICS ENGINEERING

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Regulation – 2017 - UG

YEAR/SEMESTER: II / III

C201-MA8353/TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	
C201.1	To understand the basic properties of Standard Partial Differential Equations. Apply the Fundamental concept of Partial Differential Equations.
C201.2	To develop Fourier Series for different types of functions.
C201.3	Find the solutions of the heat equation, wave equation and the Laplace equation subject to boundary conditions
C201.4	To solve the Problems using Fourier Transforms and its inverse Transforms**.**
C201.5	Have a knowledge in Z- transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.
C201.6	After successfully completing the course, the student will have a good understanding of the topics and their applications
C202-EE8351/DIGITAL LOGIC CIRCUITS	
C202.1	Develop a digital logic and apply it to solve real life problems.
C202.2	Analyze, design and implement combinational logic circuits.
C202.3	Classify different semiconductor memories.
C202.4	Analyze, design and implement sequential logic circuits.
C202.5	Analyze digital system design using PLD.
C202.6	Simulate and implement combinational and sequential circuits using VHDL systems.
C203-EE8391/ELECTROMAGNETIC THEORY	
C203.1	Ability to Illustrate the Sources and effects of electromagnetic fields and discuss about various Coordinate Systems, laws and theorems related to electromagnetic fields.
C203.2	Able to analyse, find the Electric field produced in free space, dielectrics and apply boundary conditions to find Capacitance, Energy density.

C203.3	Able to analyse the magnetic field intensity (H) and apply Biot–Savart's Law, Ampere's Circuit Law to find H due to straight conductors, circular loop, infinite sheet of current.
C203.4	Able to illustrate the concept of magnetic flux density (B) – B in free space, conductor and study the characteristics of magnetic materials.
C203.5	Capable to analyse the magnetic Circuits ,apply Faraday's law solve problems related to Displacement current
C203.6	To describe and derive the Maxwell's equations and apply it in solving Electromagnetic wave generating equations.
C204-EE8301/ ELECTRICAL MACHINES – I	
C204.1	Obtain the knowledge about the fundamental of Magnetic circuits and Magnetic Materials.
C204.2	Secure the idea about the various construction details and erection of Transformer
C204.3	Assured the working principles of electrical machines and classify the various generator and its mathematical models
C204.4	Establish the working principles of electrical machines and classify the various motor and its speed control techniques
C204.5	Expertise in testing methods to obtain the performance of DC Machines.
C204.6	Analyze the realtime recent applications of DC Machines and Transformers.
C205-EC8353/ELECTRON DEVICES AND CIRCUITS	
C205.1	Understand the construction and modeling of semiconductor diodes and rectifiers.
C205.2	Discuss the methods of transistors and its characteristics.
C205.3	Interpret the midband analysis of amplifier circuits with gain and impedance values.
C205.4	Analyze the frequency response of differential amplifier and tuned circuits.
C205.5	Examine the methods of feedback and generation of oscillator conditions.
C205.6	Understand characteristics of electron devices towards its applications.

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C206-ME8792/ POWER PLANT ENGINEERING	
C206.1	Draw the layout of modern coal power plant and list the various components used in thermal power plant.
C206.2	Identify the components of diesel and gas turbine power plants and construct the integrated gasifier based combined cycle systems.
C206.3	Describe the layout of subsystems of various nuclear power plants and express safety measures for nuclear power plants.
C206.4	Distinguish different hydroelectric power plants and construct various renewable energy power plants such as wind, tidal, PV, solar, thermal, geo thermal, biogas and fuel cell.
C206.5	Calculate the per unit cost of electrical energy based on Power tariff, load factor, demand factor, diversity factor and plant safety factor.
C206.6	Draw the layout of modern coal power plant and list the various components used in thermal power plant.
C207- EC8311/ELECTRONICS LABORATORY	
C207.1	Analyse various types of diodes and its v-i characteristics.
C207.2	Construct the various types of transistors and draw its v-i characteristics.
C207.3	Demonstrate the various types of amplifiers.
C207.4	Categorize about filter circuits and multivibrators.
C207.5	Design and analyze the feedback amplifiers and oscillator circuits.
C207.6	Ability to perform different types of electronic circuits and its characteristics.
C208- EE8311/ ELECTRICAL MACHINES LABORATORY – I	
C208.1	Analyze the characteristics of DC shunt generator DC compound generator and calculate critical resistance and critical speed
C208.2	Examine load characteristics of DC shunt, series and compound motor and identify its maximum efficiency operating point
C208.3	Predict the efficiency of DC shunt machine in different methods
C208.4	Explain the load characteristics of single phase and three phase transformer , separate the different losses and to find the efficiency
C208.5	Predetermine the equivalent circuit parameters of single phase transformer in

	two different methods and compare the results
C208.6	Explore the DC starters.
YEAR/SEMESTER : II / IV	
C209-MA8491/ NUMERICAL METHODS	
C209.1	Able to solve the system of equations by using different methods and find Eigen values and Eigen vectors of a given matrix by power method.
C209.2	To make effective use of the interpolation formulas to find the missing data using the given data.
C209.3	Apply the techniques of solving any algebraic, transcendental equations
C209.4	Distinguish among the criteria of selection and procedures of various Numerical integration as well as Numerical differentiation rules.
C209.5	Apply various numerical methods in solving an initial value problem involving an ordinary differential equation.
C209.6	Estimate the best fit polynomial for the given tabulated data using the methods of Newton's interpolation and Lagrange's interpolation.
C210-EE8401/ ELECTRICAL MACHINES – II	
C210.1	Draw the constructional details and explain the performance of salient and non – salient type synchronous generators.
C210.2	Draw and explain the Principle of operation and performance of synchronous motor.
C210.3	Draw and describe the construction, principle of operation and performance of induction machines.
C210.4	Describe the starting and speed control of three-phase induction motors.
C210.5	Explain the construction, principle of operation and performance of single phase induction motors and special machines.
C210.6	Ability to model and analyze electrical apparatus and their application to power system.

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C211-EE8402/ TRANSMISSION AND DISTRIBUTION	
C211.1	Identify the basic elements of the electric power system, generation, transmission, distribution and describe the role played by each element.
C211.2	Compute the losses, efficiency and parameters of the Transmission line.
C211.3	Analyze the Performance of Transmission Lines.
C211.4	Solve the voltage distribution in insulator strings, cables and methods to improve the same.
C211.5	Design overhead lines both Mechanical and electrical aspects using Sag calculation..
C211.6	Ability to understand and analyze power system operation, stability, control and protection.
C211- EE8403/ MEASUREMENTS AND INSTRUMENTATION	
C212.1	To introduce the basic functional elements of instrumentation.
C212.2	To introduce the fundamentals of electrical and electronic instruments.
C212.3	To construct a suitable bridges for measurement of particular parameters.
C212.4	To introduce various storage and display devices.
C212.5	To introduce various transducers and the data acquisition systems.
C213- EE8451/ LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY	
C213.1	Explain the procedure for the fabrication of IC
C213.2	Summarize the DC & AC characteristics of Operational amplifier.
C213.3	Discuss the applications of Operational amplifier
C213.4	Describe the internal functional blocks of special ICs like Timer and PLL
C213.5	Classify types of voltage regulators and describe the special ICs
C213.6	Ability to understand and analyse, linear and digital electronic circuits.
C214- IC8451/ CONTROL SYSTEMS	
C214.1	Develop electrical models/ mechanical models to design a physical system for a specific operation.

C214.2	Understand, define different time domain specification parameters and thus can apply that knowledge to conclude dynamic performance of a system.
C214.3	Use the basic knowledge in obtaining the open loop and closed–loop frequency responses of systems
C214.4	Able to explain the stability analysis and types of compensators.
C214.5	To describe the state variable representation of physical systems and the effect of state feedback
C214.6	Able to explain and use all the control techniques and to determine stability of all systems
C215-EE8411/ ELECTRICAL MACHINES LABORATORY - II	
C215.1	Determine the voltage regulation of three phase alternator in different methods and compare the results.
C215.2	Determine the voltage regulation of salient pole synchronous machine and find negative &zero sequence components.
C215.3	Explain the V and inverted V characteristics of three phase synchronous machine at different load condition.
C215.4	Determine and pre determine performance characteristics of three phase induction Motor.
C215.5	Determine and pre determine performance characteristics of single phase induction Motor.
C315.6	Ability to model and analyze electrical apparatus and their application to power system.
C216- EE8461/ LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY	
C216.1	Apply Boolean functions to implement adder, subtractor circuits and convert Excess 3 to BCD, Binary to Gray code and vice versa.
C216.2	Test Parity generator and checker and Design encoder decoder circuits

C216.3	Demonstrate 4 bit synchronous, asynchronous counter and Shift registers
C216.4	Illustrate multiplexer demultiplexer circuit and apply 555 timer in Monostable and Astable operation.
C216.5	Apply OP-AMP to construct Adder, comparator, differentiator, Integrator and Describe VCO, PLL characteristics.
C216.6	Ability to understand and analyse, linear and digital electronic circuits.
C217- EE8412/TECHNICAL SEMINAR	
C217.1	Present seminar in the field of Electrical and Electronics Engineering subjects studied.
C217.2	Solve objective type questions in the field of Electrical and Electronics Engineering.
C217.3	Communicate effectively, the subjects learned in the form of seminar presentation.
C217.4	Communicate effectively, the modern trends in the field of Electrical and Electronics Engineering.
C217.5	Answer effectively during technical interviews.
YEAR/SEMESTER : III / V	
C301- EE8501/POWER SYSTEM ANALYSIS	
C301.1	Discuss Various components of Power System, their characteristics and Modelling.
C301.2	Draw equivalent single line reactance and impedance diagrams and per unit representation of a power system
C301.3	Explain significance of load flow problem and apply numerical techniques to obtain Load flow solution..
C301.4	Interpret the effect of symmetrical fault conditions and select suitable rating for various protective devices in a. power system
C301.5	Apply symmetrical components and solve unsymmetrical faults.in a power system.
C301.6	Discuss stability classifications and calculate stability limits using equal area criterion

	and numerical methods.
C302- EE8551/MICROPROCESSORS AND MICROCONTROLLERS	
C302.1	Describe the basic Architecture of 8085 Microprocessor and working of all blocks of the processor, IO and memory interfacings with necessary timing diagrams.
C302.2	Classify the instructions with the help of Addressing modes of 8085 with necessary programs.
C302.3	Explain the basic Architecture of 8051 Microcontroller with working of various blocks of the controller like Interrupts, Timer, IO ports etc. with necessary timing diagram and compare the programming concepts with 8085.
C302.4	Analyze the architecture of various Interfacing Devices like 8255 PPI, 8259 PIC, 8251 USART, 8279, 8253
C302.5	Analyze the architecture of various Interfacing Devices like ADC and DAC and Programming of all the Interfacing IC's.
C302.6	Apply the knowledge of programming concepts of 8051 Microcontroller for various applications like keyboard display interface, servo motor etc.,
C303- EE8552/POWER ELECTRONICS	
C303.1	Explain the significance of switching devices and its application to power Converters and demonstrate the triggering circuit and snubber circuits.
C303.2	Compare the operation of two, three Pulse Converters and draw output Waveforms with and without source and load inductance.
C303.3	Classify the operation of Choppers and outline the application of SMPS.
C303.4	Analyze the operation of single phase and three phase Inverters with and without.
C303.5	Illustrate the operation of cycloconverter and its application.
C303.6	Illustrate the operation of AC voltage controller and its application.
C304- EE8591/DIGITAL SIGNAL PROCESSING	
	Classify the different types of signals and systems and Explain the sampling process of

C304.1	continuous time signal.
C304.2	Apply z-transform and inverse Z transform and analyze discrete time systems.
C304.3	Apply Radix-2 Decimation in Time (DIT) and Decimation in Frequency (DIF) FFT Algorithm to Compute Discrete Fourier Transform
C304.4	Explain different types of Infinite Impulse Response (IIR) filters and Finite Impulse Response (FIR) filters
C304.5	An understanding of sampling conversion technique in signal processing and its applications.
C304.6	Explain various architectures of Digital signal processors.
C305-CS8392/OBJECTED ORIENTED PROGRAMMING	
C305.1	Gain the basic knowledge on object oriented concepts
C305.2	Ability to implement features of object oriented programming to solve real world problems.
C305.3	Analyze the suitable test to validate the programs with exception handling mechanism.
C305.4	Analyze and apply to evaluate the concept of overloading.
C305.5	Develop the concept of java in creating classes, objects using arrays and control statements.
C305.6	Create packages, handle exceptions and develop multi-threaded programs.
C306- OCE551/AIR POLLUTION AND CONTROL ENGINEERING	
C306.1	An understanding of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management
C306.2	Ability to identify, formulate and solve air and noise pollution problems
C306.3	Ability to design stacks and particulate air pollution control devices to meet applicable standards.
C306.4	Ability to select control equipments.
C306.5	Ability to ensure quality, control and preventive measures.

C306.6	To impart knowledge on the principle and design of control of Indoor/ particulate/ gaseous air pollutant and its emerging trends.
C307- EE8511/CONTROL AND INSTRUMENTATION LABORATORY	
C307.1	Determine the characteristics of P, PI and PID controllers experimentally and analyze the stability of the control system by (i) Bode plot (ii) Root Locus Plot and (iii) Nyquist plot using MATLAB
C307.2	Compute the transfer function of a Field controlled DC motor experimentally and Design the Lag, Lead and Lag-Lead Compensators for the given specifications and hook up it using RC networks
C307.3	Draw the transient response of Position Control system experimentally, Determine the Characteristics of Synchro-Transmitter- Receiver and Use the MATLAB for the Simulation of Control Systems
C307.4	Calculate the unknown Capacitance, Inductance and Resistance using AC and DC Bridges experimentally and Analyze the Dynamics of Sensors/Transducers (a) Temperature (b) Pressure (c) Displacement (d) Optical (e) Strain and (f) Flow
C307.5	Measure the Power and Energy experimentally
C307.6	Analyze the Signal Conditioning units (a) Instrumentation Amplifier (b) ADC and DACs and Use the MATLAB for Process Simulation
C308- HS8581/PROFESSIONAL COMMUNICATION	
C308.1	Apply appropriate communication skills across settings, purposes and audiences.
C308.2	Demonstrate knowledge of communication theory and applications.
C308.3	Practice critical thinking to develop innovative and well-founded perspectives related to the students emphasis. Build and maintain healthy and effective relationships.
C308.4	Use technology to communicate effectively in various settings and contexts.
C308.5	Demonstrate appropriate and professional ethical behavior.

C309-CS8383/ OBJECT ORIENTED PROGRAMMING LABORATORY	
C309.1	Design C++ programs using functions, classes with objects, member functions and constructors.
C309.2	Develop operator and function overloading and run time polymorphism using C++.
C309.3	Develop file handling techniques in C++ for sequential and random access also use Java code for strings.
C309.4	Construct packages and interfaces in Java.
C309.5	Create threads in Java and handle predefined and user defined exceptions.
C309.6	Ability to model and analyze electrical apparatus and their application to power system.
YEAR/SEMESTER : III / VI	
C310- EE8601/ SOLID STATE DRIVES	
C310.1	Classify the various types of drives and load torque characteristics and Apply the multi quadrant dynamics in hoist load system.
C310.2	Analyze the operation of steady state analysis of single phase and three phase fully controlled converter and Chopper fed separately excited dc motor drives and discuss the various control strategies of converter.
C310.3	Explain the operation and characteristics of various methods of solid state speed control of induction motor.
C310.4	Describe the operation of various modes of V/f control of synchronous motor drives and different types of permanent magnet synchronous motor drives.
C310.5	Design a current and speed controller and develop the transfer function for DC motor, load and converter, closed loop control with current and speed feedback.
C310.6	Ability to understand and apply basic science, circuit theory, and Electro-magnetic field theory control theory and apply them to electrical engineering problems.

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C311-EE8602/ PROTECTION AND SWITCH GEAR	
C311.1	Summarize the causes and effects of faults in power system and explain the necessity of protection in power system.
C311.2	Describe the operation of various relays and summarize the various protective schemes
C311.3	List out the various faults that can occur on alternator, transformer, busbar and transmission line and select the suitable protection schemes.
C311.4	Synthesize the static relays using comparators and explain numerical relays.
C311.5	Derive the expression for RRRV, critical resistance value
C311.6	Express the various types of circuit breakers and its application.
C312-EE8691/EMBEDDED SYSTEMS	
C312.1	Analyze the basic build process of embedded systems, structural units in embedded processor and selection of processor and memory devices depending upon the applications.
C312.2	Classify the types of I/O device ports and buses and different interfaces for data transfer.
C312.3	Model the Embedded Product Development Life Cycle (EDLC) by using different techniques like state machine model, sequential program model and concurrent model
C312.4	Analyze the basic concept of Real Time Operating Systems and plan to scheduling of different task and compare the features of different types of Real Time Operating Systems
C312.5	Apply the knowledge of programming concepts of Embedded Systems for various applications like Washing Machine automotive and Smart Card System applications
C313- GE8075/ INTELLECTUAL PROPERTY RIGHTS	
C313.1	Identify different types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP.

C313.2	Recognize the crucial role of IP in organizations of different industrial sectors for the purposes of product and technology development.
C313.3	Identify activities and constitute IP infringements and the remedies available to the IP owner and describe the precautious steps to be taken to prevent infringement of proprietary rights in products and technology development.
C313.4	Be familiar with the processes of Intellectual Property Management (IPM) and various approaches for IPM and conducting IP and IPM auditing and explain how IP can be managed as a strategic resource and suggest IPM strategy.
C313.5	Be able to anticipate and subject to critical analysis arguments relating to the development and reform of intellectual property right institutions and their likely impact on creativity and innovation.
C313.6	Be able to demonstrate a capacity to identify, apply and assess ownership rights and marketing protection under intellectual property law as applicable to information, ideas, new products and product marketing
C314- EI8073/BIOMEDICAL INSTRUMENTATION	
C314.1	Ability to understand the philosophy of the heart, lung, blood circulation andrespiration system.
C314.2	Ability to provide latest ideas on devices of non-electrical devices.
C314.3	Ability to gain knowledge on various sensing and measurement devices of electrical origin.
C314.4	Ability to understand the analysis systems of various organ types.
C314.5	Ability to bring out the important and modern methods of imaging techniques and their analysis.
C314.6	Ability to explain the medical assistance/techniques, robotic and therapeutic equipments.
C315-EE8661/ POWER ELECTRONICS AND DRIVES LABORATORY	

C315.1	Draw the VI characteristics of SCR and generate the Gate Pulse using R, RC and UJT
C315.2	Plot the characteristics of MOSFET and IGBT
C315.3	Simulate a single phase AC to DC half and fully controlled converter
C315.4	Draw the output response of step up and step down MOSFET based chopper and Simulate a single phase IGBT based PWM inverter.
C315.5	Plot the output response of AC voltage controller and Simulate the Power Electronic Circuits
C315.6	Ability to understand and analyze, linear and digital electronic circuits.
C316- EE8681/ MICROPROCESSORS AND MICROCONTROLLERS LABORATORY	
C316.1	Demonstrate and apply working of programs in microprocessor 8085 and 8051 microcontroller.
C316.2	Explain various assembly language programs
C316.3	Develop the basic knowledge of microprocessor and microcontroller interfacing and their application
C316.4	Design the system using capabilities of stack program counter and status register and show how these are used to execute a machine code program
C316.5	Justify the programming proficiency using various addressing modes and data transfer instruction of target microprocessor
C316.6	Develop mini-projects using 8085 processor
C317- EE8611/MINI PROJECT	
C317.1	Able to develop their own innovative prototype of ideas.
C317.2	Able to frame and use right principles.
C317.3	Able to implement proper methodology.
C317.4	Able to take up their final year project work.
C317.5	Able to prepare mini project reports and examination.

C317.6	Able to find solution for real time applications.
YEAR/SEMESTER : IV / VII	
C401-EE8701/HIGH VOLTAGE ENGINEERING	
C401.1	Identify the causes of over voltage and its effects in power system.
C401.2	Classify the breakdown Mechanisms in Solid, Liquid, gases and Composite dielectrics
C401.3	Design different type of Generating circuit for high voltage D.C and high voltage A.C
C401.4	Measure A.C and D.C high voltage and current using appropriate method
C401.5	Test the transformer ,insulator , circuit breakers, surge diverters and cables also discuss the insulation coordination
C401.6	Ability to understand and analyze power system operation, stability, control and protection.
C402-EE8702/ POWER SYSTEM OPERATION AND CONTROL	
C402.1	Explain the concept of transients and Compute the solution of transient current equation for RL and RLC system.
C402.2	Illustrate the importance of switching transients; Explain the concept of resistance switching, load switching and capacitance switching.
C402.3	Explain the concept of lightning mechanism, Describe the interaction between lightning and power system
C402.4	Apply the concept of reflection and refraction, Draw the Bewley Lattice diagram for different systems.
C402.5	Analyze the concept of short line (or) Kilometric fault and justify the EMTP for transient computation.
C402.6	Ability to understand and analyze power system operation, stability, control and protection.

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C403-EE8703/RENEWABLE ENERGY SYSTEMS	
C403.1	Examine the various types of renewable energy sources
C403.2	Acquiring the knowledge about the performance of IG, PMSG, SCIG and DFIG
C403.3	Ability to fabricate different power converters namely AC to DC , DC to DC and AC to AC converters for renewable energy sources
C403.4	Analyze various operating modes of wind electrical generators and solar energy system
C403.5	Strengthen the knowledge about maximum power point tracking algorithms
C403.6	Gain the knowledge about various grid integrated systems
C404- EE8005/ SPECIAL ELECTRICAL MACHINES	
C404.1	Explain the construction, operating principle and performance characteristics of synchronous reluctances motors and its applications.
C404.2	Discuss the constructional features, modes of excitation for different configuration and derive the torque equations, closed control operation and applications of stepper motor.
C404.3	Describe the constructional features, principle of operation, performance analysis and applications of SRMs and develop control circuits for power converters.
C404.4	Describe the constructional features, principle of operation, performance analysis and applications of PMBLDC motor and discuss the power converter and controller circuits.
C404.5	Explain the principle and operational characteristics of ideal PMSM.
C404.6	Explain the principle and operational characteristics, VA requirements and power converter for PMSM.
C405- EE8015/ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION	
C405.1	To understand the main aspects of generation, utilization and conservation.
C405.2	To identify an appropriate method of heating for any particular industrial application
C405.3	To evaluate domestic wiring connection and debug any faults occurred.

C405.4	To construct an electric connection for any domestic appliance like refrigerator as well as todesign a battery charging circuit for a specific household application.
C405.5	To realize the appropriate type of electric supply system as well as to evaluate the performance of a traction unit
C405.6	To understand the main aspects of Traction.
C406- OBT751/ANALYTICAL METHODS AND INSTRUMENTATION	
C406.1	Able to understand the properties of electromagnetic radiation.
C406.2	Able to understand the molecular absorption spectrometry.
C406.3	Able to get the knowledge of NMR and Mass spectrometry.
C406.4	Able to understand the various chromatographies.
C406.5	Able to analyze the electro and surface microscopy.
C406.6	Able to find the various scanning probe microscopes.
C407- EE8711/POWER SYSTEM SIMULATION LABORATORY	
C407.1	Determine the bus impedance and admittance matrices using C and MATLAB
C407.2	Apply numerical methods for solving load flow problems and verify using C and MATLAB
C407.3	Analyze various faults occurring in power system and simulate the faults using PSCAD.
C407.4	Analyze small signal stability of Single Machine Infinite Bus (SMIB) system and draw the swing curve using AUPOWER Lab and MATLAB.
C407.5	Generate the coding for economic dispatch problems and load frequency dynamics problems using MATLAB.
C408- EE8712/RENEWABLE ENERGY SYSTEMS LABORATORY	
C408.1	Ability to understand and analyze Renewable energy systems
C408.2	Ability to train the students in Renewable Energy Sources and technologies.
C408.3	Ability to provide adequate inputs on a variety of issues in harnessing Renewable Energy.

C408.4	Ability to simulate the various Renewable energy sources.
C408.5	Ability to recognize current and possible future role of Renewable energy sources.
C408.6	Ability to understand basics of Intelligent Controllers.
YEAR/SEMESTER : IV / VIII	
C409- GE8074 /HUMAN RIGHTS	
C409.1	Able to understand the classifications of rights.
C409.2	Able to understand the Evolution of the concept of Human Rights.
C409.3	Able to understand the theories and perspectives of UN laws.
C409.4	Able to identify the human rights in India.
C409.5	Able to acquire the basic knowledge of human rights.
C409.6	Able to understand the role of NGO's in human rights.
C410- EE8010/POWER SYSTEM TRANSIENTS	
C410.1	Ability to understand and analyze switching and lightning transients.
C410.2	Ability to acquire knowledge on generation of switching transients and their control.
C410.3	Ability to analyze the mechanism of lighting strokes.
C410.4	Ability to understand the importance of propagation, reflection and refraction of travelling waves.
C410.5	Ability to find the voltage transients caused by faults.
C410.6	Ability to understand the concept of circuit breaker action, load rejection on integrated power system.
C411- EE8811 / PROJECT WORK	
C411.1	Apply the fundamentals of mathematics, science and engineering knowledge to identify , formulate , design and investigate complex engineering problems of electrical and electronics engineering and allied applications .
C411.2	Apply appropriate techniques and modern engineering hardware and software tools in electrical and electronics engineering and allied applications.

C411.3	Apply reasoning informed by the contextual knowledge to assess societal , health, safety, legal and cultural issues with societal and environmental context , applying ethical principles in the field of electrical and electronics engineering and allied applications.
C411.4	Function effectively as an individual and as a member or leader in diverse teams in multidisciplinary settings and make effective presentation, and communicate effectively.
C411.5	Demonstrate the understanding of the engineering and management principles in multidisciplinary environments to engage in lifelong learning in the broadest context of technological change.

C201-MA8353/TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS												
C201.1	3	2	2	-	-	2	-	-	-	3	-	2
C201.2	2	3	2	-	-	-	-	-	-	-	-	-
C201.3	3	2	2	-	-	-	-	-	-	2	-	-
C201.4	3	2	3	2	2	-	-	2	-	2	-	-
C201.5	3	3	2	2	-	2	-	-	-	-	-	2
C201.6	3	2	2	2	2	2	-	2	-	-	2	2
C202-EE8351/DIGITAL LOGIC CIRCUITS												
C202.1	3	2	2	2	-	-	-	-	-	2	2	2
C202.2	3	2	2	2	2	-	-	-	-	2	2	2
C202.3	3	2	2	2	-	-	-	-	-	2	2	2
C202.4	3	2	2	2	-	-	-	-	-	2	2	2
C202.5	3	2	2	2	2	-	-	-	-	2	2	2

C202.6	3	2	2	2	3	-	-	-	-	2	2	2
C203-EE8391/ELECTROMAGNETIC THEORY												
C203.1	3	3	3	2	2	2	-	2	2	2	3	2
C203.2	3	2	3	2	2	-	-	-	-	3	2	2
C203.3	3	2	2	2	2	-	-	-	-	2	2	2
C203.4	3	3	2	2	3	-	2	-	-	2	2	2
C203.5	3	3	3	2	2	-	-	-	-	3	2	2
C203.6	2	2	3	2	3	-	-	2	-	2	2	2
C204-EE8301/ ELECTRICAL MACHINES - I												
C204.1	3	3	2	2	-	-	-	-	-	-	-	2
C204.2	3	3	3	2	-	-	-	-	-	-	-	2
C204.3	3	3	3	2	-	-	-	-	-	-	-	2
C204.4	3	3	2	2	-	-	-	-	-	-	-	2
C204.5	3	3	3	2	-	-	-	-	-	-	-	2
C204.6	3	3	3	2	-	-	-	-	-	-	-	2
C205-EC8353/ELECTRON DEVICES AND CIRCUITS												
C205.1	3	3	3	2	2	-	-	-	-	-	-	2
C205.2	3	3	3	3	3	-	-	-	-	-	-	2
C205.3	3	3	2	3	2	-	-	-	-	-	-	2
C205.4	3	2	2	2	2	-	-	-	-	-	-	2
C205.5	3	2	2	2	3	-	-	-	-	-	-	2
C205.6	3	3	3	3	3	-	-	-	-	-	-	2
C206-ME8792/POWER PLANT ENGINEERING												
C206.1	3	2	3	2	2	3	2	3	2	2	2	2
C206.2	3	2	3	2	3	3	-	3	2	-	-	2
C206.3	3	2	3	2	2	2	2	2	2	2	2	-

C206.4	3	2	2	2	2	2	2	2	-	2	2	2
C206.5	3	2	2	2	2	2	2	2	2	2	-	2
C206.6	3	2	2	2	2	2	2	-	2	2	2	2
C207- EC8311/ELECTRONICS LABORATORY												
C207.1	3	2	2	3	2	-	-	-	-	-	2	2
C207.2	3	2	2	3	2	-	-	-	-	-	2	2
C207.3	3	2	2	2	2	-	-	-	-	-	2	2
C207.4	3	2	2	2	2	-	-	-	-	-	2	2
C207.5	3	2	2	2	2	-	-	-	-	-	2	2
C207.6	3	2	2	3	3	-	-	-	-	-	2	2
C208- EE8311/ ELECTRICAL MACHINES LABORATORY - I												
C208.1	3	3	-	-	-	2	-	-	-	-	2	2
C208.2	3	3	-	-	-	2	-	-	-	-	2	2
C208.3	3	2	-	-	-	2	-	-	-	-	2	2
C208.4	3	2	-	-	-	2	-	-	-	-	2	2
C208.5	3	2	-	-	-	2	-	-	-	-	2	2
C208.6	3	2	-	-	-	2	-	-	-	-	2	2
C209-MA8491/ NUMERICAL METHODS												
C209.1	3	3	-	2	2	-	-	-	-	-	-	2
C209.2	3	2	-	2	2	-	-	-	-	-	-	2
C209.3	3	3	-	3	2	-	-	-	-	-	-	2
C209.4	3	2	2	-	-	-	-	-	-	-	-	2
C209.5	3	2	2	-	-		-	-	-	-	-	2
C209.6	2	2	2	-	-	-	-	-	-	-	-	2
C210-EE8401/ ELECTRICAL MACHINES - II												
C210.1	2	3	3	2	2	-	2	-	-	-	3	-

C210.2	2	2	3	2	2	3	-	2	-	3	2	2
C210.3	2	2	2	2	2	-	-	-	2	-	2	-
C210.4	3	3	2	2	3	-	3	-	-	-	2	2
C210.5	3	3	3	2	2	-	-	-	3	-	2	-
C210.6	2	2	3	2	3	-	-	-	-	2	2	2
C211-EE8402/ TRANSMISSION AND DISTRIBUTION												
C211.1	2	2	2	2	2	-	-	3	-	-	3	-
C211.2	3	2	3	2	2	-	-	-	-	-	2	-
C211.3	3	2	2	2	2	-	-	-	-	-	2	2
C211.4	3	3	2	2	3	2	-	-	2	-	2	-
C211.5	3	3	3	2	2	-	-	3	-	-	2	3
C212- EE8403/ MEASUREMENTS AND INSTRUMENTATION												
C212.1	3	3	2	2	2	-	-	-	-	-	-	3
C212.2	3	3	3	3	3	-	-	-	-	-	-	3
C212.3	3	2	3	2	3	-	-	-	-	-	-	2
C212.4	3	3	2	2	2	-	-	-	-	-	-	2
C212.5	3	3	2	2	3	-	-	-	-	-	-	3
C212.6	3	2	2	2	3	-	-	-	-	-	-	3
C213- EE8451/LINEAR INTEGRATED CIRCUITS AND APPLICATIONS												
C213.1	3	-	2	-	-	-	-	-		-	2	2
C213.2	3	-	2	-	-	-	-	-	2	-	2	2
C213.3	3	2	2	2	-	-	2	-	2	-	2	2
C213.4	3	2	2	2	-	-	2	-	2	-	2	2
C213.5	3	-	2	2	-	-	2	-	2	-	2	2
C213.6	3	-	2	2	-	2	2	-	2	-	2	2
C214- IC8451/CONTROL SYSTEMS												

C214.1	3	3	2	2	-	-	-	-	-	-	-	2
C214.2	3	3	3	2	-	-	-	-	-	-	-	2
C214.3	3	3	3	2	-	-	-	-	-	-	-	2
C214.4	3	3	2	2	-	-	-	-	-	-	-	2
C214.5	3	3	3	2	-	-	-	-	-	-	-	2
C214.6	3	3	3	2	-	-	-	-	-	-	-	2
C215-EE8411/ELECTRICAL MACHINES LABORATORY - II												
C215.1	3	3	3	2	2	-	-	-	-	-	3	-
C215.2	3	2	3	2	2	-	-	-	-	-	2	-
C215.3	3	2	2	2	2	-	-	-	-	-	2	-
C215.4	3	3	2	2	3	-	-	-	-	-	2	-
C215.5	3	3	3	2	2	-	-	-	-	-	2	-
C215.6	2	2	3	2	3	-	-	-	-	-	2	-
C216- EE8461/LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY												
C216.1	3	3	-	-	-	2	-	-	-	-	2	2
C216.2	3	3	-	-	-	2	-	-	-	-	2	2
C216.3	3	2	-	-	-	2	-	-	-	-	2	2
C216.4	3	2	-	-	-	2	-	-	-	-	2	2
C216.5	3	2	-	-	-	2	-	-	-	-	2	2
C216.6	3	2	-	-	-	2	-	-	-	-	2	2
C301- EE8412/TECHNICAL SEMINAR												
C217.1	3	2	3	-	-	-	-	-	3	2	2	2
C217.2	3	2	2	-	-	-	-	-	3	2	2	3
C217.3	3	3	2	-	-	-	-	-	3	2	2	3
C217.4	3	2	2	-	-	-	-	-	3	2	2	2
C217.5	3	3	2	-	-	-	-	-	3	2	2	3

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C301- EE8501/POWER SYSTEM ANALYSIS												
C301.1	3	2	2	2	-	2	-	-	-	2	-	2
C301.2	3	3	2	2	-	2	-	-	-	2	-	2
C301.3	3	2	3	2	-	2	-	-	-	2	-	2
C301.4	3	2	2	2	-	2	-	-	-	2	-	2
C301.5	3	2	3	2	-	2	-	-	-	2	-	2
C301.6	3	2	2	2	-	2	-	-	-	2	-	2
C302- EE8551/ MICROPROCESSORS AND MICROCONTROLLERS												
C302.1	3	3	2	2	2	-	-	-	-	-	-	3
C302.2	3	3	3	3	3	-	-	-	-	-	-	3
C302.3	3	2	3	2	3	-	-	-	-	-	-	2
C302.4	3	3	2	2	2	-	-	-	-	-	-	2
C302.5	3	3	2	2	3	-	-	-	-	-	-	3
C302.6	3	2	2	2	3	-	-	-	-	-	-	3
C303- EE8552/POWER ELECTRONICS												
C303.1	3	2	2	2	-	-	-	-	-	2	2	2
C303.2	3	2	2	2	-	-	-	-	-	2	2	2
C303.3	3	2	2	2	-	-	-	-	-	2	2	2
C303.4	3	2	2	2	-	-	-	-	-	2	2	2
C303.5	3	2	2	2	-	-	-	-	-	2	2	2
C303.6	3	2	2	2	-	-	-	-	-	2	2	2
C304-EE8591/DIGITAL SIGNAL PROCESSING												
C304.1	3	2	2	-	1	-	-	-	-	-	-	1
C304.2	3	2	2	-	1	-	-	-	-	-	-	1
C304.3	3	2	2	-	1	-	-	-	-	-	-	1
C304.4	3	2	2	-	1	-	-	-	-	-	-	1

C304.5	3	2	2	-	1	-	-	-	-	-	-	1
C304.6	3	2	2	-	1	-	-	-	-	-	-	1
C305- CS8392/ OBJECT ORIENTED PROGRAMMING												
C305.1	3	2	2	-	-	-	-	-	-	-	-	2
C305.2	2	2	2	-	-	-	-	-	-	-	-	2
C305.3	2	2	2	-	-	-	-	-	-	-	-	-
C305.4	3	3	-	-	-	-	-	-	-	-	-	3
C305.5	2	3	-	-	-	-	-	-	-	-	-	3
C305.6	2	-	2	-	-	-	-	-	-	-	-	2
C306- OCE551/AIR POLLUTION AND CONTROL ENGINEERING												
C306.1	3	3	2	2	-	-	-	-	-	-	-	2
C306.2	3	3	3	2	-	-	-	-	-	-	-	2
C306.3	3	3	3	2	-	-	-	-	-	-	-	2
C306.4	3	3	2	2	-	-	-	-	-	-	-	2
C306.5	3	3	3	2	-	-	-	-	-	-	-	2
C306.6	3	3	3	2	-	-	-	-	-	-	-	2
C307- EE8511/ CONTROL AND INSTRUMENTATION LABORATORY												
C307.1	3	3	3	-	2	2	-	2	2	-	-	2
C307.2	3	2	3	-	2	-	-	-	-	-	-	3
C307.3	3	2	2	-	2	-	-	-	-	2	-	2
C307.4	3	3	2	-	3	-	2	-	-	-	-	3
C307.5	3	3	3	2	2	-	-	-	-	-	2	2
C307.6	2	2	3	-	3	-	-	2	-	-	-	2
C308- HS8581/ PROFESSIONAL COMMUNICATION												
C308.1	3	2	3	-	-	-	-	-	3	2	2	2
C308.2	3	2	2	-	-	-	-	-	3	2	2	3

C308.3	3	3	2	-	-	-	-	-	3	2	2	3
C308.4	3	2	2	-	-	-	-	-	3	2	2	2
C308.5	3	3	2	-	-	-	-	-	3	2	2	3
C309- CS8383/ OBJECT ORIENTED PROGRAMMING LABORATORY												
C309.1	3	2	2	-	-	-	-	-	-	-	-	2
C309.2	2	2	2	-	-	-	-	-	-	-	-	2
C309.3	2	2	2	-	-	-	-	-	-	-	-	2
C309.4	3	3	3	-	-	-	-	-	-	-	-	3
C309.5	2	3	3	-	-	-	-	-	-	-	-	3
C310-EE8601/SOLID STATE DRIVES												
C310.1	3	2	2	2	-	-	-	-	-	2	2	2
C310.2	3	2	2	2	-	-	-	-	-	2	2	2
C310.3	3	2	2	2	-	-	-	-	-	2	2	2
C310.4	3	2	2	2	-	-	-	-	-	2	2	2
C310.5	3	2	2	2	-	-	-	-	-	2	2	2
C310.6	3	2	2	2	-	-	-	-	-	2	2	2
C311-EE8602/ PROTECTION AND SWITCH GEAR												
C311.1	3	2	2	2	-	2	-	-	-	2	-	2
C311.2	3	3	2	2	-	2	-	-	-	2	-	2
C311.3	3	2	3	2	-	2	-	-	-	2	-	2
C311.4	3	2	2	2	-	2	-	-	-	2	-	2
C311.5	3	2	3	2	-	2	-	-	-	2	-	2
C311.6	3	2	2	2	-	2	-	-	-	2	-	2
C312-EE8691/ EMBEDDED SYSTEMS												
C312.1	3	2	2	2	-	-	-	-	-	2	2	2
C312.2	3	2	2	2	-	-	-	-	-	2	2	2

C312.3	3	2	2	2	-	-	-	-	-	2	2	2
C312.4	3	2	2	2	-	-	-	-	-	2	2	2
C312.5	3	2	2	2	-	-	-	-	-	2	2	2
C312.6	3	2	2	2	-	-	-	-	-	2	2	2
C313- GE8075/INTELLECTUAL PROPERTY RIGHTS												
C313.1	3	2	3	-	-	-	-	-	3	2	2	2
C313.2	3	2	2	-	-	-	-	-	3	2	2	3
C313.3	3	3	2	-	-	-	-	-	3	2	2	3
C313.4	3	2	2	-	-	-	-	-	3	2	2	2
C313.5	3	3	2	-	-	-	-	-	3	2	2	3
C313.6	3	3	2	-	-	-	-	-	-	-	-	2
C314- EI8073/BIOMEDICAL INSTRUMENTATION												
C314.1	3	2	2	-	-	-	-	-	-	-	-	2
C314.2	2	2	2	-	-	-	-	-	-	-	-	2
C314.3	2	2	2	-	-	-	-	-	-	-	-	2
C314.4	3	3	3	-	-	-	-	-	-	-	-	3
C314.5	2	3	3	-	-	-	-	-	-	-	-	3
C314.6	2	2	2	-	-	-	-	2	-	2	-	-
C315- EE8661/POWER ELECTRONICS AND DRIVES LABORATORY												
C315.1	3	3	3	2	-	-	-	2	-	-	3	2
C315.2	3	2	3	2	-	-	-	2	-	-	2	2
C315.3	3	2	2	2	-	-	-	2	-	-	2	2
C315.4	3	3	2	2	-	-	-	2	-	-	2	2
C315.5	3	3	3	2	-	-	-	2	-	-	2	2
C315.6	3	3	3	2	-	-	-	2	-	-	2	2

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C316- EE8681/MICROPROCESSORS AND MICROCONTROLLERS LABORATORY												
C316.1	3	3	2	2	2	-	-	-	-	-	-	3
C316.2	3	3	3	3	3	-	-	-	-	-	-	3
C316.3	3	2	3	2	3	-	-	-	-	-	-	2
C316.4	3	3	2	2	2	-	-	-	-	-	-	2
C316.5	3	3	2	2	3	-	-	-	-	-	-	3
C316.6	3	2	2	2	3	-	-	-	-	-	-	3
C317- MINI PROJECT												
C317.1	3	2	3	-	-	-	-	-	3	2	2	2
C317.2	3	2	2	-	-	-	-	-	3	2	2	3
C317.3	3	3	2	-	-	-	-	-	3	2	2	3
C317.4	3	2	2	-	-	-	-	-	3	2	2	2
C317.5	3	3	2	-	-	-	-	-	3	2	2	3
C317.6	3	2	2	-	-	-	-	-	3	2	2	2
C401-EE8701/HIGH VOLTAGE ENGINEERING												
C401.1	3	3	3	2	2	2	-	-	-	-	3	-
C401.2	3	2	3	2	2	-	3	-	2	-	2	-
C401.3	3	2	2	2	2	3	-	-	-	3	2	-
C401.4	3	3	2	2	3	-	2	-	-	-	2	-
C401.5	3	3	3	2	2	-	-	3	-	2	2	-
C401.6	2	2	3	2	3	-	-	-	-	-	2	-
C402-EE8702/ POWER SYSTEM OPERATION AND CONTROL												
C402.1	3	3	3	2	2	-	-	-	-	-	3	-
C402.2	3	2	3	2	2	-	-	-	-	-	2	-
C402.3	3	2	2	2	2	-	-	-	-	-	2	-
C402.4	3	3	2	2	3	-	-	-	-	-	2	-

C402.5	3	3	3	2	2	-	-	-	-	-	2	-
C402.6	2	2	3	2	3	-	-	-	-	-	2	-
C403-EE8703/RENEWABLE ENERGY SYSTEMS												
C403.1	2	2	-	-	-	2	2	-	-	-	-	2
C403.2	2	3	-	-	-	2	2	2	-	-	-	2
C403.3	2	3	-	-	-	2	2	2	-	-	2	2
C403.4	2	3	2	-	-	2	2	2	-	-	2	2
C403.5	2	3	2	-	-	2	2	3	-	-	2	2
C403.6	2	3	-	-	-	2	2	2	-	-	2	2
C404- EE8005/SPECIAL ELECTRICAL MACHINES												
C404.1	3	3	3	2	2	-	-	-	-	-	3	-
C404.2	3	2	3	2	2	-	-	-	-	-	2	-
C404.3	3	2	2	2	2	-	-	-	-	-	2	-
C404.4	3	3	2	2	3	-	-	-	-	-	2	-
C404.5	3	3	3	2	2	-	-	-	-	-	2	-
C404.6	2	2	3	2	3	-	-	-	-	-	2	-
C405- EE8015/ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION												
C405.1	2	2	-	-	-	2	2	-	-	-	-	2
C405.2	2	3	-	-	-	2	2	2	-	-	-	2
C405.3	2	3	-	-	-	2	-	2	-	-	2	-
C405.4	2	3	2	-	-	2	-	2	-	-	-	2
C405.5	2	3	2	-	-	2	-	3	-	-	-	-
C405.6	2	3	-	-	-	2	-	2	-	-	2	2
C406- OBT751 ANALYTICAL METHODS AND INSTRUMENTATION												
C406.1	3	2	3	-	-	-	-	-	3	2	2	2

C406.2	3	2	2	-	-	-	-	-	3	2	2	3
C406.3	3	3	2	-	-	-	-	-	3	2	2	3
C406.4	3	2	2	-	-	-	-	-	3	2	2	2
C406.5	3	3	2	-	-	-	-	-	3	2	2	3
C406.6	3	2	2	-	-	-	-	-	3	2	2	2
C407- EE8711/POWER SYSTEM SIMULATION LABORATORY												
C407.1	3	3	3	2	2	-	-	-	-	-	3	3
C407.2	3	2	3	2	2	-	-	-	-	-	2	3
C407.3	3	2	2	2	2	-	-	-	-	-	2	2
C407.4	3	3	2	2	3	-	-	-	-	-	2	2
C407.5	3	3	3	2	2	-	-	-	-	-	2	3
C407.6	2	2	3	2	3	-	-	-	-	-	2	3
C408- EE8712/RENEWABLE ENERGY SYSTEMS LABORATORY												
C408.1	3	3	3	2	-	-	-	-	-	-	3	2
C408.2	3	2	3	2	-	-	-	-	-	-	2	2
C408.3	3	2	2	2	-	-	-	-	-	-	3	-
C408.4	3	3	2	2	-	-	-	2	-	-	-	-
C408.5	3	3	3	2	-	-	-	2	-	-	-	2
C408.6	3	3	3	2	-	-	-	2	-	-	2	2
C409- GE8074/HUMAN RIGHTS												
C409.1	3	2	3	-	-	-	-	-	3	2	2	2
C409.2	3	2	2	-	-	-	-	-	3	2	2	3
C409.3	3	-	-	-	-	-	-	-	3	2	2	3
C409.4	3	2	-	-	-	-	-	-	3	2	2	2

C409.5	3	3	-	-	-	-	-	-	3	2	2	3
C409.6	2	2	2	-	-	-	-	2	2	2	-	-
C410- EE8010/POWER SYSTEM TRANSIENTS												
C410.1	3	2	3	2	-	-	-	-	-	-	3	-
C410.2	3	2	3	2	-	-	-	-	-	-	2	2
C410.3	2	2	2	2	-	-	-	-	-	-	-	-
C410.4	3	2	2	-	-	-	-	2	-	-	-	2
C410.5	3	3	3	-	-	-	-	2	-	-	-	2
C411.6	2	3	-	-	-	2	2	2	-	-	2	2
C411- EE8811 / PROJECT WORK												
C411.1	3	3	3	2	3	3	2	-	2	2	2	2
C411.2	3	2	3	2	3	2	2	-	2	-	2	2
C411.3	2	3	2	2	3	2	2	2	2	2	-	2
C411.4	2	2	2	2	2	2	-	-	-	-	-	2
C411.5	3	3	2	2	2	2	2	-	2	-	-	2

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Regulation – 2017 - PG

M.E POWER ELECTRONICS AND DRIVES

YEAR/SEMESTER: I/I

S.No	Course Outcome
C101-MA5155/APPLIED MATHEMATICS FOR ELECTRICAL ENGINEERS	
C101.1	Ability to apply the concepts of Linear programming in Electrical Engineering problems.
C101.2	Ability to achieve an understanding of the basic concepts of one dimensional random variables and apply in electrical engineering problems.
C101.3	Ability to familiarize the students in calculus of variations and solve problems using Fourier transforms associated with engineering applications.
C101.4	Ability to understand the matrix theory in electrical engineering problems.
C101.5	Ability to apply the concept of Fourier series in electrical engineering problems.
C101.6	Ability to analyze the power spectrum in electrical engineering problems.
C102-PX5101/POWER SEMICONDUCTOR DEVICES	
C102.1	Able to improve power semiconductor device structures for adjustable speed motor control applications.
C102.2	Able to understand the static and dynamic characteristics of current controlled power semiconductor devices
C102.3	Able to understand the static and dynamic characteristics of voltage controlled power semiconductor devices
C102.4	Enable the students for the selection of devices for different power electronics applications
C102.5	Able to understand the control and firing circuit for different devices.

C102.6	Able to understand the thermal protection in power semiconductor devices.
C103-PX5151/ANALYSIS OF ELECTRICAL MACHINES	
C103.1	Ability to have knowledge about the fundamentals of magnetic circuits, energy, force and torque of multi-excited systems.
C103.2	Ability to analyze the steady state and dynamic state operation of DC machine through mathematical modeling and simulation in digital computer.
C103.3	Ability to understand the theory of transformation of three phase variables to two phase variables.
C103.4	Ability to analyze the steady state and dynamic state operation of three-phase induction machines using transformation theory based mathematical modeling.
C103.5	Ability to analyze the steady state and dynamic state operation of three-phase synchronous machines using transformation theory based mathematical modeling
C103.6	Ability to apply digital computer simulation for PMSM and D.C shunt motor.
C104-PX5152/ANALYSIS AND DESIGN OF POWER CONVERTERS	
C104.1	Able to understand the electrical circuit concepts behind the different working modes of power converters so as to enable deep understanding of their operation.
C104.2	Able to acquire skills to derive the criteria for the design of power converters starting from basic fundamentals.
C104.3	Able to analyze and comprehend the various operating modes of different configurations of power converters.
C104.4	Able to design different power converters namely AC to DC, DC to DC and AC to AC converters.
C104.5	Ability to analyze the voltage controllers with R and R-L loads.

C104.6	Able to understand the difference between single phase and three phase cyclo converters.
C105-IN5152/SYSTEM THEORY	
C105.1	Able to understand the fundamentals of physical systems in terms of its linear and nonlinear models.
C105.2	Able to find solution on representing systems in state variable form.
C105.3	Able to analysis on solving linear and non-linear state equations.
C105.4	Able to estimate the properties of linear systems such as controllability and observability.
C105.5	Able to study the stability analysis of systems using Lyapunov's theory.
C105.6	Able to understand the model concepts and design of state and output feedback controllers and estimators.
C106-IN5091/SOFT COMPUTING TECHNIQUES	
C106.1	Able to expose the concepts of feed forward neural networks.
C106.2	Able to provide adequate knowledge about feedback neural networks.
C106.3	Able to teach about the concept of fuzziness involved in various systems.
C106.4	Able to expose the ideas about genetic algorithm.
C106.5	Able t o provide adequate knowledge about of FLC and NN toolbox.
C106.6	Able to implement fuzzy logic controller in stability analysis.

C107-PX5111/POWER ELECTRONICS CIRCUITS LABORATORY	
C107.1	Able to familiar with the digital tools used in generation of gate pulses for the power electronic switches.
C107.2	Able to implementing analog interfacing as well as control circuits used in a closed-loop control for power electronic system.
C107.3	Able to acquire knowledge on mathematical modeling of power electronic circuits and implementing the same using simulation tools.
C107.4	Able to design and fabricate a power converter circuits at appreciable voltage/power levels.
C107.5	Able to develop skills on PCB design and fabrication.
C107.6	Able to get an insight on the switching behaviours of power electronic switches.

YEAR/SEMESTER: I/II

S.No	Course Outcome
C108- PX5201/ANALYSIS AND DESIGN OF INVERTERS	
C108.1	Able to understand the concepts behind the different working modes of inverters so as to enable deep understanding of their operation.
C108.2	Able to acquire skills to derive the criteria for the design of power converters for UPS, Drives etc.,
C108.3	Able to analyze and comprehend the various operating modes of different configurations of power converters.

C108.4	Able to design different single phase and three phase inverters.
C108.5	Able to understand series and parallel resonant inverters.
C108.6	Able to analyze PWM techniques for MLI.
C109- PX5202/SOLID STATE DRIVES	
C109.1	Able to understand various operating regions of the induction motor drives.
C109.2	Able to study and analyze the operation of VSI & CSI fed induction motor control.
C109.3	Able to understand the speed control of induction motor drive from the rotor side.
C109.4	Able to understand the field oriented control of induction machine.
C109.5	Able to understand the control of synchronous motor drives.
C109.6	Able to apply DTC control strategy in three phase induction motor.
C110- PX5251/SPECIAL ELECTRICAL MACHINES	
C110.1	Able to review the fundamental concepts of permanent magnets and the operation of permanent magnet brushless DC motors.
C110.2	Able to introduce the concepts of permanent magnet brushless synchronous motors and synchronous reluctance motors.
C110.3	Able to develop the control methods and operating principles of switched reluctance motors.
C110.4	Able to introduce the concepts of stepper motors and its applications.

C110.5	Able to understand the basic concepts of other special machines.
C110.6	Able to understand the torque speed characteristics of synchronous reluctance motor.
C111-PX5252/POWER QUALITY	
C111.1	Able to understand the various power quality issues.
C111.2	Able to understand the concept of power and power factor in single phase and three phase systems supplying non linear loads
C111.3	Able to understand the conventional compensation techniques used for power factor correction and load voltage regulation.
C111.4	Able to understand the active compensation techniques used for power factor correction.
C111.5	Able to understand the active compensation techniques used for load voltage regulation.
C111.6	Able to realize and control of DSTATCOM in voltage control.
C112-PX5003/FLEXIBLE AC TRANSMISSION SYSTEMS	
C112.1	Able to expose the concepts of feed forward neural networks.
C112.2	Able to provide adequate knowledge about feedback neural networks.
C112.3	Able to teach about the concept of fuzziness involved in various systems.
C112.4	Able to expose the ideas about genetic algorithm.

C112.5	Able t o provide adequate knowledge about of FLC and NN toolbox.
C112.6	Able to implement fuzzy logic controller in stability analysis.
C113-PS5071/DISTRIBUTED GENERATION AND MICROGRID	
C113.1	Able to illustrate the concept of distributed generation.
C113.2	Able to analyze the impact of grid integration.
C113.3	Able to understand the concept of Micro grid and its configuration.
C113.4	Able to know the power electronics interfaces in DC and AC microgrids.
C113.5	Able to study the power quality issues in micogrids.
C113.6	Able to find non conventional energy resources.
C114-PX5211/ELECTRICAL DRIVES LABORATORY	
C114.1	Able to design and analyze the various DC and AC drives.
C114.2	Able to generate the firing pulses for converters and inverters using digital processors.
C114.3	Able to design of controllers for linear and nonlinear systems.
C114.4	Able to implement of closed loop system using hardware simulation.
C114.5	Able to design Cycloconverter fed Induction motor drives.
C114.6	Able to design Single phase Multi Level Inverter based induction motor drive.

C115-PX5212/MINI PROJECT	
C115.1	Able to solve a specific problem right from its identification and literature review till the successful solution of the same.
C115.2	Able to acquire practical knowledge within the chosen area of technology for project development.
C115.3	Able to Identify, analyze, formulate and handle programming projects with a comprehensive and systematic approach.
C115.4	Able to contribute as an individual or in a team in development of technical projects.
C115.5	Able to develop effective communication skills for presentation of project related activities.
C115.6	Able to prepare a project reports and to face reviews and viva voce examination.

YEAR/SEMESTER: II/III

S.No	Course Outcome
C201-PS5092/SOLAR AND ENERGY STORAGE SYSTEMS	
C201.1	Able to know the characteristics of sunlight and their properties.
C201.2	Able to Study about solar modules and PV system design and their applications.
C201.3	Able to Deal with grid connected PV systems.
C201.4	Able to discuss about different energy storage systems.
C201.5	Able to find out the applications in water pumping, battery chargers and other solar cars etc.,

C201.6	Able to know the international PV programs.
C202- PX5071/WIND ENERGY CONVERSION SYSTEMS	
C202.1	Able to learn the design and control principles of Wind turbine.
C202.2	Able to understand the concepts of fixed speed and variable speed, wind energy conversion systems.
C202.3	Able to analyze the grid integration issues.
C202.4	Able to understand the concept of variable speed systems.
C202.5	Able to know grid connected systems.
C202.6	Able to analyze the steady state and dynamic performance of power system.
C203-PX5072/POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS	
C203.1	Able to Provide knowledge about the stand alone and grid connected renewable energy systems.
C203.2	Able to equip with required skills to derive the criteria for the design of power converters for renewable energy applications.
C203.3	Able to analyze and comprehend the various operating modes of wind electrical generators and solar energy systems.
C203.4	Able to design different power converters namely AC to DC, DC to DC and AC to AC converters for renewable energy systems.
C203.5	Able to develop maximum power point tracking algorithms.
C203.6	Able to analyze the grid integrated PMSG and SCIG based WECS.

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C101- MA5155/APPLIED MATHEMATICS FOR ELECTRICAL ENGINEERS												
C101.1	2	-	-	-	-	2	2	-	2	3	-	2
C101.2	2	-	-	-	-	2	2	-	2	3	-	2
C101.3	3	-	-	-	-	3	2	-	2	3	-	2
C101.4	3	-	-	-	-	3	2	-	2	3	-	2
C101.5	2	-	-	-	-	2	3	-	2	3	-	2
C101.6	2	-	-	-	-	2	3	-	2	3	-	2
C102- PX5101/POWER SEMICONDUCTOR DEVICES												
C102.1	3	2	2	2	-	-	-	-	-	2	2	2
C102.2	3	2	2	2	-	-	-	-	-	2	2	2
C102.3	3	2	2	2	-	-	-	-	-	2	2	2
C102.4	3	2	2	2	-	-	-	-	-	2	2	2
C102.5	3	2	2	2	-	-	-	-	-	2	2	2
C102.6	3	2	2	2	-	-	-	-	-	2	2	2
C103- PX5151/ANALYSIS OF ELECTRICAL MACHINES												
C103.1	3	2	2	2	-	-	-	-	-	2	2	2
C103.2	3	2	2	2	-	-	-	-	-	2	2	2
C103.3	3	2	2	2	-	-	-	-	-	2	2	2
C103.4	3	2	2	2	-	-	-	-	-	2	2	2
C103.5	3	2	2	2	-	-	-	-	-	2	2	2
C103.6	3	2	2	2	-	-	-	-	-	2	2	2
C104- PX5152/ANALYSIS AND DESIGN OF POWER CONVERTERS												
C104.1	3	3	3	2	2	-	-	-	-	-	3	-
C104.2	3	2	3	2	2	-	-	-	-	-	2	-
C104.3	3	2	2	2	2	-	-	-	-	-	2	-
C104.4	3	3	2	2	3	-	-	-	-	-	2	-

C104.5	3	3	3	2	2	-	-	-	-	-	2	-
C104.6	2	2	3	2	3	-	-	-	-	-	2	-
C105-IN5152/SYSTEM THEORY												
C105.1	3	3	3	2	2	2	-	2	2	2	3	-
C105.2	3	2	3	2	2	-	-	-	-	3	2	2
C105.3	3	2	2	2	2	-	-	-	-	2	2	-
C105.4	3	3	2	2	3	-	2	-	-	2	2	-
C105.5	3	3	3	2	2	-	-	-	-	3	2	-
C105.6	2	2	3	2	3	-	-	2	-	2	2	-
C106-IN5091/SOFT COMPUTING TECHNIQUES												
C106.1	3	2	2	2	-	-	-	-	-	2	2	2
C106.2	3	2	2	2	-	-	-	-	-	2	2	2
C106.3	3	2	2	2	-	-	-	-	-	2	2	2
C106.4	3	2	2	2	-	-	-	-	-	2	2	2
C106.5	3	2	2	2	-	-	-	-	-	2	2	2
C106.6	3	2	2	2	-	-	-	-	-	2	2	2
C107-PX5111/POWER ELECTRONICS CIRCUITS LABORATORY												
C107.1	3	3	3	2	-	-	-	2	-	-	3	2
C107.2	3	2	3	2	-	-	-	2	-	-	2	2
C107.3	3	2	2	2	-	-	-	2	-	-	2	2
C107.4	3	3	2	2	-	-	-	2	-	-	2	2
C107.5	3	3	3	2	-	-	-	2	-	-	2	2
C107.6	3	3	3	2	-	-	-	2	-	-	2	2
C108-PX5201/ANALYSIS AND DESIGN OF INVERTERS												
C108.1	3	3	2	2	2	-	-	-	-	-	-	3
C108.2	3	3	3	3	3	-	-	-	-	-	-	3

C108.3	3	2	3	2	3	-	-	-	-	-	-	2
C108.4	3	3	2	2	2	-	-	-	-	-	-	2
C108.5	3	3	2	2	3	-	-	-	-	-	-	3
C108.6	3	2	2	2	3	-	-	-	-	-	-	3
C109-PX5202/SOLID STATE DRIVES												
C109.1	3	2	3	-	-	-	-	-	3	2	2	2
C109.2	3	2	2	-	-	-	-	-	3	2	2	3
C109.3	3	3	2	-	-	-	-	-	3	2	2	3
C109.4	3	2	2	-	-	-	-	-	3	2	2	2
C109.5	3	3	2	-	-	-	-	-	3	2	2	3
C109.6	3	2	2	-	-	-	-	-	3	2	2	2
C110-PX5251/SPECIAL ELECTRICAL MACHINES												
C110.1	3	3	3	2	2	2	-	-	-	-	3	-
C110.2	3	2	3	2	2	-	3	-	2	-	2	-
C110.3	3	2	2	2	2	3	-	-	-	3	2	-
C110.4	3	3	2	2	3	-	2	-	-	-	2	-
C110.5	3	3	3	2	2	-	-	3	-	2	2	-
C110.6	2	2	3	2	3	-	-	-	-	-	2	-
C111-PX5252/POWER QUALITY												
C111.1	3	2	2	2	-	2	-	-	-	2	-	2
C111.2	3	3	2	2	-	2	-	-	-	2	-	2
C111.3	3	2	3	2	-	2	-	-	-	2	-	2
C111.4	3	2	2	2	-	2	-	-	-	2	-	2
C111.5	3	2	3	2	-	2	-	-	-	2	-	2
C111.6	3	2	2	2	-	2	-	-	-	2	-	2
C112-PX5003/FLEXIBLE AC TRANSMISSION SYSTEMS												

C112.1	2	2	2	3	-	-	-	-	-	2	2	3
C112.2	3	2	2	3	-	-	-	-	-	2	2	3
C112.3	2	2	2	3	-	-	-	-	-	2	2	3
C112.4	2	2	2	3	-	-	-	-	-	2	2	3
C112.5	3	2	2	3	-	-	-	-	-	2	2	3
C112.6	2	2	2	3	-	-	-	-	-	2	2	3
C113-PS5071/DISTRIBUTED GENERATION AND MICROGRID												
C113.1	2	-	2	-	-	3	-	3	-	2	-	2
C113.2	2	-	2	-	-	3	-	3	-	2	-	2
C113.3	2	-	2	-	-	3	-	3	-	2	-	2
C113.4	2	-	2	-	-	3	-	3	-	2	-	2
C113.5	2	-	2	-	-	3	-	3	-	2	-	2
C113.6	2	-	2	-	-	3	-	3	-	2	-	2
C114-PX5211/ELECTRICAL DRIVES LABORATORY												
C114.1	3	3	3	2	3	3	2	2	2	2	2	2
C114.2	3	2	3	2	3	2	2		2		2	2
C114.3	2	3	2	2	3	2	2	2	2	2	-	-
C114.4	2	2	2	2	2	2	-	-	-	-	-	2
C114.5	3	3	2	2	2	2	2	-	2	-	2	2
C114.6	2	2	2	2	2	2	2	2	2	2	-	2
C115-PX5212/MINI PROJECT												
C115.1	3	3	3	2	2	2	-	2	2	2	3	-
C115.2	3	2	3	2	2	-	-	-	-	3	2	2
C115.3	3	2	2	2	2	-	-	-	-	2	2	-
C115.4	3	3	2	2	3	-	2	-	-	2	2	-
C115.5	3	3	3	2	2	-	-	-	-	3	2	-

C115.6	3	3	3	-	-	-	-	-	-	3	2	2
C201-PS5092/SOLAR AND ENERGY STORAGE SYSTEMS												
C201.1	3	3	3	2	2	-	-	-	-	-	3	3
C201.2	3	2	3	2	2	-	-	-	-	-	2	3
C201.3	3	2	2	2	2	-	-	-	-	-	2	2
C201.4	3	3	2	2	3	-	-	-	-	-	2	2
C201.5	3	3	3	2	2	-	-	-	-	-	2	3
C201.6	2	2	3	2	3	-	-	-	-	-	2	3
C202-PX5071/WIND ENERGY CONVERSION SYSTEMS												
C202.1	2	-	-	-	-	2	2	-	2	3	-	2
C202.2	2	-	-	-	-	2	2	-	2	3	-	2
C202.3	3	-	-	-	-	3	2	-	2	3	-	2
C202.4	3	-	-	-	-	3	2	-	2	3	-	2
C202.5	2	-	-	-	-	2	3	-	2	3	-	2
C202.6	2	-	-	-	-	2	3	-	2	3	-	2
C203-PX5072/POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS												
C203.1	3	3	2	-	2	2	2	2	-	2	2	2
C203.2	3	2	3	-	2	2	2	2	-	2	2	2
C203.3	2	2	2	-	2	2	2	2	-	2	2	2
C203.4	2	2	2	2	2	2	2	2	-	2	2	2
C203.5	2	2	2	2	2	2	2	2	-	2	2	2
C203.6	2	2	2	2	2	2	2	3	-	2	2	2

PRINCIPAL