



Subjectwise Course Outcome - [ELECTRICAL AND ELECTRONICS ENGINEERING - 2020-21]

EE E 2-1	
C201 Engineering Mechanics [Theory Regular]	
CO ID.	Course Outcome
C201.1	Explain the resolution of a system of forces, compute their resultant and solve problems using equations of equilibrium
C201.2	Solve problem of bodies subjected to friction. Find the location of centroid .
C201.3	Calculate moment of inertia ,mass moment of Inertia and product of Inertia of a given section.
C201.4	Understand the kinematics of a body undergoing rectilinear, curvilinear,rotatory motion and rigid body motion.
C201.5	Understand the kinetics of rigid body rotation,Solve problems using work energy equations for translation and D Alemberts principle, fixed axis rotation and plane motion .
C202 Electrical Circuit Analysis [Theory Regular]	
CO ID.	Course Outcome
C202.2	Determine the transient response of electrical circuits
C202.3	Analyze circuits in the sinusoidal steady-state (single-phase and three-phase)
C202.4	Solve the circuits by applying Lapalce transform
C202.5	Apply the two port concepts to solve electrical circuits
C202.1	Apply network theorems for the analysis of electrical circuits.
C203 Analog Electronics [Theory Regular]	
CO ID.	Course Outcome
C203.1	To Know the characteristics, utilisation of various components
C203.2	To understand the biasing techniques
C203.3	To design and analyse various rectifiers, small signal amplifier circuits.
C203.4	To design sinusoidal and non-sinusoidal oscillators.
C203.5	A thorough understanding, functioning of OP-AMP, design OP-AMP based circuits with linear integrated circuits.
C204 Electrical Machines-I [Theory Regular]	
CO ID.	Course Outcome
C204.1	Identify different parts of a DC machine & understand its operation
C204.2	Carry out different testing methods to predetermine the efficiency of DC machines
C204.3	Understand different excitation and starting methods of DC machines
C204.4	Control the voltage and speed of a DC machines
C204.5	Analyze single phase and three phase transformers circuits.
C205 Electromagnetic Fields [Theory Regular]	
CO ID.	Course Outcome
C205.1	To understand the basic laws of electromagnetism.
C205.2	To obtain the electric and magnetic fields for simple configurations under static conditions.
C205.3	To analyze time varying electric and magneticfields.
C205.4	To understand the propagation of EMwaves.
C206 Electrical Machines Lab - I [Practical Regular]	
CO ID.	Course Outcome
C206.1	Start and control the Different DC Machines.
C206.2	Assess the performance of different machines using different testing methods

C206.3	Identify different conditions required to be satisfied for self - excitation of DC Generators.
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C206.4	Separate iron losses of DC machines into different components
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C207 Analog Electronics Lab [Practical | Regular]

CO ID.	Course Outcome
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C207.1	To Know the characteristics, utilization of various components
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C207.2	To understand the biasing techniques
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C207.3	To design and analyze various rectifiers, small signal amplifier circuits
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C207.4	To design sinusoidal and non-sinusoidal oscillators
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C207.5	A thorough understanding, functioning of OP-AMP, design OP-AMP based circuits with linear integrated circuits.
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C208 Electrical Circuits Lab [Practical | Regular]

CO ID.	Course Outcome
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C208.1	Analyze complex DC and AC linear circuits
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C208.2	Apply concept of electrical circuits across engineering
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C208.3	Evaluate response in a given network by using theorems.
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C209 LAPLACE TRANSFORMS, NUMERICAL METHODS & COMPLEX VARIABLES [Theory | Regular]

CO ID.	Course Outcome
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C209.1	LEARNS HOW TO APPLY LAPLACE TRANSFORM
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C209.2	LEARNS HOW TO FIND THE APPROXIMATE ROOT OF EQUATION
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C209.3	FIND THE NUMERICAL SOLUTION OF DIFFERENTIAL EQUATION
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C209.4	ANALYSIS THE ANALYCITY OF THE GIVEN COMPLEX FUNCTION
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C209.5	LEARNS HOW TO EXPAND THE FUNCTION USING TAYLOR SERIES
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C210 Electrical machines - II [Theory | Regular]

CO ID.	Course Outcome
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C210.1	Understand the concepts of rotating magnetic fields.
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C210.2	Understand the operation of ac machines.
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C210.3	Analyze performance characteristics of ac machines.
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C211 DIGITAL ELECTRONICS [Theory | Regular]

CO ID.	Course Outcome
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C211.1	Convert different type of codes and number systems which are used in digital communication and computer systems.
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C211.2	Employ the codes and number systems converting circuits and Compare different types of logic families which are the basic unit of different types of logic gates in the domain of economy, performance and efficiency.
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C211.3	Analyze different types of digital electronic circuit using various mapping and logical tools and know the techniques to prepare the most simplified circuit using various mapping and mathematical methods.
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C211.4	Design different types of with and without memory element digital electronic circuits for particular operation, within the realm of economic, performance, efficiency, user friendly and environmental constraints.
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C211.5	Apply the fundamental knowledge of analog and digital electronics to get different types analog to digitalized signal and vice-versa converters in real world with different changing circumstances.
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C211.6	Assess the nomenclature and technology in the area of memory devices and apply the memory devices in different types of digital circuits for real world application.
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C212 CONTROL SYSTEMS [Theory | Regular]

CO ID.	Course Outcome
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C212.1	Understand the modeling of linear-time-invariant systems using transfer function and state space representation
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C212.2	Analyze the system response and stability in time domain analysis and methods for improving it
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C212.3	Analyze the system response and stability in frequency domain analysis and techniques for improving the performance
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C212.4	Apply and Design different types of compensators using in time-domain and frequency domain specifications.
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C212.5	Analyze the system response and stability of systems represented in state space form. Also Model and Analyze the linear discrete time systems
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C213 POWER SYSTEMS-I [Theory | Regular]

CO ID.	Course Outcome
C213.1	Gain the Knowledge & Understand the principle & operation of conventional generating stations and renewable sources of electrical power
C213.2	Understand the economic aspects of power generation & Evaluate the power tariff methods.
C213.3	Understand and compare overhead line insulators and Insulated cables
C213.4	Evaluate the transmission line parameters calculations & understand the concept of corona.
C213.5	Understand the A.C. and D.C. distribution systems & also the layout of substation.

C214 Digital electronics lab [Practical | Regular]

CO ID.	Course Outcome
C214.1	Distinguish between analog and digital systems.
C214.2	Identify the various digital ICs and understand their operation.
C214.3	Apply Boolean laws to simplify the digital circuits.
C214.4	Design simple logic circuits.

C215 Electrical machines lab - II [Practical | Regular]

CO ID.	Course Outcome
C215.1	Assess the performance of different machines using different testing methods
C215.2	To convert the Phase from three phase to two phase and vice versa
C215.3	Compensate the changes in terminal voltages of synchronous generator after estimating the change by different methods
C215.4	Control the active and reactive power flows in synchronous machines
C215.5	Start different machines and control the speed and power factor

C216 Control systems lab [Practical | Regular]

CO ID.	Course Outcome
C216.1	Categorizing different types of systems and understand their behavior and also to develop the mathematical models of the given physical system. Also to characterize any system in Laplace domain to illustrate different specifications of the system using Transfer function concept
C216.2	Determining time response of first order and second order systems for various inputs and to design the second order system. Also to study the stability concept of systems using suitable graphical methods
C216.3	Understanding the frequency response of the systems and their using suitable graphical methods and also to determine the relationship between time response and frequency response of the system
C216.4	Studying the stability of the systems and their accuracy. Also using frequency domain methods to design controllers and compensators to ascertain the required dynamic response from the system.
C216.5	Determining and testing the systems observability and controlability using state space representation and studying the state space models for various systems.

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C301 Power Electronics [Theory | Regular]

CO ID.	Course Outcome
C301.1	Understand the differences between signal level and power level devices.
C301.2	ANALYZE CONTROLLED RECTIFIER CIRCUITS
C301.3	ANALYZE THE OPERATION OF DC-DC CHOPPER
C301.4	ANALYZE THE OPERATION OF VOLTAGE SOURCE INVERTERS.
C301.5	ANALYZE THE OPERATION OF AC-AC CONVERTERS

C302 Power Systems2 [Theory | Regular]

CO ID.	Course Outcome
C302.1	Analyze transmission line performance
C302.2	Apply load compensation techniques to control reactive power
C302.3	Understand the application of per unit quantities and to understand the travelling waves

C302.4	Design over voltage protection and insulation coordination
C302.5	Determine the fault currents for symmetrical and unbalanced faults
C303 Measurements & Instrumentation [Theory Regular]	
CO ID.	Course Outcome
C303.1	Understand different types of measuring instruments, their construction, operation and Characteristics
C303.2	Apply the knowledge about transducers, potentiometers and instrument transformers to use them effectively
C303.3	Identify the suitable method for typical measurements
C303.4	Apply the different bridges to measure the resistance, inductance and capacitance
C304 High Voltage Engineering [Theory Regular]	
CO ID.	Course Outcome
C304.1	Understand the basic physics related to various breakdown processes in solid, liquid and gaseous insulating materials
C304.2	Knowledge of Generation of High AC, DC and Impulse voltages and Current
C304.3	Knowledge of Measurements of High Voltage and current , impulse .
C304.4	Knowledge of how over-voltages arise in a power system, and protection against these overvoltage
C305.5	Knowledge of tests on H. V. equipment and on insulating materials, as per the standards.
C305 Business Economics and Financial Analysis [Theory Regular]	
CO ID.	Course Outcome
C305.1	Insight into the concepts of business economics and relationship between firm and macro economic environment
C305.2	Understanding about demand and supply determinants and market equilibrium
C305.3	Idea about optimum utilization of resources and cost-output relationships in perfect competition
C305.4	Gain knowledge about preparation of financial statements
C305.5	Aids in interpretation of financial statements
C306 Power System Simulation Lab [Practical Regular]	
CO ID.	Course Outcome
C306.1	Perform various transmission line calculations
C306.2	Understand Different circuits time constants
C306.3	Analyze the experimental data and draw the conclusions
C307 Power Electronics Lab [Practical Regular]	
CO ID.	Course Outcome
C307.1	Able to Elucidate the basic operation of various power semiconductor devices and passive components
C307.2	Able to analyze power electronics circuits
C308 Electrical Measurements and Instrumentation lab [Practical Regular]	
CO ID.	Course Outcome
C308.1	To choose instruments
C308.2	Test any instrument
C308.3	Find the accuracy of any instrument by performing experiment
C308.4	Calibrate PMMC instrument using D.C potentiometer
C309 Advanced English Communications skills Lab [Practical Regular]	
CO ID.	Course Outcome
C309.1	Acquire vocabulary and use it contextually
C309.2	Listen and speak effectively
C309.3	Develop proficiency in academic reading and writing
C309.4	Increase possibilities of job prospects
C309.5	Communicate confidently informal and informal contexts

C311 DISASTER PREPAREDNESS & PLANNING MANAGEMENT [Theory | Regular]

CO ID.	Course Outcome
C311.1	To Understand basic concepts in Disaster Management
C311.2	Learn the various types of hazards , causes of hazards
C311.3	Disaster impacts and phycological at disaster prone area , trends of disaster national and global
c311.4	the application of Disaster Concepts to Management, Analyzing Relationship between Development and Disasters. Realization of the responsibilities to society

C312 Power Semiconductor Drives [Theory | Regular]

CO ID.	Course Outcome
C312.1	IDENTIFY THE DRAWBACKS OF SPEED CONTROL OF DC MOTOR BY CONVENTIONAL METHODS
C312.2	DIFFERENTIATE PHASE CONTROLLED AND CHOPPER-CONTROLLED DC DRIVES SPEED TORQUE CHARACTERSTICS MERITS AND DEMERITS
C312.3	UNDERSTAND AC MOTOR DRIVE SPEED-TORQUE CHARACTERISTICS USING DIFFERENT CONTROL STRATEGIES ITS MERITS AND DEMERITS
C312.4	DESCRIBE SLIP POWER RECOVERY SCHEMES
C312.5	Understand various control techniques used in the control of the machines.

C313 SIGNAL AND SYSTEMS [Theory | Regular]

CO ID.	Course Outcome
C313.1	This gives the basics of Signals and Systems required for all Electrical Engineering related courses
C313.2	To understand the behavior of signal in time and frequency domain
C313.3	To understand the characteristics of LTI systems
C313.4	This gives concepts of Signals and Systems and its analysis using different transform techniques.

C314 MICROPROCESSORS & MICROCONTROLLERS [Theory | Regular]

CO ID.	Course Outcome
C314.1	To understand the internal architecture and organization of 8086 microprocessor and Instruction Set and Assembly Language Programming of 8086.
C314.2	To Understands the internal architecture and organization of 8051 Micro controllers.
C314.3	To understand the interfacing techniques to 8086 and 8051 and can develop assembly language programming to interface external devices to microprocessor/ micro controllers.
C314.4	To understand the internal architecture and organization of ARM processors/controllers and can develop assembly language programming to design ARM based systems.
C314.5	To understand the CORTEX and OMAP Processors and their architectures.

C315 POWER SYSTEM PROTECTION [Theory | Regular]

CO ID.	Course Outcome
C315.1	Compare and contrast electromagnetic, static, and microprocessor-based relays
C315.2	Apply technology to protect power system components.
C315.3	Select relay settings of over current and distance relays.
C315.4	protect Generators, Transformers, and feeder bus bars from Overvoltages and other hazards.
C315.5	Analyze quenching mechanisms used in air, oil, and vacuum circuit breakers

C316 Power System operation and control [Theory | Regular]

CO ID.	Course Outcome
C316.1	Understand operation and control of power systems
C316.2	Analyze the optimal scheduling of power plants
C316.3	Analyze the steady state behavior of the power system for voltage and frequency fluctuations
C316.4	Analyze whether the machine is in stable or unstable position
C316.5	Analyze various functions of Energy Management System (EMS) functions

C318 Power Systems Lab [Practical | Regular]

CO ID.	Course Outcome
C318.1	Analyze different protection methods
C318.2	Find the sequence impedances of a 3 phase machines
C318.3	Analyze the transmission line models
C318.4	Perform load flow analysis using Gauss Seidal and Fast Decoupled methods

C319 Microprocessors and Microcontrollers Lab [Practical | Regular]

CO ID.	Course Outcome
C319.1	Learn MASM Assembler Programming
C319.2	Learn An ALP In 8086 And Its Interfacing Circuits
C319.3	Write An ALP In 8051 For Parallel Ports And Timers
C319.4	Develop An Ability In Designing A Microprocessor And Microcontroller Systems
C319.5	Use Standard Test And Measurement Equipment To Evaluate Digital Interfaces.

C320 signals and systems lab [Practical | Regular]

CO ID.	Course Outcome
C320.1	Understand Basics of SCILAB/MATLAB syntax, functions and programming.
C320.2	Analyze the generation of Various Signals and Sequences in SCILAB/MATLAB, including the operations on Signals and Sequences.
C320.3	Determine the Convolution and Correlation between Signals and sequences.
C320.4	Analyze time and frequency response for a given LTI system.
C320.5	Understand the Waveform Synthesis using Laplace Transform and Locating the Zeros and Poles and plotting the Pole-Zero maps in S-plane and Z-Plane for the given transfer function.
C320.6	Analyze the Fourier Transform of a given signal and plotting its magnitude and phase spectrum.
C320.7	Verify the sampling theorem and stability of a system and Weiner-Khinchine Relations.

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C401 Power Semiconductor Drives [Theory | Regular]

CO ID.	Course Outcome
C401.1	Identify the drawbacks of speed control of motor by conventional methods
C401.2	Differentiate Phase controlled and chopper controlled DC drives speed-torque characteristics merits and demerits
C401.3	Understand Induction motor drive speed torque characteristics using different control strategies its merits and demerits
C401.4	Describe Slip power recovery schemes
C401.5	Understand Synchronous motor drive speed torque characteristics with different control strategies its merits and demerits

C402 Power System operation and control [Theory | Regular]

CO ID.	Course Outcome
C402.1	Analyze the steady state behavior of the power system for voltage and frequency fluctuations
C402..2	Describe reactive power control of a power system
C402.3	Analyze the optimal scheduling of power plants
C402.4	analyze the unit commitment for different power plants
C402.5	understand the need of computer control

C403 HVDC Transmission [Theory | Regular]

CO ID.	Course Outcome
C403.1	In this unit, we discussed HVDC transmission, its types, applications, and apparatus required in HVDC systems. We also compared AC and DC Transmission systems, get knowledge on Planning and Modern trends in D.C. Transmission. Also, we focussed on Converter Configuration, Analysis of Graetz circuit, 6 Pulse and 12 Pulse converters, and their performance.
C403.2	In this unit, we dealt with the control of HVDC converter systems such as the Principle of DC Link Control, constant Current, and extinction angle control. It also covered the concept of individual phase and equidistant firing angle control. The concepts related to Reactive Power Requirements in steady-state, alternate control strategies sources of reactive power, A.C filters, shunt capacitors, and condensers are also thoroughly explained.
C403.3	In this unit, the concepts of Modelling of DC Links are clearly explained and DC Network and DC Controller Equations are derived. It also covered the Solution of DC load flow, P.U. System for DC quantities, and solution of AC-DC Power flow methods.

C403.4	In this unit, we explained the origin of over-voltages in HVDC systems due to D.C and A.C line faults. Also, the concept of over current and over-voltage protection of converters, surge arresters, smoothing reactors, and DC breakers are covered. The concepts of Audible noise, space-charge field, corona effects on DC lines, Radio interference are also discussed.
C403.5	This unit completely dealt with the concept of the Generation of Harmonics and how to eliminate those harmonics. We also discussed the Characteristics, Non- Characteristics harmonics, harmonics instability problems and design of HVDC, A.C and D.C filters.
C404 Power Quality [Theory Regular]	
CO ID.	Course Outcome
C404.1	Know the severity of power quality problems in distribution system
C404.2	Study of voltage power quality issues like short and long interruption
C404.3	Understand the concept of voltage sag transformation from highervoltages lower voltage
C404.4	Understand the impact of voltage sag on various types of loads
C404.5	Concept of improving the power quality to sensitive load by various mitigatingcustom power devices
C405 Flexible A.C. Transmission Systems [Theory Regular]	
CO ID.	Course Outcome
C405.1	CHOOSE PROPER CONTROLLER FOR THE SPECIFIC APPLICATION BASED ON SYSTEM REQUIREMENTS.
C405.2	UNDERSTAND VARIOUS SYSTEMS THOROUGHLY AND THEIR REQUIREMENTS
C405.3	Understand the Power and control circuits of Shunt Controllers Power oscillation damping, Methods of controllable, variable impedance, switching converter type var generators and hybrid var generators
C405.4	Understand the control circuits of Shunt Controllers SVC & STATCOM for various functions viz. Transient stability Enhancement, voltage instability prevention, and power oscillation damping
C405.5	Understand the Power and control circuits of Series Controllers GCSC, TSSC and TCSC
C406 Electrical System Simulation Lab [Practical Regular]	
CO ID.	Course Outcome
C406.1	Design and Analyze electrical systems in time and frequency domain
C406.2	Analyze various transmission lines and perform fault analysis
C406.3	Model Load frequency control of Power Systems
C406.4	Design various Power Electronic Converters and Drives
C407 Electrical Workshop [Practical Regular]	
CO ID.	Course Outcome
C407.1	Get practical knowledge related to electrical
C407.2	Fabricate basic electrical circuit elements/networks
C407.3	Get hardware skills such as soldering, winding etc.
C408 Industry Oriented Mini Project [Practical Regular]	
CO ID.	Course Outcome
C408.1	To enable the students to develop comprehensive solution to issues identified in previous semester work and to meet the requirements as stated in project brief
C408.2	To inculcate the ability to synthesize the results of the detailed analytical studies conducted, lay down validity and design criteria, interpret the result for application to the problem, develop the concept and detailed design solution and to effectively communicate the thesis rationale.
C409 SEMINAR [Practical Regular]	
CO ID.	Course Outcome
C409.1	Establish motivation for any topic of interest and develop a thought process for technical presentation
C409.2	Organize a detailed literature survey and build a document with respect to technical publications
C409.3	Analysis and comprehension of proof-of-concept and related data
C409.4	Effective presentation and improve soft skills
C409.5	Make use of new and recent technology (e.g. Latex) for creating technical reports
E E E 4-2	
C410 ENTREPRENEURSHIP AND SMALL BUSINESS ENTERPRISES [Theory Elective]	

CO ID.	Course Outcome
C410.1	The student will know the basics of entrepreneurship and entrepreneurial development
C410.2	The student will understand the sources of business ideas and get vision for their own startup companies
C410.3	The student will identify the causes of sickness in industries and find out the remedies for them
C410.4	The student will know the importance of marketing in enterprises
C410.5	The student will explore the strategic growth in entrepreneurship

C411 ELECTRICAL DISTRIBUTION SYSTEMS [Theory | Elective]

CO ID.	Course Outcome
C411.1	Design distribution feeder
C411.2	Compute voltage drop and power loss of the feeder
C411.3	Design protection of distribution systems
C411.4	Apply the power factor improvement techniques
C411.5	Analyze the various voltage control methods

C412 UTILIZATION OF ELECTRICAL POWER [Theory | Elective]

CO ID.	Course Outcome
C412.1	Acquire knowledge on various electric drives, their characteristics and their applicability in industry based on the nature of different types of loads and their characteristics
C412.2	Understanding the concepts and methods of electric heating and welding. Also focusing on the welding equipments and comparing AC & DC welding methods.
C412.3	Understanding the basic concepts and methods of illumination. Also understanding the principles, design and various equipments used in lighting.
C412.4	Understanding the concepts of electric traction, various methods of electric braking and focusing on the speed-time curves
C412.5	Studying and determining the traction concepts with respect to real-world electrical and electronics problems and applications.

C413 Major project [Practical | Regular]

CO ID.	Course Outcome
C413.1	To enable the students to develop comprehensive solution to issues identified in previous semester work and to meet the requirements as stated in project brief
C413.2	To inculcate the ability to synthesize the results of the detailed analytical studies conducted, lay down validity and design criteria, interpret the result for application to the problem, develop the concept and detailed design solution and to effectively communicate the thesis rationale.

M.TECH-PEED-1-1

C1101 POWER ELECTRONIC CONVERTERS [Theory | Regular]

CO ID.	Course Outcome
C1101.1	Choose an appropriate device for a particular converter topology.
C1101.2	Use power electronic simulation packages for analyzing and designing power converters.

C1102 MACHINE MODELING AND ANALYSIS [Theory | Regular]

CO ID.	Course Outcome
C1102.1	Develop the mathematical models of various AC and DC machines
C1102.2	Write the voltage equation and torque equations for different machines like dc machine, induction motor and Synchronous machines
C1102.3	Model different machines using phase and Active transformations.
C1102.4	Analyze the developed models in various reference frames.

C1103 POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS [Theory | Regular]

CO ID.	Course Outcome
C1103.1	Ability to understand and analyze power system operation, stability, control and protection
C1103.2	Ability to handle the engineering aspects of electrical energy generation and utilization.
C1103.3	Able to analyze and comprehend the various operating modes of wind electrical generators and solar energy systems.
C1103.4	Ability to derive the criteria for the design of power converters for renewable energy applications.

C1103.5	ability to design different power converters namely AC to DC, DC to DC and AC to AC converters for renewable energy systems. To develop maximum power point tracking algorithms.
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C1104 REACTIVE POWER COMPENSATION AND MANAGEMENT [Theory | Regular]

CO ID.	Course Outcome
C1104.1	To identify the necessity of reactive power compensation
C1104.2	To describe load compensation
C1104.3	To select various types of reactive power compensation in power transmission system
C1104.4	To illustrate reactive power coordination system
C1104.5	To characterize distribution side and utility side reactive power management

C1105 RESEARCH METHODOLOGY AND IPR [Theory | Regular]

CO ID.	Course Outcome
C1105.1	Understand research problem formulation.
C1105.2	Analyze research-related information
C1105.3	Follow research ethics

C1106 Machine Modelling and Analysis lab [Practical | Regular]

CO ID.	Course Outcome
C1106.1	Develop the mathematical models of various machines like, induction motor and Synchronous machines ,permanent magnet synchronous motor,brush-less DC motor using modeling equations.
C1106.2	Analyze the developed models in various reference frames.

C1107 Power Electronic converters Lab [Practical | Regular]

CO ID.	Course Outcome
C1107.1	Simulate AC-AC Converters
C1107.2	Simulate AC-DC Converters
C1107.3	Simulate DC-DC Converters
C1107.4	Simulate DC-AC Converters
C1107.5	Analysis of various converter topologies developed

C1108 Disaster management [Theory | Regular]

CO ID.	Course Outcome
C1108.1	To Understand Basic Concepts of Disaster Management
C1108.2	Learn the various types of Hazards. Causes of Hazards.
C1108.3	Disaster Impacts and Psychological impacts at disaster prone area.Trends of disasters-National and Global
C1108.4	Applications of Disaster Concepts to management. Analysing relationship between development and disasters.
C1108.5	Realisation of responsibilities to society

M.TECH-PEED-1-2

C1109 Advanced Power Electronic Converters [Theory | Regular]

CO ID.	Course Outcome
C1109.1	Develop and analyze various converter topologies.
C1109.2	Design AC or DC switched mode power supplies.

C1110 Electrical Drives [Theory | Regular]

CO ID.	Course Outcome
C1110.1	Develop induction motor for variable speed operations using scalar and vector control techniques.
C1110.2	Identify the difference between the rotor resistance control and static rotor resistance control method and significance of slip power recovery drives.
C1110.3	Develop controllers for synchronous motor and variable reluctance motor

C1111 PWM Converters and Applications [Theory | Regular]

CO ID.	Course Outcome
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C1111.1	Knowledge concepts and basic operation of PWM converters, including basic circuit operation and design
C1111.2	Learn the steady-state and dynamic analysis of PWM converters along with the applications like solid state drives and power quality
C1111.3	Able to recognize and use the following concepts and ideas: Steady-State and transient modeling and analysis of power converters with various PWM techniques.

C1112 Power Quality [Theory | Regular]

CO ID.	Course Outcome
C1112.1	Know the severity of power quality problems in distribution system & study the power quality improvement methods
C1112.2	Know the severity of Long & Short Interruptions & Understand the concepts of generation, transmission & distribution reliability.
C1112.3	Understand the concept of voltage sag transformation from up-stream (higher voltages) to down-stream (lower voltage) & learn the voltage sag magnitude calculations
C1112.4	Learn the equipment behavior of Power electronic loads & Mitigation of AC & DC Drives.
C1112.5	Understand the Concept of improving the power quality to sensitive load by various mitigating custom power devices.

C1114 Mini project with seminar [Practical | Regular]

CO ID.	Course Outcome
C1114.1	To enable the students to develop comprehensive solution to issues identified in previous semester work and to meet the requirements as stated in project brief
C1114.2	To inculcate the ability to synthesize the results of the detailed analytical studies conducted lay down validity and design criteria, interpret the result for application to the problem.

C1115 Advanced Power Electronic Converters Lab [Practical | Regular]

CO ID.	Course Outcome
C1115.1	Know the speed control strategies of AC and DC drives
C1115.2	Design speed, current controllers for AC and DC drives
C1115.3	Get the knowledge on multi-level inverter/converter topologies
C1115.4	Perform the open loop and closed loop speed control analysis of AC and DC drives
C1115.5	Design the gate driver circuits for converter topologies

C1116 Electrical Drives Lab [Practical | Regular]

CO ID.	Course Outcome
C1116.1	To understand principle operation of scalar control of ac motor and corresponding speed-torque characteristics
C1116.2	To comprehend the vector control for ac motor drive(IM and SM)
C1116.3	To explain the static resistance control and Slip power recovery drive
C1116.4	To explain synchronous motor drive characteristics and its control strategies
C1116.5	To comprehend the brushless dc motor principle of operation

M.TECH-PEED-2-1

C1201 HVDC Transmission [Theory | Regular]

CO ID.	Course Outcome
C1201.1	Compare EHV AC and HVDC system
C1201.2	Describe various methods for the control of HVDC systems, classify Harmonics and design different types of filters and protection methods for HVDC systems
C1201.3	Describe various types of DC links
C1201.4	perform power flow analysis in AC/DC systems
C1201.5	Knowledge of modelling and analysis of HVDC system for inter-area power flow regulation.

C1202 Entrepreneurship [Theory | Regular]

CO ID.	Course Outcome
C1202.1	To assess the commercial viability of a new technology-based idea. the candidate can use various methods and tools for this purpose.
C1202.2	To transform research-based ideas into feasibility and business plans. The candidate can use (tacit and explicit) methods and tools for this purpose.
C1202.3	To present new ideas to the market, and structures of market.

C1202.4	To assess the need for innovation, initiate the process and run innovations in organizations.
C1202.5	To seize opportunities, organize and finance viable initiatives through to fruition.
C1203 DISSERTATION WORK REVIEW - II [Practical Regular]	
CO ID.	Course Outcome
C1203.1	To enable the students to develop comprehensive solution to issues identified in previous semester work and to meet the requirements as stated in project brief
C1203.2	To inculcate the ability to synthesize the results of the detailed analytical studies conducted, lay down validity and design criteria, interpret the result for application to the problem