



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

R20 COURSE OUTCOMES

I Year – I SEMESTER

| S.No | Course Code | Subjects | Co. No | Course Outcomes |
|------|-------------|---|-----------|--|
| 1 | R201102 | Communicative English | R201102.1 | Apply The Four Languages Learning Skills-Listening, Speaking, Reading, Writing (Lsrw) For Professional Success. |
| | | | R201102.2 | Employ Knowledge Of Grammatical Structures And Vocabulary In Speech And Writing |
| | | | R201102.3 | Apply Effective Communication Skills To Enhance Professional Possibilities. |
| | | | R201102.4 | Develop Acceptable Personality Traits Suitable For Chosen Profession. |
| 2 | R201101 | Mathematics -I | R201101.1 | Examine the convergence of series and apply mean value theorem to real life problem. |
| | | | R201101.2 | Solve the Differential Equations of first and higher order related to various engineering applications. |
| | | | R201101.3 | Apply the partial differentiation technique to solve physical problem |
| | | | R201101.4 | Apply double and triple integrals to find areas and volumes. |
| 3 | R201109 | Mathematics-II | R201109.1 | Solve system of linear algebraic equations and apply Eigen value computation techniques to reduce a given quadratic to canonical form |
| | | | R201109.2 | Solve algebraic and Transcendental equations by using Numerical methods |
| | | | R201109.3 | Apply Newton's forward and backward interpolation and Lagrange's formula for equal and unequal intervals. |
| | | | R201109.4 | Computer numerical solutions of differential equations. |
| 4 | R201110 | Programming for Problem Solving Using C | R201110.1 | Able to understand the fundamental concepts of computers and C language constructs |
| | | | R201110.2 | Able to apply the concepts of C constructs Homogeneous and heterogeneous data types and pointers for solving the given problems |
| | | | R201110.3 | Able to divide a given problem into modules using C constructs and functions to develop modular reusable code. |
| | | | R201110.4 | Able to analyze the problem, choose appropriate C constructs and use the file system to solve mathematical and engineering problems accordingly. |
| 5 | R201111 | Engineering Design | R201111.1 | Construct polygons, scales and draw curves used in engineering applications |
| | | | R201111.2 | Apply concept of orthographic projection to project points and lines inclined to both reference planes. |



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|---|---------|---|-----------|---|
| | | | R201111.3 | Apply concept of orthographic projections of planes inclined to both the reference planes. |
| | | | R201111.4 | Apply concept of orthographic projections of solids inclined to both the reference planes. |
| | | | R201111.5 | Draw isometric view of objects from orthographic views and vice versa |
| 6 | R201106 | English Communications Skill Laboratory | R201106.1 | Recognize the sounds of English with the help of audio visual aids |
| | | | R201106.2 | Build confidence and overcome inhibitions while speaking in English. |
| | | | R201106.3 | Demonstrate acquired language skills in performing the designated activity. |
| 7 | R201112 | Electrical Engineering Workshop | R201112.1 | To understand the limitations, tolerances, safety aspects of electrical systems and wiring. |
| | | | R201112.2 | Ability to Select wires/cables and other accessories used in different types of wiring. |
| | | | R201112.3 | To understand the basic concepts of electrical circuits and able to measure current, voltage and power in a circuit |
| 8 | R201113 | Programming for Problem Solving Using C LAB | R201113.1 | Able to understand the concepts of C language |
| | | | R201113.2 | Able to apply the C language constructions for simple problems |
| | | | R201113.3 | Able to apply C constructs like homogeneous, heterogeneous data for a given mathematical problem |
| | | | R201113.4 | Able to analysis a given scenario using functions & file concepts |



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I Year – II SEMESTER

| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|--|-----------|--|
| 1 | R201206 | Mathematics-III | R201206.1 | Apply the concepts of vector calculus to the problems of work done by a force, circulation and flux |
| | | | R201206.2 | Apply Laplace Transforms to solve the ordinary differential equations |
| | | | R201206.3 | Compute Fourier series of the periodic function and Apply Fourier transform to a range of non-periodic function. |
| | | | R201206.4 | Solve the first and higher order partial differential equations and apply to various physical problems |
| 2 | R201207 | Applied Physics | R201207.1 | Apply the knowledge of different optical phenomena in daily life. |
| | | | R201207.2 | Distinguish between laser sources and conventional sources and study the propagation of light through optical fibers. |
| | | | R201207.3 | Explain fundamental concepts of quantum mechanics and analyze the behaviour of electron in metals according to various theories |
| | | | R201207.4 | Summarize magnetic & dielectric material properties and recognize their need in engineering applications. |
| | | | R201207.5 | Understand electrons & holes behaviour in semiconductors and extraordinary behaviour of materials at various transition temperatures |
| 3 | R201208 | Data Structure Through C | R201208.1 | Describe how arrays, records, linked structures, stacks, queues, trees and graphs are represented in memory and used by algorithm |
| | | | R201208.2 | Discuss the computational efficiency of the principal algorithms for sorting ,searching and hashing |
| | | | R201208.3 | Demonstrate different methods for traversing trees and graphs |
| | | | R201208.4 | Solve various algorithm design techniques for developing algorithms |
| 4 | R201209 | Electrical Circuit Analysis-1 | R201209.1 | able to solve problems on nodal ,mesh analysis and other network reduction techniques |
| | | | R201209.2 | Able to differentiate between electric and magnetic circuits |
| | | | R201209.3 | Able to understand power factor and its significance |
| | | | R201209.4 | Able to solve problems on resonance and network theorems |
| 5 | R201227 | Basic Civil And Mechanical Engineering | R201227.1 | Familiarize about Shear force diagram & Bending moment diagrams for various beams. |
| | | | R201227.2 | Apply concepts of Rosette analysis for strain measurements. |
| | | | R201227.3 | Analyze the characteristics of common building materials |
| | | | R201227.4 | Explain the working characteristics of Internal Combustion engines. |
| | | | R201227.5 | Distinguish the differences between boiler mountings and |



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|------|-------------|--|-----------|--|
| | | | | accessories. |
| 6 | R201233 | Applied Physics Lab | R201233.1 | Apply the knowledge of different phenomena of light like interference, diffraction and handle various optical measuring instruments. |
| | | | R201233.2 | Analyze various electronic circuits and study the temperature dependence of semiconductors. |
| | | | R201233.3 | Apply the knowledge of phenomena like LASER diffraction and measure the numerical aperture of an optical fibre |
| 7 | R201251 | Basic Civil and mechanical engineering lab | R201251.2 | Solve to arrive at finding constant speed and variable speed on IC engines and interpret their performance |
| | | | R201251.2 | Estimate energy distribution by conducting heat balance test on IC engines |
| | | | R201251.3 | Determine flow discharge measuring device used in pipes channels and tanks |
| | | | R201251.4 | Test for performance of pumps and turbines by using concepts of fluid mechanics |
| 8 | R201234 | Data Structure Through C lab | R201234.1 | To develop skills to design and analyze simple linear and non linear data structures |
| | | | R201234.2 | To Strengthen the ability to identify and apply the suitable data structure for the given real world problem |
| | | | R201234.3 | To Gain knowledge in practical applications of data structures |



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II Year – I SEMESTER

| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|---------------------------------|------------|--|
| 1 | R2021021 | Mathematics IV | R2021021.1 | Apply the concepts of analytic functions, sequences and series of the complex functions |
| | | | R2021021.2 | Apply various probability distributions for both discrete and continuous random variable |
| | | | R2021021.3 | Apply the terms of the sampling distribution and test the hypothesis for small samples |
| | | | R2021021.4 | Apply the terms of the sampling distribution and test the hypothesis for large samples |
| 2 | R2021022 | Electronic Devices and Circuits | R2021022.1 | Able to demonstrate the basic concept of diodes and transistors. |
| | | | R2021022.2 | Able to summarize the operation of rectifiers with and without filters. |
| | | | R2021022.3 | Ability to analyze various characteristics of different configurations of transistors. |
| | | | R2021022.4 | Able to analyze oscillators and amplifiers. |
| | | | R2021022.5 | Able to illustrate the concepts of MOSFET, IGBT, FET etc |
| 3 | R2021023 | Electrical Circuit Analysis -II | R2021023.1 | Classify different forms of electrical circuits based on components, supply and structures. |
| | | | R2021023.2 | Determine the response of different electrical circuits. |
| | | | R2021023.3 | Analyze the response of Electrical circuits with different excitations using Laplace Transforms. |
| | | | R2021023.4 | Evaluate electrical equivalent network for the given transfer function & network parameters. |
| 4 | R2021024 | DC Machines and Transformers | R2021024.1 | Summarize the basics and principle of operation of DC machines and Transformer |
| | | | R2021024.2 | Distinguishing the fundamental parts of DC machines and Transformer |
| | | | R2021024.3 | Explain the Performance of DC machines and Transformer |
| | | | R2021024.4 | Identify possible applications of different DC machines and Transformers for a given requirement |
| 5 | R2021025 | Electro Magnetic Fields | R2021025.1 | Demonstrate knowledge on basic laws in electro statics, magneto statics fields. |
| | | | R2021025.2 | Determine the electric field and magnetic field quantities for different charge/Current configurations. |
| | | | R2021025.3 | Differentiate and analyze the forces, torques, energy stored in electro static fields and Magneto static fields. |
| | | | R2021025.4 | Illustrate Electrostatics and Magneto static boundary conditions and develop the concepts of capacitances and inductances. |
| | | | R2021025.5 | Determine the energy of electromagnetic wave and learn the concepts on Time varying fields. |



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| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|---|------------|--|
| 6 | R2021026 | Electrical Circuits Laboratory | R2021026.1 | Apply and Verify the Principals of various theorems. |
| | | | R2021026.2 | Solve Self & Mutual inductance ,Various Parameter for Electrical Network |
| | | | R2021026.3 | Analyze the characteristics of resonant circuits |
| 7 | R2021027 | DC Machines and Transformers lab | R2021027.1 | Examine the characteristics of different dc machines transformers and predict specific applications of those machines accordingly. |
| | | | R2021027.2 | Compare the speed control method of different types of DC motors |
| | | | R2021027.3 | Estimating the parameters of equivalent circuit of transformers |
| | | | R2021027.4 | Identify various losses in dc machines and transformers by conducting suitable tests. |
| 8 | R2021028 | EDC Lab | R2021028.1 | Analyze the operation of devices like diodes, transistors, BJT, UJT and FETs practically. |
| | | | R2021028.2 | Design electronic circuits using basic devices |
| | | | R2021028.3 | Illustrate the construction and working of CRO |
| 9 | R2021029 | Skill Oriented Course –I Design of Electrical Circuits using Engineering Software Tools | R2021029.1 | Develop the Matlab programs to analyze the electrical circuit problems |
| | | | R2021029.2 | Construct various electrical circuits using simulation tool. |
| | | | R2021029.3 | Compare resonant parameters for RLC series and parallel resonance circuits. |
| 10 | R202101A | Community service Project | R202101A.1 | Ability to develop a solution to the technological problems of society. |
| | | | R202101A.2 | Able to make use of technological change which suits current need of society |
| | | | R202101A.3 | Able to explain new technologies available for problems of the society |



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II Year – II SEMESTER

| S.No | Course Code | Subjects | CO. No | Course outcomes |
|------|-------------|------------------------------------|------------|---|
| 1 | R2022021 | Python Programming | R2022021.1 | Summarize the fundamental concepts of python programming |
| | | | R2022021.2 | Solve coding tasks related conditional execution, loops and functions |
| | | | R2022021.3 | Apply various data structures in developing solutions to real time scenarios. |
| | | | R2022021.4 | Analyze files, object oriented concepts in python, Outline Exception handling concepts and GUI applications in Python. |
| 2 | R2022022 | Digital Electronics | R2022022.1 | Classify different number systems and apply to generate various codes. |
| | | | R2022022.2 | Apply the concept of Boolean algebra in minimization of functions |
| | | | R2022022.3 | Design different types of combinational logic circuits. |
| | | | R2022022.4 | Apply knowledge of flip-flops in designing of registers and counters. |
| | | | R2022022.5 | Analyse the operation and design methodology for sequential circuits |
| 3 | R2022023 | Power System-I | R2022023.1 | Explain the construction and principle of operation of different power generating stations |
| | | | R2022023.2 | Ability to explain the function of various sections of different power stations |
| | | | R2022023.3 | Ability to design and estimate different power substations |
| | | | R2022023.4 | Illustrate different economic aspects and tariff |
| 4 | R2022024 | Induction and Synchronous Machines | R2022024.1 | Annotating the construction and principle of operation of different kinds of rotating AC machines |
| | | | R2022024.2 | Ability to experimenting on Ac Machines to find the performance characteristics. |
| | | | R2022024.3 | Appraise the purpose for parallel operation of generators and learn the conditions to be satisfied. |
| | | | R2022024.4 | Illustrate the construction, operation and characteristics of commonly used special purpose machines. |
| 5 | R2022015 | MEFA | R2022015.1 | Able to determine the objectives and able to know the nature and scope of Managerial Economics, Predict the demand of products and services by using different methods |
| | | | R2022015.2 | Examine Optimum Production, economies of scale, production, production functions, optimum size of the firm, cost, cost behavior and Break Even Point. |
| | | | R2022015.3 | Identify the price and market structure, behavior of consumer and producer under competitive market situations |
| | | | R2022015.4 | Discuss 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 |



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|------|-------------|---|------------|--|
| | | | R2022015.5 | Outline the steps, methods & sources of raising capital by business undertaking |
| 6 | R2022025 | Python Programming Lab | R2022025.1 | Summarize the basic concepts of Python programming language |
| | | | R2022025.2 | Apply various data structures in developing solutions to real time scenarios |
| | | | R2022025.3 | Analyze various concepts of functions, make use of packages, object oriented concepts in python programming and Outline Exception handling concepts. |
| | | | R2022025.4 | Design the usage of pattern matching, GUI in python programming. |
| 7 | R2022026 | Induction and Synchronous Machines lab | R2022026.1 | choosing methods for testing of different electrical machines to identify their performance |
| | | | R2022026.2 | estimating equivalent circuit parameters of three phase Induction motor |
| | | | R2022026.3 | Experimenting the process of 'synchronization' of a generator to the live bus bar and method of starting a synchronous motor. |
| | | | R2022026.4 | distinguish the operational features of synchronous machines and induction machines. |
| 8 | R2022027 | Digital Electronics Laboratory | R2022027.1 | Summarize the basic gates and verify their functionalities. |
| | | | R2022027.2 | Apply Boolean laws to simplify the digital circuits. |
| | | | R2022027.3 | Apply the design procedures to design basic combinational circuits. |
| | | | R2022027.4 | Apply the design procedures to design basic sequential circuits. |
| 9 | R2022028 | Skill Oriented Course -II Internet OF Things Applications to Electrical Engineering | R2022028.1 | Analyze various technologies of Internet of Things to real time applications. |
| | | | R2022028.2 | Experiment with various communication technologies used in the Internet of Things. |
| | | | R2022028.3 | Analyze the IoT environment which Connect the devices using web and internet. |
| | | | R2022028.4 | Develop the Smart Home, Smart city using IoT concepts. |



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III Year – I SEMESTER

| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|----------------------------|------------|---|
| 1 | R2031021 | Power Systems-II | R2031021.1 | Student is able to determine the parameters of transmission lines for various configurations. |
| | | | R2031021.2 | Student is able to Evaluate the performance of short, medium and long transmission lines. |
| | | | R2031021.3 | Student is be able to Analyze the transients in power transmission systems. |
| | | | R2031021.4 | Student is able to Assess the effect of various factors on the performance of transmission lines. |
| | | | R2031021.5 | Student is able to Design power transmission towers and insulators for different voltage levels & climatic conditions. |
| 2 | R2031022 | Power Electronics | R2031022.1 | Able to Explain characteristics of various power electronic elements and able to build simple power electronic circuits |
| | | | R2031022.2 | Able to Analyze the operation and waveforms for phase-controlled converters. |
| | | | R2031022.3 | Able to Analyze the operation and waveforms choppers and inverters |
| | | | R2031022.4 | Able to Illustrate AC voltage regulators and cyclo converters operation |
| | | | R2031022.5 | Able to Apply knowledge of modulation techniques for inverters in real time projects. |
| 3 | R2031023 | Control Systems | R2031023.1 | Classify different types of Control Systems |
| | | | R2031023.2 | Illustrate Transfer function model and state space model of linear Control systems |
| | | | R2031023.3 | Determination of Time and frequency response specifications of Linear Control Systems |
| | | | R2031023.4 | Analyses absolute and relative stability of LTI and MIMO systems |
| | | | R2031023.5 | Design Compensators to improve System Response |
| 4 | R2031024 | Control Systems Laboratory | R2031024.1 | Illustrate to find time response of given control system model |
| | | | R2031024.2 | Design of Lead, Lag compensators in control systems |
| | | | R2031024.3 | Analyze Root Locus, Bode plots and nyquist plot for given control system using matlab |
| | | | R2031024.4 | Examine the basic knowledge on practical control system applications like AC & DC servo motor, synchro and magnetic amplifier |
| | | | R2031024.5 | Evaluate system performance using PID controllers for given control system using simulation tool |
| 5 | R2031025 | Power | R2032025.1 | Able to Explain the basic operation of various power |



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| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|--|------------|---|
| | | Electronics Laboratory | | semiconductor devices |
| | | | R2032025.2 | Able to analyze the performance of different AC-DC power electronic circuits for different loads |
| | | | R2032025.3 | Able to analyze the performance of different DC-DC power electronic circuits for different loads |
| | | | R2032025.4 | Able to distinguish the working of Buck and Boost Converters, Cycloconverters and AC voltage controller for different Loads |
| | | | R2032025.5 | Able to distinguish the working of Square wave Inverter and Pwm Inverter |
| 6 | R2031026 | Soft Skill Course Employability Skills | R2031026.1 | Students are able to solve problems by following strategies in minimizing time consumption in problem solving and shortcut methods. |
| | | | R2031026.2 | Students are able to solve any mathematical problems and utilize these mathematical skills both in their professional as well as personal life. |
| | | | R2031026.3 | Students are able to analyze, summarize and present information in quantitative forms including table, graphs and formulas |
| | | | R2031026.4 | Students are able to classify the core competencies to succeed in professional and personal life |
| 7 | R2031028 | Summer Internship | R2031028.1 | Gained a better make use of the engineering applications at workplace |
| | | | R2031028.2 | Developed and demonstrated workplace competencies necessary for professional and academic success |
| | | | R2031028.3 | Choose your career preferences and professional goals |
| | | | R2031028.4 | Identify your competitiveness for full-time engineering employment |
| | | | R2031028.5 | Ability to analyze real life challenges by making effective decisions at the organizations |
| 8 | R203102B | Utilization of Electrical Energy | R203102B.1 | Explain the efficient illuminating sources and also able to design different lightning systems. |
| | | | R203102B.2 | Demonstrate different methods of heating and welding systems in industries. |
| | | | R203102B.3 | Identify appropriate and desirable motors for electric drives in industrial applications. |
| | | | R203102B.4 | Explain Speed-Time characteristics and to estimate energy consumption of different types of traction motors. |
| | | | R203102B.5 | Illustrate Various Energy Storage Systems. |
| 9a | R203103G | Sustainable Energy Technologies | R203103G.1 | Explain the importance of solar energy collection and storage |
| | | | R203103G.2 | Apply the principles of wind energy and biomass energy |
| | | | R203103G.3 | Analyze knowledge on geothermal and ocean energy. |



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|------|-------------|-----------------|------------|---|
| | | | R203103G.4 | Justify the knowledge about energy efficient systems. |
| | | | R203103G.5 | Discuss the concepts of green manufacturing systems. |
| 9b | R20304M | IC Applications | R20304M.1 | Outline the linear and non-linear applications of operational amplifiers. |
| | | | R20304M.2 | Discover the applications of op-amp:555timer,PLL |
| | | | R20304M.3 | Compare differ types of analog to digital & digital to analog converters |
| | | | R20304M.4 | Design the digital applications using digital ICs. |



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III Year – II SEMESTER

| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|---|------------|--|
| 1 | R2032021 | Microprocessors & Microcontrollers | R2032021.1 | Compare the architectural features of programming concepts of 8086, 80286, 80386, 80486 and PENTIUM microprocessors. |
| | | | R2032021.2 | Develop the assembly language program for 8086 microprocessors. |
| | | | R2032021.3 | Analyze the concepts of 8086 microprocessor interfacing with memory and peripherals. |
| | | | R2032021.4 | Compare the architectural programming concepts of 8051, and PIC controllers. |
| 2 | R2032022 | Electrical Measurements and Instrumentation | R2032022.1 | Summarize the operating principle and working of different types of instruments for measuring of electrical quantities |
| | | | R2032022.2 | To analyze the working principle for different types of instruments Wattmeter, power factor meters, potentiometers. |
| | | | R2032022.3 | To analyse the principle and operation of various types of bridges to measure resistance, inductance, capacitance and frequency |
| | | | R2032022.4 | Explain the operating principle and working of transducers |
| | | | R2032022.5 | Illustrate the operating principle and working of Digital meters |
| 3 | R2032023 | Power System Analysis | R2032023.1 | Analyze Per Unit representation of Power System |
| | | | R2032023.2 | Develop the network Matrix and apply the load flow Studies. |
| | | | R2032023.3 | Determine the Symmetrical Components and Unsymmetrical Components of Power system. |
| | | | R2032023.4 | Explain the various types of faults on an unloaded alternator. |
| | | | R2032023.5 | Apply the concepts of Power System Stability swing equation, critical clearing angle calculation elementary real world applications. |
| 4 | R2032024 | Electrical Measurements and Instrumentation Lab | R2032024.1 | Ability to select right type of instrument for measurement of voltage, power, current, energy for A.C&D.C. |
| | | | R2032024.2 | Ability to test meters and select suitable bridge for measurement of electrical parameters. |
| | | | R2032024.3 | Ability to design bridges for measurement of resistance, inductance and capacitance. |
| | | | R2032024.4 | Ability to do experiment with trainer kit for measurement of displacement, strain and dielectric strength of oil |
| 5 | R2032025 | Microprocessors & Microcontrollers Lab | R2032025.1 | Ability to develop assembly language program using 8086 microprocessor |
| | | | R2032025.2 | Ability to interpret 8086 with I/O and other devices. |
| | | | R2032025.3 | Ability to develop assembly language program using 8051 microcontroller. |



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| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|---|------------|--|
| 6 | R2032026 | PSS LAB | R2032026.1 | Ability to apply iterative techniques for power flow analysis |
| | | | R2032026.2 | Ability to model and design stability and dynamics of single and two area bus system in power system |
| | | | R2032026.3 | Ability to acquire knowledge on Fault analysis. |
| | | | R2032026.4 | Solve the economic dispatch problems |
| 7 | R2032027 | Skill Advanced Course: Machine Learning with Python | R2032027.1 | Illustrate and comprehend the basics of Machine Learning with Python |
| | | | R2032027.2 | Demonstrate the algorithms of Supervised Learning and be able to differentiate linear and logistic regressions |
| | | | R2032027.3 | Demonstrate the algorithms of Unsupervised Learning and be able to understand the clustering algorithms |
| | | | R2032027.4 | Evaluate the concepts of binning, pipeline Interfaces with examples |
| | | | R2032027.5 | Apply the sentiment analysis for various case studies |
| 8 | R203202D | Switchgear & Protection | R203202D.1 | Illustrate principle, construction, and working of various types of high-voltage circuit breakers. |
| | | | R203202D.2 | Illustrate, principle, construction, and working of various types of electromagnetic protective relays, and basics of static relays. |
| | | | R203202D.3 | Apply electromagnetic relays to protect generator and transformers for different fault conditions. |
| | | | R203202D.4 | Apply electromagnetic relays to protect feeder and busbars for different fault conditions. |
| | | | R203202D.5 | Explain over voltage protective schemes and types of neutral grounding |
| 9 | R203204G | Principles of Signal Processing | R203204G.1 | Use FFT algorithm for solving DFT of a given signal |
| | | | R203204G.2 | Design a Digital Filter (FIR & IIR) from the given Specifications |
| | | | R203204G.3 | Realize the FIR and IIR Structures from the designed Digital filters. |
| | | | R203204G.4 | Applications of Multirate Processing |
| | | | R203204G.5 | Apply the Adaptive Signal Processing concepts to various signal Processing applications |



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IV Year – I SEMESTER

| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|---|------------|--|
| 1 | R2041011 | Universal Human Values-2 | R2041011.1 | Recall once again to have a clear perspective of human values and this is conducive for more aware of themselves and also their surroundings like family, society and nature. |
| | | | R2041011.2 | Demonstrate their efficiency and responsiveness in dealing with the new situations and problems in real life with good and better solutions. |
| | | | R2041011.3 | Apply the acquired knowledge on the subject, the students might have better ability and critical assessment on their new situations, problems and happenings cropping up from time to time |
| | | | R2041011.4 | Test their sensitiveness and commitment towards what they understood about human values, human relationships and human society. |
| | | | R2041011.5 | Adapt what they have learnt about human values in their real life and hope a small beginning may be made in this value-centric direction. |
| 2 | R204102C | Flexible Alternating Current Transmission Systems | R204102C.1 | Analyze the basics of Power flow control in Transmission lines using FACTS Controllers |
| | | | R204102C.2 | Relate the performance and applications of VSI & CSI. |
| | | | R204102C.3 | Analyze the role of shunt and series type FACTS controllers in improving the power system dynamics |
| | | | R204102C.4 | Analyze the use of control schemes of UPFC and IPFC in improving the power quality |
| 3 | R204102G | High Voltage Engineering | R204102G.1 | Demonstrate the dielectric properties of gaseous materials used in HV equipment |
| | | | R204102G.2 | Explains the breakdown phenomenon in liquid and solid dielectric materials |
| | | | R204102G.3 | Identify the techniques of generation of high AC and DC voltages |
| | | | R204102G.4 | Identify the techniques of generation of high impulse voltages and currents |
| | | | R204102G.5 | Select suitable methods for measurement of high AC – DC – Impulse voltages and currents. |
| 4 | R204102I | Power System Operation & Control | R204102I.1 | Determine optimal scheduling of thermal & Hydro-thermal power plants using Lagrange optimization technique |
| | | | R204102I.2 | Solve optimal unit commitment problem in power plants using Priority ordering & Dynamic Programming techniques |
| | | | R204102I.3 | Design an automatic active power/frequency controller (AGC/ALFC) for single area & two area power systems and analyze its performance |
| | | | R204102I.4 | Evaluate how reactive power compensation improves the performance of transmission line |
| 5 | R204104Q | IOT & Applications | R204104Q.1 | Illustrate Fundamentals, architecture and various technologies of Internet of Things |



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| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|--|------------|--|
| | | | R204104Q.2 | Analyze various Communication technologies used in IOT |
| | | | R204104Q.3 | Applying the connectivity of Devices using Bluetooth and internet in the IOT environment |
| | | | R204104Q.4 | Explain the various data acquisition methods, data handling using cloud for IOT |
| | | | R204104Q.5 | Experiment with IOT in several case studies like smart home, smart city etc. |
| 6 | R204104U | Basic Electronics | R204104U.1 | Able to Analyze types of Diodes |
| | | | R204104U.2 | Able to Analyze applications of diodes |
| | | | R204104U.3 | Able to explain concept of transistors |
| | | | R204104U.4 | Able to Apply transistor for different types of applications |
| | | | R204104U.5 | Able to Analyze the applications of JFET and MOSFET |
| | | | R204104U.6 | Able to Illustrate the various concepts of modern power electronic devices to society |
| 7 | R204102Q | Skill Advanced Course Machine Learning with Python Lab | R204102Q.1 | Apply a procedures for the machine learning algorithms |
| | | | R204102Q.2 | Design and Develop Python programs for various Learning algorithms |
| | | | R204102Q.3 | Apply appropriate data sets to the Machine Learning algorithms |
| | | | R204102Q.4 | Develop Machine Learning algorithms to solve real world problems |
| 8 | R204102R | Industrial Training | R204102R.1 | Students can identify and analyze the real time system problems |
| | | | R204102R.2 | Students can make use of the latest technology and current trends in the field of respective areas |
| | | | R204102R.3 | Students can analyze the documents and present technical reports |
| | | | R204102R.4 | Students can analyze discussions for assessment of knowledge |
| | | | R204102R.5 | Students can apply professional ethics |



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IV Year – II SEMESTER

| S.No | Course Code | Subjects | Co. No | Course outcomes |
|------|-------------|----------|-----------|--|
| 1 | R204201 | Project | R204201.1 | Apply the Electrical Knowledge to solve practical problems |
| | | | R204201.2 | Designing the circuit to implement the projects |
| | | | R204201.3 | Build the Electrical and Electronics models by Simulation/Emulation. |
| | | | R204201.4 | Design and Implement Engineering Solutions for real time application |


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