



SIR C R REDDY COLLEGE OF ENGINEERING
ELURU-534007, WEST GODAVARI DIST, ANDHRA PRADESH, INDIA
 (Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada)
 Phone no: 08812-230840, Visit us at <http://www.sircrrengg.ac.in>, eeehod@sircrrengg.ac.in
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

R19 COURSE OUTCOMES

I Year – I SEMESTER

S.No	Course Code	Subjects	Co. No	Course Outcomes
1	HS1101	Communicative English	HS1101.1	Apply the four languages learning skills-listening, speaking, reading, writing (LSRW)for professional success.
			HS1101.2	Employ knowledge of grammatical structures and vocabulary in speech and writing
			HS1101.3	Apply effective communication skills to enhance professional possibilities.
			HS1101.4	Develop acceptable personality traits suitable for chosen profession.
2	BS1101	Mathematics - I	BS1101.1	Examine the convergence of series and apply mean value theorem to real life problem.
			BS1101.2	Solve the Differential Equations of first and higher order related to various engineering applications.
			BS1101.3	Apply the partial differentiation technique to solve physical problem
			BS1101.4	Apply double and triple integrals to find areas and volumes
3	BS1106	Applied Chemistry	BS1106.1	Identify the advantages and limitations of plastic materials, elastomers and their use in day to day life.
			BS1106.2	Select the suitable methods of corrosion control and gain the knowledge of applications of batteries.
			BS1106.3	Recognize the need of nano materials, liquid crystals, semiconductors and super conductors.
			BS1106.4	Obtain the knowledge of computational chemistry and molecular machines.
			BS1106.5	Obtain the knowledge of generation of electricity from various Non-Conventional energy sources.
4	ES1101	Programming for Problem Solving Using C	ES1101.1	Describe the concept of computer system, analyze a given problem, develop an algorithm, fundamental programming constructs, identify data representation formats, describe operators and their precedence, associatively.
			ES1101.2	Understand branching and loop statements.
			ES1101.3	Describe the concept of homogeneous derives data types, strings and functions.
			ES1101.4	Understand pointers and heterogeneous data types.
			ES1101.5	Describe the concept of file system and functions.
5	ES1103	Engineering Drawing	ES1103.1	Construct polygons and curves used in engineering applications
			ES1103.2	Construct scales, Apply concept of orthographic projection to project points and lines parallel to one



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				reference planes.
			ES1103.3	Draw orthographic projections of lines inclined to both the reference planes.
			ES1103.4	Draw orthographic projections of planes inclined to both the reference planes.
			ES1103.5	Draw orthographic projections of regular solids inclined to both the reference planes.
			ES1103.6	Represent objects in 3D view through isometric views from orthographic views and vice versa
6	HS1103	English Lab	HS1103.1	Recognize the sounds of English with the help of audio visual aids
			HS1103.2	Build confidence and overcome inhibitions while speaking in English.
			HS1103.3	Demonstrate acquired language skills in performing the designated activity.
7	BS1107	Applied Chemistry Lab	BS1107.1	Obtain the knowledge of acid-base titrations to determine the strength of acid and base solutions.
			BS1107.2	Gain the knowledge of Redox titrations to determine the concentration of samples such as Ores, KMnO ₄ and Copper using different indicators.
			BS1107.3	Obtain the knowledge of complexometry titrations to determine the hardness of given water sample by EDTA method.
			BS1107.4	Gain the knowledge of commonly used instruments such as pH meter, Conductivity meter and Potentiometer to determine the strength of given acid solutions.
8	ES1102	Programming for Problem Solving Using C Lab	ES1102.1	Describe the basics of computer and understand the problem-solving aspect.
			ES1102.2	Design and develop C program to evaluate simple expressions and logical operations.
			ES1102.3	Develop & Implement C programs with suitable modules to solve the given problem.
			ES1102.4	Demonstrate the concept of pointer and perform I/O operations in files.



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I Year – II SEMESTER

S.No	Course Code	Subjects	Co. No	Course outcomes
1	BS1202	Mathematics – II	BS1202.1	Solve system of linear algebraic equations and apply eigen value computation techniques to reduce a given quadratic to canonical form
			BS1202.2	Solve algebraic and Transcendental equations by using Numerical methods
			BS1202.3	Apply Newton's forward and backward interpolation and Lagrange's formula for equal and unequal intervals.
			BS1202.4	Compute numerical solutions of differential equations.
2	BS1203	Mathematics – III	BS1203.1	Apply the concepts of vector calculus to the problems of work done by a force, circulation and flux
			BS1203.2	Apply Laplace Transforms to solve the ordinary differential equations
			BS1203.3	Compute Fourier series of the periodic function and Apply Fourier transform to a range of non-periodic function.
			BS1203.4	Solve the first and higher order partial differential equations and apply to various physical problems
3	BS1204	Applied Physics	BS1204.1	Analyze the intensity variation of light due to interference & diffraction and illustrate the resolving power of various optical instruments
			BS1204.2	Explain fundamental concepts of quantum mechanics and apply to one dimensional motion of particles.
			BS1204.3	Explain various electron theories and summarize various types of solids based on band theory.
			BS1204.4	Understand how electrons & holes behave in semiconductor and explain how they conduct current.
			BS1204.5	Summarize magnetic & dielectric material properties and recognize their need in engineering applications.
4	ES1212	Fundamentals of Computers	ES1212.1	Interpret how the computer is works.
			ES1212.2	Implement appropriate methods for solving problems
			ES1212.3	Examine the computer networks, types of network and topologies.
			ES1212.4	Demonstrate the concepts of Operating systems and Computer Systems Development
			ES1212.5	Demonstrate the concepts of Databases.
			ES1212.6	Organize the advanced computer technologies like distributed computing & wireless networks
5	ES1217	Electrical Circuit	ES1217.1	Study the concepts of passive elements, types of sources and various network reduction techniques.



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S.No	Course Code	Subjects	Co. No	Course outcomes
		Analysis - I	ES1217.2	Understand the concept of magnetic coupled circuit.
			ES1217.3	Solve given RLC network with variation of any one of the parameters i.e. R, L, C and f for sinusoidal input.
			ES1217.4	Apply the applications of network theorems for analysis of electrical networks
			ES1217.5	Study the concepts of passive elements, types of sources and various network reduction techniques.
6	ES1218	Electrical Engineering Workshop	ES1218.1	To understand the limitations, tolerances, safety aspects of electrical systems and wiring.
			ES1218.2	Ability to Select wires/cables and other accessories used in different types of wiring.
			ES1218.3	To understand the basic concepts of electrical circuits and able to measure current, voltage and power in a circuit.
7	BS1205	Applied Physics Lab	BS1205.1	Apply the knowledge of different phenomena of light like interference, diffraction and handle various optical measuring instruments.
			BS1205.2	Analyze various electronic circuits and study the temperature dependence of semiconductors.
			BS1205.3	Draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments
8	HS1203	Communication Skills Lab	HS1203.1	Recognize the sounds of English with the help of audio visual aids
			HS1203.2	Build confidence and overcome inhibitions while speaking in English.
			HS1203.3	Demonstrate acquired language skills in performing the designated activity.
9	PR1201	Engineering Exploration Project	PR1201.1	Utilize the basic electronics and electrical components and sensors and micro controllers, arduinos in minor projects.
			PR1201.2	Learn real world problems and design methodology for solving those problems.
			PR1201.3	Formulate the problems statement, document the report and finalize the project design.



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II Year – I SEMESTER

S.No	Course Code	Subjects	Co. No	Course outcomes
1	R192101	Electrical Circuit Analysis - II	R192101.1	Student is able to Classify different forms of electrical circuits based on components, supply and structures
			R192101.2	Student is able to solve the response of different electrical circuits
			R192101.3	Student is able to Analyze the response of Electrical circuits with different excitations
			R192101.4	Student is able to Relate electrical equivalent network for the given transfer function & network parameters
			R192101.5	Student is able to Apply Laplace and Fourier Transforms to electrical circuits.
2	R192102	Electrical Machines-I	R192102.1	summarize the basics and principle of operation of DC machines and Transformer
			R192102.2	Compare the fundamental parts of DC machines and Transformer
			R192102.3	Analyze the Performance of DC machines and Transformer
			R192102.4	Identify possible applications of different DC machines and Transformers for a given requirement
3	R192103	Electronic Devices and Circuits	R192103.1	Demonstrate concepts of Semiconductor physics
			R192103.2	Compare the operational characteristics of various Semiconductor devices
			R192103.3	Analyze the operation of rectifiers, filters, Oscillators and Amplifiers.
			R192103.4	Classify different power semiconductor devices
4	R192104	Electro Magnetic Fields	R192104.1	Demonstrate knowledge on Coordinate systems, electrostatics, Magneto statics, Basic Laws, Maxwell's equations, Basic properties of materials
			R192104.2	Ability to solve electric field and magnetic field for different charge configurations.
			R192104.3	Illustrate Electrostatics and Magneto statics Boundary conditions.
			R192104.4	To compare and analyze energy stored in the electromagnetic fields by using the Electrostatics & Magneto statics.
			R192104.5	Ability to learn the concepts on time varying fields and get ability to solve energy of electromagnetic wave by using EMF concepts
5	R192105	Thermal and Hydro Prime movers	R192105.1	To apply basic laws and concepts of Thermodynamics
			R192105.2	To explain the constructional features operational details of various components of thermal prime movers
			R192105.3	To analyze steam properties by standard steam data tables and charts



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S.No	Course Code	Subjects	Co. No	Course outcomes
			R192105.4	To illustrate the performances of various thermal prime movers based on the thermodynamic properties of its working substance
6	R192106	Managerial Economics & Financial Analysis	R192106.1	Able to outline the objectives and able to know the nature and scope of Managerial Economics.
			R192106.2	Identify the demand of products and services by using different methods, Examine Optimum Production, economies of scale, production, production functions, and optimum size of the firm, cost, cost behavior and Break Even Point.
			R192106.3	Build knowledge on price and market structure, behavior of consumer and producer under competitive market situations.
			R192106.4	Classify the types of business organizations and scope the methodology involved in their establishment.
			R192106.5	Demonstrate the process & principles of accounting and prepare Journal, Ledger, Trial Balance, Manufacturing A/c, Trading A/c., Profit & Loss A/c. and Balance Sheet of an enterprise
7	R192107	Thermal and Hydro Laboratory	R192107.1	Perform experimental investigation on a 4 cylinder 4 Stroke diesel engine to determine FP, IP and BP.
			R192107.2	Conduct load tests on single and twin cylinder diesel engines to calculate Power and efficiencies.
			R192107.3	Conduct a test on a single cylinder diesel engine to draw heat balance sheet.
			R192107.4	Identify the economical speed by conducting experiment on a 4S 4 cylinder diesel engine.
			R192107.5	Construct valve timing diagram of 4S diesel engine..
			R192107.6	Demonstrate Boilers, IC Engines, Steam engines and Gas Turbines.
8	R192108	Electrical Circuits Laboratory	R192108.1	Apply and Verify the Principals of various theorems.
			R192108.2	Solve Self, Mutual inductance & various Parameter for Electrical Network
			R192108.3	Analyze the characteristics of resonant circuits



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II Year – II SEMESTER

S.No	Course Code	Subjects	Co. No	Course outcomes
1	R192201	Electrical Measurements & Instrumentation	R192201.1	Able to choose right type of instrument for measurement of voltage and current for ac and dc.
			R192201.2	Able to choose right type of instrument for measurement of power and energy – able to calibrate energy meter by suitable method.
			R192201.3	Illustrate ammeter and potentiometer.
			R192201.4	Able to select suitable bridge for measurement of electrical parameters.
			R192201.5	Able to make use of the ballistic galvanometer and flux meter for magnetic measuring instruments and also to measure frequency and phase difference between signals using CRO.
2	R192202	Electrical Machines-II	R192202.1	Annotating the construction and principle of operation of different kinds of rotating AC machines
			R192202.2	Ability to experimenting with Ac Machines to find the performance characteristics.
			R192202.3	Explain the purpose for parallel operation of generators and learn the conditions to be satisfied for this.
			R192202.4	Illustrate the construction, operation and characteristics of commonly used special purpose machines.
3	R192203	Digital Electronics	R192203.1	Explain concepts of digital circuits i.e. Number Systems logic gates realization & minimization.
			R192203.2	Apply the principles of Boolean algebra for the design of various Combinational circuits.
			R192203.3	Apply the concept of Combinational circuits for the design of various sequential circuits, i.e. synchronous and asynchronous sequential circuits.
			R192203.4	Apply the concept of Boolean algebra for the design of various combination circuits
			R192203.5	Analysis of various Flip Flops and registers
4	R192204	Control Systems	R192204.1	Ability to solve the transfer function of physical systems and determination of overall transfer function using block diagram algebra and signal flow graphs. Understand the control system Components.
			R192204.2	Capability to solve time response specifications of second order systems and to determine error constants. o Acquires the skill to analyze absolute and relative stability of LTI svstems using Routh's



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S.No	Course Code	Subjects	Co. No	Course outcomes
				stability criterion and the root locus method.
			R192204.3	Capable to analyze the stability of LTI systems using frequency response methods.
			R192204.4	Able to design Lag, Lead, Lag-Lead compensators to improve system performance from Bode diagrams.
			R192204.5	Ability to illustrate physical systems as state models and determine the response. Understanding the concepts of controllability and observability.
5	R192205	Power Systems-I	R192205.1	Identify the different components of thermal power plants.
			R192205.2	Identify the different components of nuclear Power plants.
			R192205.3	Compare between AC/DC distributions systems and also estimate voltage drops of distribution systems.
			R192205.4	Classify the different components of air and gas insulated substations.
			R192205.5	Compare single core and multi core cables with different insulating materials.
			R192205.6	Analyze the different economic factors of power generation and tariffs.
6	R192206	Signals and Systems	R192206.1	Illustrate the signals and systems and principles of vector spaces, Concept of orthogonality
			R192206.2	Analyze the continuous-time signals and continuous-time systems using Fourier series, Fourier transform and Laplace transform
			R192206.3	Apply sampling theorem to convert continuous-time signals to discrete-time signal and reconstruct back
			R192206.4	Analyze the linear systems in time and frequency domains
			R192206.5	Apply z-transform to analyze discrete-time signals and systems
7	R192207	Electrical Machines -I Laboratory	R192207.1	Explain the characteristics of different dc machines transformers and predict specific applications of those machines accordingly.
			R192207.2	compare the speed control method of different types of DC motors
			R192207.3	Illustrate the parameters of equivalent circuit of transformers
			R192207.4	Solve various losses in dc machines and transformers by conducting suitable tests.



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8	R192208	Electronic Devices & Circuits Laboratory	R192208.1	Analyze the operation of devices like diodes, transistors and FETs practically
			R192208.2	Design electronic circuits using basic devices
			R192208.3	Design rectifier circuits with and without filters



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III Year – I SEMESTER

S.No	Course Code	Subjects	Co. No	Course outcomes
1	R193101	Power Systems- II	R193101.1	Student is able to compare Various transmission systems and power distribution systems.
			R193101.2	Student is able to apply various methods for transmission line modeling and economic aspects
			R193101.3	Student is be able to solve Transmission line parameters, power loss due to corona of an electrical power system
			R193101.4	Student is able to give outline Potential distributions over a string Insulators. Insulation stress present in cables.
			R193101.5	Student is able to design power transmission towers for different voltage levels, insulators & climatic conditions.
2	R193102	Power Electronics	R193102.1	Able to explain the characteristics of various power electronic elements and able to build simple power electronic circuits
			R193102.2	Able to analyze the operation and waveforms for phase controlled converters.
			R193102.3	Able to analyze the operation and waveforms choppers and inverters
			R193102.4	Able to demonstrate AC voltage controllers and cyclo converters operation
			R193102.5	Able to apply knowledge of modulation techniques for inverters in real time projects
3	R193103	Linear IC Applications	R193103.1	Explain the basic operation & performance parameters of differential amplifiers.
			R193103.2	Demonstrate & learn the performance parameters of OP-AMP.
			R193103.3	Explain the linear and non-linear applications of operational amplifiers.
			R193103.4	analyze & design of different types of active filters using op-amps.
			R193103.5	Demonstrate the internal structure, operation and applications of different analog ICs.
			R193103.6	Demonstrate the concept of differ types of analog to digital & digital to analog converters.
4	R193104	Digital Signal Processing	R193104.1	Analyze different continuous and discrete time signals
			R193104.2	Evaluate concept of Fourier transform, Z-transform to analyze the operations on signals and acquire knowledge about systems.
			R193104.3	Select proper tools for analog to digital and digital to analog conversion .also select proper tools for time



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S.No	Course Code	Subjects	Co. No	Course outcomes
				domain and frequency domain implementations.
			R193104.4	Develop fast Fourier transform (FFT) algorithms for faster realization of signals and systems
			R193104.5	Design, implementation and analysis of digital filters for processing of discrete time by use FIR and IIR techniques.
5	R193105	Microprocessors and Microcontrollers	R193105.1	Ability to construct the basic architecture of 8086 microprocessor, 8051 and PIC microcontroller.
			R193105.2	Applying instruction set of 8086 ,8051 and PIC to solve the problems
			R193105.3	Ability to interpret the data transfer, data conversion, interrupting, timing, display and other peripheral devices to 8086MP and 8051MC.
			R193105.4	Ability to design and develop 8086 Microprocessor and 8051 microcontroller based systems for real time applications using low level language like ALP.
6	R193106	Electrical Machines-II Laboratory	R193106.1	Choosing methods for testing of different electrical machines to identify their performance
			R193106.2	Outline equivalent circuit parameters of three phase Induction motor
			R193106.3	Experiment with the process of 'synchronization' of a generator to the live bus bar and method of starting a synchronous motor.
			R193106.4	Compare the operational features of synchronous machines and induction machines.
7	R193107	Control Systems Laboratory	R193107.1	Illustrate to find time response of given control system model
			R193107.2	Design of Lead, Lag, Lead-Lag systems in control systems
			R193107.3	Model plot the Root Locus and Bode plots for given control systems.
			R193107.4	Examine the basic knowledge on practical control system applications on machines & electronic devices like ac servo motor, synchro and magnetic amplifier
			R193107.5	Design PID controllers for given control system model
8	R193108	Electrical Measurements & Instrumentation Laboratory	R193108.1	Ability to select right type of instrument for measurement of voltage, power, current, energy for A.C&D.C.
			R193108.2	Ability to test for meters and select suitable bridge for measurement of electrical parameters.
			R193108.3	Ability to design bridges and measurement of phase difference, frequency, thermal energy.



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			R193108.4	Ability to outline the characteristics of thermocouple, LVDT and transducer
9	R193109	Socially Relevant Projects	R193109.1	Ability to develop a solution to the technological problems of society.
			R193109.2	Able to identify technological change which suits current need of society
			R193109.3	Able to explain new technologies available for problems of the society



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III Year – II SEMESTER

S.No	Course Code	Subjects	CO. No	Course outcomes
1	R193201	Electric Drives	R193201.1	Able to demonstrate the fundamentals of electric drive and different electric braking methods
			R193201.2	Able to compare the converter control of dc motors in various quadrants.
			R193201.3	Able to Analyze the concept of speed control of induction motor by using AC voltage controllers and voltage source inverters
			R193201.4	Able to apply the speed control mechanism of synchronous motors
2	R193202	Power System Analysis	R193202.1	Analyze Per Unit representation of Power System
			R193202.2	Solve network Matrix and describing Load flow Studies.
			R193202.3	Solve the Symmetrical Components and Unsymmetrical Components of Power system.
			R193202.4	Explain various types of faults on an unloaded alternator.
			R193202.5	Identify the concepts of Power System Stability swing equation, critical clearing angle calculation elementary real world applications.
3	R193203	Data Structures	R193203.1	Understand basic data structures such as arrays, Strings, stacks, queues and its algorithms.
			R193203.2	Demonstrate operations on Linked lists and its use for stacks, queues and other applications.
			R193203.3	Implement different types of trees and apply them to problems.
			R193203.4	Solve problem involving graphs.
			R193203.5	Apply and analyze Algorithms for solving problems like sorting, searching.
4	R193204	Digital Control Systems	R193204.1	Interpret merits and demerits of digital control systems over analog control systems
			R193204.2	Illustrate various applications of digital control systems with the theory of z-transforms
			R193204.3	Acquire the knowledge to design a state feedback controller and to represent the discrete system in state space model
			R193204.4	Analyze the stability of the discrete systems with various tests available.
			R193204.4	Examine the digital control systems in w-plane using conventional methods.
5	R193205	Elective – I Internet of Things applications to	R193205.1	Able to identify the various fundamentals, architecture and technologies of internet of things.
			R193205.2	Able to classify various communication technologies used in internet of things.



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S.No	Course Code	Subjects	CO. No	Course outcomes
		Electrical Engineering	R193205.3	Able to illustrate various device connectivity methods using web and internet in the IoT environment.
			R193205.4	Able to classify various data acquisition methods, data handling using cloud for IoT applications.
			R193205.5	Able to identify the implementation of IoT from the case studies like Smart Home, Smart city etc.
6	R193206	C++ Programming	R193206.1	Understand the concepts of Object-Oriented and basic structure of C++ Programming.
			R193206.2	Infer the concepts of Exception Handling, Templates and Virtual functions.
			R193206.3	Apply the concepts of object-oriented programming, Exception Handling, And templates in real world problems.
			R193206.4	Analyze Generic Programming, Structure Oriented and Object –oriented programming in real life problems.
7	R193207	Power Electronics Laboratory	R193207.1	Able to explain the basic operation of various power semiconductor devices and passive components.
			R193207.2	Able to analyze the performance of different Ac-Dc power electronic circuits for different loads
			R193207.3	Able to analyze the performance of different Dc-Dc power electronic circuits for different loads
			R193207.4	choose the basic knowledge on practical converter applications to Motors
8	R193208	Microprocessors & Microcontrollers Laboratory	R193208.1	Ability to develop assembly language program using 8086 micro processor
			R193208.2	Ability to interpret 8086 with I/O and other devices.
			R193208.3	Ability to develop assembly language program using 8051 microcontroller.



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

IV Year – I SEMESTER

S.No	Course Code	Subject	Co. No	Course outcomes
1	R1941021	Switchgear & Protection	R1941021.1	Relate the principle, construction, and working of oil, air, and gas type circuit breakers
			R1941021.2	Relate the principle, construction, and working of electromagnetic, static, and digital relays.
			R1941021.3	Develop protection systems for generators, transformers, feeders, and bus bars using circuit breakers and relays.
			R1941021.4	Apply arresters and grounding techniques to protect power systems against over voltages.
2	R1941022	OOPS through JAVA	R1941022.1	Make use of the syntax and semantics of java programming language and basic concepts of OOP (Classes and Objects).
			R1941022.2	Apply reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
			R1941022.3	Apply the concepts of files, Multithreading and Exception handling to develop efficient and error free codes.
			R1941022.4	Analyze interactive programs using applets and AWT
3	R1941023	Renewable Energy Systems	R1941023.1	Analyze Solar radiation data & Radiation on Tilted surfaces.
			R1941023.2	Design of Photovoltaic systems and Implementation of MPPT
			R1941023.3	Identify various components of WEC system and Implementation of MPPT to Wind farms.
			R1941023.4	Compare various Hydro systems and Tidal, Wave power generators
			R1941023.5	Illustrate Biomass Combustion Systems and Fuel cell, Geothermal based power generation.
4	R1941024	Utilization of Electrical Energy	R1941024.1	Choose the most efficient illuminating sources and also able to design different lighting schemes.
			R1941024.2	Demonstrate different methods of heating and welding systems in industries.
			R1941024.3	Identify appropriate and desirable motors for electric drives in industries.
			R1941024.4	Illustrate the Speed Time characteristics and to estimate energy consumption of different types of traction motors.
			R1941024.5	Illustrate Various energy storage systems
5	R1941025	High Voltage Engineering	R1941025.1	Able to explain theory of breakdown and withstand phenomenon for all types of dielectric materials.



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S.No	Course Code	Subject	Co. No	Course outcomes
			R1941025.2	Able to illustrate techniques of generation of AC, DC and Impulse voltages and currents
			R1941025.3	Able to apply knowledge for measurement of high AC, DC, Impulse voltages and currents
			R1941025.4	Able to plan to measure dielectric property of materials used in HV equipment
			R1941025.5	Able to organize the testing techniques of various equipment's used in HV engineering
6	R1941026	Linear & Digital IC applications laboratory	R1941026.1	Students are able to interpret the characteristics of ICs-741, 555, 565, 566
			R1941026.2	Students are able to apply the concepts of IC 741 for different applications
			R1941026.3	Students are able to analyze the data connection circuits
			R1941026.4	Students are able to develop the digital circuits
			R1941026.5	Students are able to model the counters & registers using IC's.
7	R1941027	Power System Simulation Laboratory	R1941027.1	Ability to apply iterative techniques for power flow analysis
			R1941027.2	Ability to model and design stability and dynamics of single and two area bus system in power system
			R1941027.3	Able to apply knowledge on Fault analysis.
			R1941027.4	Solve the economic dispatch problems
8	R1941028	Industrial Training /Skill Development Program	R1941028.1	Students are able to identify and analyze the real time system problems
			R1941028.2	Students are able to infer the latest technology and current trends in the field of respective areas
			R1941028.3	Students able to analyze documents and present technical reports
			R1941028.4	Students are able to make use of discussions for assessment of knowledge
			R1941028.5	Students are able to develop professional ethics
9	R1941029	Project-I	R1941029.1	Apply the Electrical Knowledge to solve practical problems
			R1941029.2	Designing the circuit to implement the projects
			R1941029.3	Build the Electrical and Electronics models by simulation/emulation.
			R1941029.4	Design and Implement Engineering Solutions for real time application



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IV Year – II SEMESTER

S.No	Course Code	Subject	CO. No	Course outcomes
1	R1942021	PSOC	R1942021.1	Solve optimal scheduling of thermal and hydro-thermal power plants using Lagrange optimisation technique.
			R1942021.2	Solve optimal unit commitment problem in power plants using Priority Ordering and Dynamic Programming techniques.
			R1942021.3	Design an automatic active power/frequency controller (AGC/ALFC) for single area and two area power systems and analyse its performance.
			R1942021.4	Inspect how reactive power compensation improves the performance of transmission lines.
2	R194205I	Problem Solving Using Python	R194205I.1	Students are able to extend essential programming skills in computer programming concepts like data types, containers and be fluent in the use of Python control flow statements and functions
			R194205I.2	Students are able to develop, run and manipulate python programs by utilizing the core data structures like lists, dictionaries, and use of strings handling methods
			R194205I.3	Students are able to interpret the fundamental notions and techniques used in object-oriented programming
			R194205I.4	Students are able to apply GUI application and how to handle exceptions and files
3	R194202C	FACTS	R194202C.1	Analyze the basics of Power flow control in Transmission lines using FACTS Controllers
			R194202C.2	Relate the performance and applications of VSI & CSI.
			R194202C.3	Analyze the role of shunt and series type FACTS controllers in improving the power system dynamics
			R194202C.4	Analyze the use of control schemes of UPFC and IPFC in improving the power quality
4	R1942024	Project -II	R1942024.1	Apply the Electrical Knowledge to solve practical problems



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S.No	Course Code	Subject	CO. No	Course outcomes
			R1942024.2	Designing the circuit to implement the projects
			R1942024.3	Build the Electrical and Electronics models by simulation/emulation.
			R1942024.4	Design and Implement Engineering Solutions for real time application


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