



1. Course Outcomes of B. Tech. EEE First Year – First Semester

Course Name with Code	CO No.	Course Outcome
Communicative English (C111)	C111.1	Identifying the life of people, culture and tradition interpreting the information, speaking English to elicit information, identifying the vocabulary and Nouns
	C111.2	Understanding the responsibility and values, conversing for expressing greetings and leave takings, usage of articles, prepositions
	C111.3	Remembering life and contributions of Stephen Hawking discuss about specific topics practice letter writing, CVs, E-mail etiquette, application of verb forms
	C111.4	Understanding the life of Wangari Maathai, Role plays, use of adjectives, adverbs, & vocabulary
	C111.5	Understanding way of life, technical writing and presentation, vocabulary common errors
	C111.6	Understanding soft skills, recognize Scientific and Technical English
Mathematics -I (C112)	C112.1	Utilize mean value theorems to real life problems
	C112.2	To be able to form differential equation from some physical problems and to solve various first order differential equations.
	C112.3	Solve the differential equations related to various engineering fields
	C112.4	Familiarize with functions of several variables which is useful in optimization
	C112.5	Apply double integration techniques in evaluating areas bounded by region
	C112.6	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2- dimensional and 3-dimensional coordinate systems
Mathematics -II (C113)	C113.1	Solve the system of linear algebraic equations using Matrix techniques
	C113.2	Determine the Eigen values and Eigen vectors of a system represented by a matrix
	C113.3	Compute the roots of algebraic and transcendental equations using iterative methods
	C113.4	Apply various interpolation methods to estimate the unknown values from a known data value
	C113.5	Apply numerical integral techniques to different Engineering problems
	C113.6	Solve the ordinary differential equations of first order with initial conditions using numerical techniques
Programming for Problem Solving using C (C114)	C114.1	To write algorithms and to draw flowcharts for solving problems, converts both to C program finally compile and debug the programs.
	C114.2	To use different operators, data types and write programs that use two-way/ multi-way selection.
	C114.3	To select the best loop construct for a given problem
	C114.4	To design and implement programs to analyze the different pointer applications
	C114.5	To decompose a problem into functions and to develop modular reusable code
	C114.6	To apply File, I/O operation
English Communication Skills Lab (C115)	C115.1	Articulate better pronunciation through stress or word accent, intonation, and rhythm.
	C115.2	Acting out about a consistent accent and intelligibility in their pronunciation of English by providing an opportunity for practice in speaking.
	C115.3	Experimenting the fluency in spoken English and neutralize mother tongue influence
	C115.4	Mind Mapping of the students to a variety of self-instructional and learner-friendly modes of language learning.
Electrical Engineering Workshop (C116)	C116.1	Ability to interpret and discuss the difference, the limitations, tolerances, safety aspects of electrical systems and wiring.
	C116.2	Ability to Select wires/cables and other accessories used in different types of wiring.
	C116.3	Ability to Construct and evaluate the performance of simple lighting and power circuits
	C116.4	Ability to demonstrate the usage of measuring equipment
	C116.5	Ability to impart methods in electrical machine wiring
Programming for Problem Solving using C Lab (C117)	C117.1	Gains Knowledge on various concepts of a C language.
	C117.2	Able to draw flowcharts and write algorithms.
	C117.3	Able design and development of C problem solving skills.
	C117.4	Able to design and develop modular programming skills.
	C117.5	Able to design and develop file programming skills
	C117.6	Able to trace and debug a program



2. Course Outcomes of B. Tech. EEE First Year – Second Semester

Course Name with Code	CO No.	Course Outcome
Mathematics-III (C121)	C121.1	Compute Line, Surface, Volume integrals using Green's, Stoke's and Divergence theorems.
	C121.2	Use Laplace Transform methods to solve initial value problems for constant coefficient linear ordinary differential equations.
	C121.3	Discuss the expansion of a given periodic function by Fourier series in the given interval.
	C121.4	Solve engineering problems using Fourier Transforms and Inverse Fourier Transforms.
	C121.5	Apply a range of techniques to solve first and second order linear partial differential equations.
	C121.6	Model physical phenomena of Heat and Wave equations by using Partial differential equations.
Applied Physics (C122)	C122.1	Identify the applications of Interference, Diffraction and Polarization in engineering
	C122.2	Describe the construction and working principles of various types of lasers
	C122.3	Identify the role of Schrodinger's time independent wave equation in studying particle in one-dimensional infinite potential well
	C122.4	Classify the energy bands of solids
	C122.5	Explain the concept of dielectric constant and polarization in dielectric materials
	C122.6	Identify the type of semiconductor and charge carriers using Hall effect
Data Structures using C (C123)	C123.1	Data structures concepts with arrays, stacks, queues.
	C123.2	Complexity of algorithms and strings as Abstract data types
	C123.3	Linked lists for stacks, queues and for other applications.
	C123.4	Traversal methods in the Trees.
	C123.5	various algorithms available for the graphs.
	C123.6	Sorting and searching in the data retrieval applications.
Electrical Circuit Analysis 1 (C124)	C124.1	Apply Mesh analysis in an electrical network.
	C124.2	Apply Nodal analysis in an electrical network.
	C124.3	Solve the magnetically coupled circuit.
	C124.4	Determine the parameters in 1-
	C124.5	Explain the circuit behavior with variation of R, L, C, and f .
	C124.6	Explain the circuit theorems for AC and DC electrical networks.
Basics Civil and Mechanical Engineering (C125)	C125.1	Apply Shear force diagram & Bending moment diagram principles for Cantilever and Simply supported beams
	C125.2	Apply concepts of Rosette analysis for strain measurements.
	C125.3	Analyze the characteristics of common building materials
	C125.4	Compare the working characteristics of hydraulic turbines and pumps
	C125.5	Compare the working characteristics of Internal Combustion engines.
	C125.6	Compare the differences between boiler mountings and accessories
Applied Physics Lab (C126)	C126.1	Understand the concept of error and its analysis.
	C126.2	Compare the theory and correlate with experiment findings.
	C126.3	Understand and apply the fundamentals of wave optics.
	C126.4	Develop experimental skills on basic physics experiments.
Basics Civil and Mechanical Engineering Lab (C127)	C127.1	Solve to arrive at finding constant speed and variable speed on IC engines & their performance.
	C127.2	Solve to arrive at finding constant speed and variable speed on IC engines & their performance.
	C127.3	Explain procedure for standardization of experiments.
	C127.4	Determine flow discharge measuring device used in pipes channels and tanks
	C127.5	Solve for drag coefficients.
	C127.6	Test for the performance of pumps and turbines
Data Structures using C Lab (C128)	C128.1	Be able to design and analyze the time and space efficiency of the data structure
	C128.2	Be capable to identify the appropriate data structure for given problem.
	C128.3	Have practical knowledge on the applications of data structures.
Constitution of India (C129)	C129.1	To Enable the student to understand the importance of constitution
	C129.2	To understand the structure of executive, legislature, and judiciary
	C129.3	To understand philosophy of fundamental rights and duties
	C129.4	To understand the autonomous nature of constitutional bodies like Supreme Court and high court controller and auditor general of India
	C129.5	To understand the election commission of India
	C129.6	To understand the central and state relation financial and administrative



3. Course Outcomes of B. Tech. EEE Second Year – First Semester

Course Name with Code	CO No.	Course Outcome
Electrical Circuit Analysis – II (C211)	C211.1	Analyze three-phase balanced and unbalanced circuits and determine line voltages, line currents, phase voltages and phase currents
	C211.2	Analyze the transient response of series and parallel R, L, & C circuits for DC & AC excitations
	C211.3	Analyze Two port network parameters for given electrical circuits
	C211.4	Apply Fourier Series to electrical circuits excited by non-sinusoidal sources
	C211.5	Apply Fourier Series to electrical circuits excited by non-sinusoidal sources
	C211.6	Analyze different harmonics components from the response of an electrical network.
Electrical Machines-I (C212)	C212.1	Evaluate the concepts of electromechanical energy conversion
	C212.2	Analyze the ill-effects of armature reaction and improve commutation in dc machines
	C212.3	Analyze the torque production mechanism and control the speed of dc motors.
	C212.4	Analyze the performance of single-phase transformers.
	C212.5	Calculate regulation, losses, and efficiency of single-phase transformers
	C212.6	Analysis of Parallel transformers, control voltages with tap changing methods and achieve three-phase to two-phase transformation
Electronic Devices and Circuits (C213)	C213.1	Interpret the characteristics of semiconductor diodes.
	C213.2	Compare the characteristics of rectifiers with and without filters.
	C213.3	Summarize the characteristics of BJT in different configurations.
	C213.4	Analyze the Field Effect Transistor characteristics and its applications
	C213.5	Apply biasing methods for stabilization of BJT and FET amplifiers.
	C213.6	Interpret small signal low frequency equivalent models of BJT and FET.
Electro Magnetic Fields (C214)	C214.1	Ability to calculate Electric field, potential, Capacitance and Energy stored in Dielectrics using Gauss's law, Laplace's and Poisson's Equations
	C214.2	Ability to find magnetic field intensity and to calculate magnetic Force, Torque, Self and Mutual Inductance and Energy stored in magnetic field.
	C214.3	Knowledge of Time varying fields, Displacement Current and Pointing Vector.
	C214.4	Students can calculate the magnetic forces and torque produced by currents in magnetic field.
	C214.5	Will the able to calculate self and mutual inductances and the energy stored in the magnetic field.
	C214.6	Students will gain knowledge on time varying fields and get ability to calculate induced emf. Concepts of displacement current and Pointing vector and associated problems are solved
Thermal and Hydro Prime Movers (C215)	C215.1	Interpret the working principle and various components of IC engine
	C215.2	Discuss the basic principles of vapor power cycles
	C215.3	Analyze the performance of the steam nozzles and steam turbines in a steam power plant
	C215.4	Demonstrate the performance of an IC engine and gas turbine based on the performance.
	C215.5	Compare and contrast different types of pumps and their performance
	C215.6	Compare and contrast different types of turbines and their performance
Managerial Economics & Financial Analysis (C216)	C216.1	Enumerate the concepts of Economics, Demand, and its Forecasting methods
	C216.2	Understanding the relationship among inputs, output, nature of cost, cost combinations.
	C216.3	State the nature of Markets, its structure, Price- Output decisions under different market structures & pricing strategies
	C216.4	Identify various types of organizations and their characteristics based on ownership
	C216.5	Illustrate financial statements by using various accounting tools
	C216.6	Discuss various methods to select a financial proposal by using capital budgeting methods
Thermal and Hydro Lab (C217)	C217.1	Evaluate the performance of various IC engines
	C217.2	Sketch the port/valve diagram of IC engines
	C217.3	Explain procedure for standardization of experiments.
	C217.4	Evaluate the performance of various flow measuring devices
	C217.5	Determine the friction coefficient and loss of head in a pipeline
	C217.6	Test for the performance of pumps and turbines
Electrical Circuits Lab (C218)	C218.1	Apply various Network theorems
	C218.2	Determine Choke coil parameters
	C218.3	Able to calculate the Resonance for RLC circuits
	C218.4	Able to determine parameters for two port networks
	C218.5	Determine the self and mutual inductances of a magnetic fields
	C218.6	Able to measure three phase active power for poly phase circuits



4. Course Outcomes of B. Tech. EEE Second Year – Second Semester

Course Name with Code	CO No.	Course Outcome
Electrical Measurements & Instrumentation (C221)	C221.1	Choose right type of instrument for measurement of ac and dc Electrical quantities.
	C221.2	Choose right type of instrument for measurement of power and power factor.
	C221.3	Select right type of bridge for measurement of R, L, C, and G
	C221.4	Understand the effectiveness of Transducer
	C221.5	Understand the various types of Digital Meters.
	C221.6	Apply digital techniques to measure voltage, frequency, and speed
Electrical Machines-II (C222)	C222.1	Construction of AC Machines
	C222.2	Explain the operation and performance of three phase induction motor.
	C222.3	Analyze the torque-speed relation, performance of induction motor and induction generator.
	C222.4	Derive the EMF equation of synchronous generator
	C222.5	Compare the starting of single-phase induction motors and synchronous motor
	C222.6	Perform winding design and predetermine the regulation of synchronous generators.
Digital Electronics (C223)	C223.1	Able to differentiate various types of number systems & can detect and correct the errors.
	C223.2	Able to solve the Boolean expressions using various minimization techniques
	C223.3	Able to design and realize a given combinational logic circuit using minimization techniques
	C223.4	Able to design and realize a given PLD using minimization techniques.
	C223.5	Able to discriminate and design various types of sequential circuits using flip-flops, registers, and counters.
	C223.6	Able to design various types of sequential circuits using state diagram and state reductions.
Control Systems (C224)	C224.1	Evaluate the transfer function model for physical systems and control system components
	C224.2	Analyze the time response of systems and steady state errors
	C224.3	Determine the absolute and relative stability of a system using RH and root loci concepts.
	C224.4	Use the basic knowledge in obtaining the open, and closed loop frequency responses of systems
	C224.5	Explain the stability analysis and types of compensators
	C224.6	Describe the state variable representation of physical system and solve the state equation
Power Systems – I (C225)	C225.1	Ability to understand the different components of thermal power plants
	C225.2	Ability to understand the different components of nuclear Power plants
	C225.3	Ability to distinguish between AC & DC distribution systems and estimate voltage drops in both types of distribution systems
	C225.4	Ability to analyze the location of different components of an air and gas insulated substations
	C225.5	Ability to identify single core and multi core cables with different insulating materials
	C225.6	Ability to analyze the effect of load factor, demand factor and diversity factor on the cost of generation of electrical power and able to identify the types of tariffs applicable to consumers based on their load demand
Signal and Systems (C226)	C226.1	Categorize the signals and systems.
	C226.2	Examine the harmonic components present in the continues time signals using Fourier series.
	C226.3	Analyze the LTI systems in Frequency domain using Fourier Transform.
	C226.4	Apply Laplace Transform on the continues time signals and systems.
	C226.5	Determine the Discrete time signals from continues time signals.
	C226.6	Apply Z Transform on the discrete time signals and systems.
Electrical Machines-I Lab (C227)	C227.1	Predetermine the regulation, Performance & efficiency on DC machine
	C227.2	No load and load the DC Machine to obtain the characteristics, torque, output and efficiency
	C227.3	Control the speed of DC shunt motor by using armature control and field control methods.
	C227.4	Separate the various losses present in DC shunt motor and single-phase transformer
	C227.5	Predetermine the regulation and efficiency for a single-phase transformer
	C227.6	Converting three phase sources to two phase sources
Electronic Devices and Circuits Lab (C228)	C228.1	Experiment and characterize the two terminal devices.
	C228.2	Construct a Rectifier circuit with and without filter
	C228.3	Examine the characteristics of BJT and FET
	C228.4	Demonstrate the operation of CRO
	C228.5	Experiment and characterize the UJT.
	C228.6	Analyze the frequency response characteristics of BJT and FET



5. Course Outcomes of B. Tech. EEE Third Year – First Semester

Course Name with Code	CO No.	Course Outcome
Power Systems-II (C311)	C311.1	Able to Compute the transmission line parameters
	C311.2	Able to estimate the performance of a short and medium transmission lines, and its Modeling
	C311.3	Able to estimate the performance of a long transmission line and its Modeling
	C311.4	Able to analyze the effect of travelling waves on transmission lines.
	C311.5	Able to explain various factors affecting the performance of transmission lines and power factor
	C311.6	Calculate sag /tension of transmission line and performance of line insulators
Renewable Energy Sources (C312)	C312.1	Describe solar radiation, extraterrestrial radiation, radiation on earth's surface and tilted surface
	C312.2	Analyze the performance of solar collectors, and solar thermal systems
	C312.3	Illustrate the characteristics of solar PV systems and techniques
	C312.4	Demonstrate the performance of wind energy systems and MPPT in wind energy systems
	C312.5	Discuss the working and principle of Hydro and Tidal systems
	C312.6	Classify the Biomass, Fuel cells and Geothermal systems
Signals and Systems (C313)	C313.1	Categorize the signals and systems.
	C313.2	Examine the harmonic components present in the continues time signals using Fourier series.
	C313.3	Analyze the LTI systems in Frequency domain using Fourier Transform.
	C313.4	Apply Laplace Transform on the continues time signals and systems.
	C313.5	Determine the Discrete time signals from continues time signals.
	C313.6	Apply Z Transform on the discrete time signals and systems.
Pulse & Digital Circuits (C314)	C314.1	Analyze the concept of linear wave shaping circuits
	C314.2	Analyze the concept of nonlinear wave shaping circuits
	C314.3	Describe the switching characteristics of Diode and Transistor
	C314.4	Analysis and design of different types of Multivibrators.
	C314.5	Describe the functioning of Time base generators
	C314.6	Discuss the working and characteristics of Logic families and Sampling gates
Power Electronics (C315)	C315.1	Analyze the characteristics of various power semiconductor devices
	C315.2	Design firing circuits for SCR.
	C315.3	Analyze the operation of different types of AC-DC converters.
	C315.4	Analyze the operation of different types of DC-DC converters.
	C315.5	Explain inverters and application of PWM techniques for voltage and harmonic issues.
	C315.6	Analyze the operation of AC-AC regulators.
Electrical Machines-II LAB (C316)	C316.1	Calculate efficiency by conducting direct and indirect tests on induction motor.
	C316.2	Predetermine regulation of alternator by E.M.F, M.M.F, Z.P.F methods and performance curves.
	C316.3	Sketch V and Inverter V Curves of a three-phase synchronous motor.
	C316.4	Determine X_d and X_q of a salient pole synchronous machine.
	C316.5	Control the speed of the single-phase induction motor and to obtain equivalent circuit.
	C316.6	Improve the power factor of single-phase induction motor and to obtain its performance.
Control Systems Lab (C317)	C317.1	Able to analyze the behavior of second order system with time domain specifications.
	C317.2	Able to design different controllers
	C317.3	Able to evaluate stability of LTI system using bode plot.
	C317.4	Able to determine controllability and observability of given system.
	C317.5	Able to derive the transfer function of different physical systems
	C317.6	Able to evaluate stability of LTI system using Nyquist plot.
Electrical Measurements Lab (C318)	C318.1	Understand the correct function of electrical parameters
	C318.2	Demonstrate the calibration of electrical parameters voltage, current
	C318.3	Measure the electrical quantities power, energy
	C318.4	Measure electrical characteristics of resistance, inductance, and capacitance of a circuits through appropriate methods
	C318.5	Test transformer oil for its effectiveness
	C318.6	Analyze the parameters of inductive coil



6. Course Outcomes of B. Tech. EEE Third Year – Second Semester

Course Name with Code	CO No.	Course Outcome
Power Electronic Controllers & Drives (C321)	C321.1	Able to explain the fundamentals of electric drive and different electric braking methods.
	C321.2	Able to analyze the operation of three phase converter-controlled dc motors and four quadrant operation of dc motors using dual converter
	C321.3	Able to analyze the converter control of dc motors in various quadrants
	C321.4	Able to analyze the concept of speed control of induction motor by using AC voltage controllers and voltage source inverters.
	C321.5	Able to analyze the principles of static rotor resistance control and slip power recovery schemes.
	C321.6	Able to analyze the speed control mechanism of synchronous motors.
Power System Analysis (C322)	C322.1	Ability to discuss various components of power system and to draw reactance diagram.
	C322.2	Ability to evaluate steady state power flow analysis of power system using iterative methods
	C322.3	Ability to Formulate Z-bus for a given power system network.
	C322.4	Ability to analyze symmetrical faults.
	C322.5	Ability to and analyze unsymmetrical faults using symmetrical components.
	C322.6	Ability to analyze stability of power system.
Micro Processors and Micro Controller (C323)	C323.1	Describe the architecture and organization of Microprocessor (8086)
	C323.2	Describe the maximum and minimum modes of 8086
	C323.3	Demonstrate the concept of interfacing MP and I/O using ICs and their functioning
	C323.4	Describe the architecture and organization of Microcontroller (8051)
	C323.5	Discuss the architecture of PIC
	C323.6	Develop programming in C for PIC
Data Structures (C324)	C324.1	Summarize the properties, interfaces, and behaviors of basic abstract data types
	C324.2	Summarize the properties, interfaces, and behaviors of basic abstract data types
	C324.3	Illustrate the computational efficiency of the principal algorithms for sorting & searching
	C324.4	Develop arrays, records, linked structures, stacks, queues, trees, and Graphs in writing program
	C324.5	Develop different methods for traversing trees
	C324.6	Develop different methods for traversing trees
Energy Audit and Conservation & Management (C325)	C325.1	Able to Understand energy efficiency, scope, conservation, and technology
	C325.2	Able to Design energy efficient lighting systems
	C325.3	Able to estimate power factor of systems and propose suitable compensation techniques.
	C325.4	Able to Understand space heating and ventilation methods.
	C325.5	Able to calculate life cycle costing and return on investment on energy efficient technologies.
	C325.6	Able to Understand the concepts and compute the economic aspects of energy consumption
Power Electronics Lab (C326)	C326.1	Design the gate drive circuits of SCR, IGBT and MOSFET and study their characteristics.
	C326.2	Analyze the performance of single-phase half and fully controlled.
	C326.3	Analyze the performance three phase full wave converter with resistive load.
	C326.4	Analyze the operation of single phase and three phase AC voltage regulator.
	C326.5	Design the Buck and Boost converter in CCM and DCM and verify their voltage gain.
	C326.6	Analyze the operation of single phase PWM inverters.
Microprocessors and Microcontrollers Lab (C327)	C327.1	Demonstrate Arithmetic operations on Multibyte and ASCII Numbers using MASM
	C327.2	Demonstrate Logical and Shift operations on BCD and ASCII Numbers using MASM
	C327.3	Develop programs on String operations using MASM
	C327.4	Develop programs for Interfacing 8086 with 8255, 8259 and 8279 using MASM
	C327.5	Demonstrate parallel and serial communication using 8051
	C327.6	Develop programs for interfacing PIC 18 with I/O devices
Data Structures Lab (C328)	C328.1	Develop skills to design and analyze simple linear and nonlinear data structures
	C328.2	Perform practical applications of data structures
	C328.3	Strengthen the ability to identify and apply the suitable data structure
	C328.4	Apply the linear / non-linear data structure operations based on the user needs
	C328.5	Gain knowledge in practical applications of data structures
	C328.6	Express the Engineering activities with effective presentation and report.



7. Course Outcomes of B. Tech. EEE Fourth Year – First Semester

Course Name with Code	CO No.	Course Outcome
Utilization of Electrical Energy (C411)	C411.1	Selecting suitable Drives matched with characteristics of Load and Industrial Applications
	C411.2	Analyze the Principles and methods of electric heating and welding.
	C411.3	Examine the laws of illumination and their application for various lighting schemes.
	C411.4	Estimate the illumination levels produced by various Sources and design different lightning systems by taking inputs.
	C411.5	Describe the Systems of electric traction and study of traction equipment
	C411.6	Explain mechanics of Train movement and associated calculations.
Linear IC Applications (C412)	C412.1	Analyze the basic operation and performance parameters of differential amplifiers
	C412.2	Describe the measuring techniques of performance parameters of OP-AMP.
	C412.3	Illustrate the linear and non-linear applications of operational amplifiers.
	C412.4	Analysis and design of different types of active filters using Op-Amps
	C412.5	Analyze the internal structure, operation, and applications of different analog ICs and PLL
	C412.6	Describe the working of different A/D and D/A converters and their applications
Power System Operation & Control (C413)	C413.1	Able to Design economic load dispatch problem in case of thermal generations.
	C413.2	Able to formulate Hydro-thermal scheduling problems to meet the load demand optimally.
	C413.3	Able to use optimum unit commitment schedules.
	C413.4	Ability to analyze single are load frequency control.
	C413.5	Able to design of PID controllers in load frequency control.
	C413.6	Able to analyze reactive power control concepts for compensation.
Switchgear and Protection (C414)	C414.1	Able to analyze and interpret the arc interruption process and discriminate various types of circuit breakers, service, operation, method of control, contacts, and action.
	C414.2	Able to compare various types of relays and select the appropriate relay based on the application.
	C414.3	Able to select the appropriate protective device for the protection of generators and transformers.
	C414.4	Able to select the appropriate protective device for the protection of bus bars and feeders.
	C414.5	Able to relate the operation of static relays with respect to electromagnetic relays.
	C414.6	Able to demonstrate the importance of neutral, resistance and reactance grounding and LA.
Instrumentation (C415)	C415.1	Discuss different types of errors occurring in measurement systems, & representation
	C415.2	To obtain proper knowledge on various types of Electrical Transducers
	C415.3	Select suitable transducers for measurement of non-electrical quantities
	C415.4	Use digital techniques to measure voltage, frequency, and phase angle
	C415.5	To determine various parameter like phase and frequency of a signal with the help of CRO
	C415.6	Illustrate working principles of different signal and wave analyzers
Electrical Power Quality (C416)	C416.1	Ability to Analyze power quality terms and power quality standards.
	C416.2	Able to explain the principle of voltage regulation and power factor improvement methods.
	C416.3	Ability to demonstrate the relationship between distributed generation and power quality
	C416.4	Ability to differentiate between different types of power quality problems.
	C416.5	Able to explain the sources of voltage sag, voltage swell, interruptions, transients, long duration over voltages and harmonics in a power system
	C416.6	Ability to analyze the power quality monitoring concepts and measuring instruments.
Electrical Simulation Lab (C417)	C417.1	Able to Perform transient analysis of RLC circuit with different input signals.
	C417.2	Able to analyze 3-phase representation of generator, transmission line, and load & waveforms.
	C417.3	Able to Simulate 1-phase Full converter and PWM Inverter.
	C417.4	Illustrate Bode Plot, Root Locus and Nyquist with Transfer Function of 5 th order system.
	C417.5	Experiment on Integrator and Differentiator using Op-Amp Able to analyze DC-DC converters.
	C417.6	Experiment on Three-Phase full converter by MOSFET'S & IGBT'S
Power Systems & Simulation Lab (C418)	C418.1	Use numerical methods to analyses a power system in steady state.
	C418.2	Understand methods to control the voltage, frequency, and power flow.
	C418.3	Understand the monitoring and control of a power system.
	C418.4	Understand the basics of power system economics.
	C418.5	Able to determine the parameters of various system components.
	C418.6	Able to determine the dielectric strength of a transformer oil and calibration of tong Tester



8. Course Outcomes of B. Tech. EEE Fourth Year – Second Semester

Course Name with Code	CO No.	Course Outcome
Digital Control Systems (C421)	C421.1	Able to distinguish the advantages of discrete time and continuous time signals
	C421.2	Able to explain z-transformations and their role in the mathematical analysis.
	C421.3	Able to analyze the stability criterion for digital systems and methods adopted for testing.
	C421.4	Able to analyze the conventional and state-space methods of design are also introduced.
	C421.5	Able to design the discrete-time control systems by conventional methods.
	C421.6	Able to design the state feedback controller through pole placement.
HVDC Transmissions (C422)	C422.1	To Know basic concepts, types, and modern trends in HVDC
	C422.2	Able to analyze configuration and performance of HVDC converters
	C422.3	Able to Know various schemes to control converters
	C422.4	Able to know reactive power controls and modelling of converters.
	C422.5	Able to protect the converters, and formulate characteristics of harmonics
	C422.6	Able to design the different filters for HVDC transmission.
Electrical Distribution Systems (C423)	C423.1	Analyze the classification of distribution systems
	C423.2	Discuss about various substations and feeders
	C423.3	Evaluate voltage drop and line loss calculations
	C423.4	Understand the protection and its coordination techniques
	C423.5	Determine the causes of low power factor and methods to improve power factor
	C423.6	Evaluate voltage regulating equipment to improve voltage profile
Flexible Alternating Current Transmission Systems (C424)	C424.1	Able to determine power flow control in transmission lines by using FACTS Controllers
	C424.2	Able to explain operation and control of voltage source converter
	C424.3	Able to discuss compensation methods to improve stability and reduce power oscillations in the transmission lines.
	C424.4	Able to explain the methods of shunt compensation by using static VAR compensators
	C424.5	Able to analyze the methods of compensation by using series compensators
	C424.6	Able to explain the operation of modern power electronics controllers (UPFC&IPFC)