# Course Outcomes

**Batch: 2023-27** **A.Y: 2023-24**

| Course Outcomes (I Year- I Sem) | | |
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| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Engineering Physics (23A0003T)** | | |
| C111.1 | Analyze the intensity variation of light due to polarization, interference anddiffraction. | Analyze |
| C111.2 | Familiarize with the basics of crystals and their structures. | Understand |
| C111.3 | Summarize various types of polarization of dielectrics and classify the magnetic materials. | Understand |
| C111.4 | Apply fundamentals of quantum mechanics to one dimensional motion of particles. | Apply |
| C111.5 | Identify the type of semiconductor using Hall effect and explain Superconductivity. | Remember |
| **Linear Algebra and Calculus (23A0001T)** | | |
| C112.1 | Solving systems of linear equations that is needed by engineers for practical applications. | Apply |
| C112.2 | Find the eigen values and eigen vectors to facilitate the calculation of matrix characteristics. | Apply |
| C112.3 | Utilize mean value theorems to real life problems. | Understand |
| C112.4 | Apply the technique of partial differentiation to find the Jacobian and the extreme values of functions of several variables. | Apply |
| C112.5 | Apply the techniques of multiple integrals to find the areas and volumes. | Apply |
| **Introduction to Programming (23A0501T)** | | |
| C113.1 | Understand various programming paradigms and environment required for solving problems and also formulates an algorithm / flowchart for the problems. | Understand |
| C113.2 | Understand the basic concepts of C programming language. | Understand |
| C113.3 | Choose the best programming constructs for solving the given problem | Apply |
| C113.4 | Formulate C programs to demonstrate the applications of derived data types such as arrays, strings. | Apply |
| C113.5 | Distinguish between the concepts of structures, unions, user defined data types and also use the concepts of pointers | Analyze |
| C113.6 | Solve a problem by dividing it into functions and also demonstrate the basic concepts of files. | Apply |
| **Basic Electrical & Electronics Engineering (23A0201T)** | | |
| C114.1 | Analyse simple electrical circuits with DC excitation, Network theorems and simple AC circuits consists of RL,RC and RLC elements | Analyze |
| C114.2 | Explain construction and operation of AC and DC machines, measuring instruments | Understand |
| C114.3 | Understand about different power generation mechanisms, Electricity billing concept and safety measures related to electrical operations | Understand |
| C114.4 | Understand the characteristics of Semiconductor diodes, Zener diodes and BJT | Understand |
| C114.5 | Understand the characteristics of rectifiers, amplifiers and Electronic Instrumentation | Understand |
| C114.6 | Understand the number systems codes, Boolean algebra and logic gates, | Understand |

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| | working mechanism of different combinational, sequential circuits. | |
| **Engineering Graphics (23A0301)** | | |
| C115.1 | Explain the Principles of Engineering Graphics and sketch the various Curves used in Engineering Practice | Understand |
| C115.2 | Construct the projections of points in different quadrants. | Understand |
| C115.3 | Construct the projections of lines and planes in different orientations | Understand |
| C115.4 | Construct the projections of solids in different orientations | Apply |
| C115.5 | Construct the sectional views and development of lateral surface of simple solids in different orientations | Apply |
| C115.6 | Construct the isometric and orthographic views and their conversions | Apply |
| **Electrical & Electronics Engineering Workshop (23A0202P)** | | |
| C116.1 | Experimentally verify the basic circuit theorems, KVL, KCL and Super Position theorem. | Analyze |
| C116.2 | Draw the open circuit characteristics of DC shunt Generator circuits Experimentally. | Understand |
| C116.3 | Apply the theoretical concepts to obtain calculations for the measurement of resistance, power and power factor and calculation of Electrical Energy for Domestic Premises. | Apply |
| C116.4 | understand the characteristics of Different semiconductor devices like PN junction diode, Zener diode ,BJT by conducting Suitable Experiments. | Understand |
| C116.5 | Experimentally verify the working of Half wave and Full wave Rectifier by using PN junction Diodes. | Analyze |
| | Understand the characteristics of various electronic devices andexplain the operation of a digital circuit. | Understand |
| **IT Workshop (23A0503P)** | | |
| C117.1 | Perform Hardware trouble shooting. | Apply |
| C117.2 | Understand Hardware components and interdependencies. | Understand |
| C117.3 | Safeguard computer systems from viruses/worms. | Understand |
| C117.4 | Document/ Presentation preparation. | Apply |
| C117.5 | Perform calculations using spreadsheets. | Apply |
| **Engineering Physics Lab (23A0006P)** | | |
| C118.1 | Operate optical instruments and measure the wavelength of Light sources. | Evaluate |
| C118.2 | Estimate dielectric constant of capacitor and magnetic induction of current carrying coil | Apply |
| C118.3 | Identify the type of semiconductor and calculate band gap of it. | Remember |
| C118.4 | Evaluate Acceleration due to gravity and different modulus of materials. | Evaluate |
| C118.5 | Measure the frequency of tuning fork and verify the laws in Sonometer. | Evaluate |
| **Computer Programming Lab (23A0502P)** | | |
| C119.1 | Identify various programming environments to implement programming concepts. | Understand |
| C119.2 | Interpret the algorithms and flowcharts to the given problem. | Apply |
| C119.3 | Apply decision-making and looping constructs for developing the C programs. | Apply |
| C119.4 | Identify different data-structures such as arrays, strings, structures, unions and pointers for solving problems. | Apply |
| C119.5 | Divide the problem into simpler tasks to provide solutions. | Apply |
| C119.6 | Understand memory allocation techniques and use of files to deal with dynamic memory allocation problems. | Understand |

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## Course Outcomes

**Batch: 2022-26** **A.Y: 2023-24**

| Course Outcomes (II Year- I Sem) | | |
|---|---|---|
| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Complex Variables and Numerical Methods (22A0015T)** | | |
| C211.1 | Understand the functions of complex variables and its properties, analyticity of complex functions. | Understand |
| C211.2 | Understand the integration of complex functions; apply Cauchy's integral theorem &Cauchy's integral formula, singularity of complex functions. | Understand |
| C211.3 | Applying Residue theorem to find the improper integrals of complex functions. | Apply |
| C211.4 | Applying interpolation formula, find interpolating polynomials &solve differentiation and integration numerically. | Apply |
| C211.5 | Solve differential equations numerically. | Apply |
| **Probability Theory and Stochastic Processes (22A0020T)** | | |
| C212.1 | Understanding the concepts of Probability, Random Variables, Random Processes and their characteristics learn how to deal with multiple random variables, conditional probability, joint distribution and statistical independence. | Understand |
| C212.2 | Formulate and solve the engineering problems involving random variables and random processes. | Apply |
| C212.3 | Analyze various probability density functions of random variables. | Analyze |
| C212.4 | Derive the response of linear system for Gaussian noise and random signals as inputs. | Apply |
| C212.5 | Understand and analyze continuous and discrete-time random processes. | Understand |
| C212.6 | Evaluate the single and multiple random variable concepts to expectation, variance and moments. | Evaluate |
| **Signals and Systems (22A0404T)** | | |
| C213.1 | Describe the mathematical description and Fourier series representation of continuous-time and discrete-time signals. | Understand |
| C213.2 | Change the signals and sequences from time-domain to frequency-domain using the concepts of Fourier transform techniques. | Apply |
| C213.3 | Use the sampling theorem to convert continuous-time signals into discrete-time signals. | Apply |
| C213.4 | Examine the time-domain signals, S-domain signals and its RoC using the concepts of Laplace transform techniques. | Analyze |
| C213.5 | Describe the system and impulse response, output response for input signals. | Understand |
| C213.6 | Examine the time-domain sequences, Z-domain sequences and its RoC using the concepts of Z-transform techniques. | Analyze |

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| **Digital Logic Design (22A0405T)** | | |
| C214.1 | Understand various types of Code conversions. | Understand |
| C214.2 | Apply the Boolean theorems to Simplify Complex Boolean Function through logical gates. | Apply |
| C214.3 | Design and implement various logical devices using combinational circuits. | Create |
| C214.4 | Design and implement various logical devices using sequential circuits. | Create |
| C214.5 | Analyze sequential circuits like Registers and Counters using flip-flops. | Analyze |
| C214.6 | Demonstrate and compare the construction of programmable logic devices and different types of ROM. | Apply |
| **Universal Human Values (22A0021T)** | | |
| C215.1 | Understand and analyse the essentials of human values and skills, self exploration, happiness and prosperity. | Understand |
| C215.2 | Evaluate coexistence of the "I" with the body. | Evaluate |
| C215.3 | Identify and evaluate the role of harmony in family, society and universal order. | Understand |
| C215.4 | Understand and associate the holistic perception of harmony at all levels of existence. | Understand |
| C215.5 | Develop appropriate technologies and management patterns to create harmony in professional and personal lives. | Create |
| C215.6 | Understand the harmony in the human being, family, society and nature/existence. | Understand |
| **Analog Circuits (22A0406T)** | | |
| C216.1 | Understand the characteristics of multistage amplifiers. | Understand |
| C216.2 | Determine the response of tuned amplifiers and multivibrators. | Apply |
| C216.3 | Analyze the response of tuned amplifiers and multivibrators | Analyze |
| C216.4 | Design amplifiers using BJT & MOSFETs at low and high frequencies. | Create |
| C216.5 | Compare different oscillator circuits based on the application. | Evaluate |
| C216.6 | Design the electronic circuits for the given specifications and for a given application. | Create |
| **Simulation Lab (22A0407P)** | | |
| C217.1 | Develop various standard signals and sequences, random data and Gaussian noise. | Apply |
| C217.2 | Perform various operations on signals and sequences. | Apply |
| C217.3 | Find Trigonometric Fourier series, exponential Fourier series, Fourier transform, convolution, autocorrelation and cross correlation on signals/sequences | Apply |
| C217.4 | Examine linearity, time invariance of a continuous/discrete system. | Analyze |
| C217.5 | Observe the magnitude, phase and response of LPF &HPF. | Analyze |
| C217.6 | Examine sampling theorem and stability of a signal. | Analyze |
| **Digital Logic Design Lab (22A0408P)** | | |
| C218.1 | Know the basic operation of gates. | Understand |
| C218.2 | Construct basic combinational circuits and verify their functionalities | Create |

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| C218.3 | Apply the design procedures to design basic sequential circuits. | Apply |
| C218.4 | Learn about counters. | Remember |
| C218.5 | Learn about Shift registers | Remember |
| C218.6 | Simulate basic digital circuits and to verify their operation in PSPICE /VHDL | Apply |
| **Analog Circuits Lab (22A0409P)** | | |
| C219.1 | Know about the usage of equipment/components used to conduct the experiments in analog circuits. | Understand |
| C219.2 | Conduct the experiment based on the knowledge acquired in the theory about various analog circuits using BJT to find the important parameters of the circuit experimentally. | Apply |
| C219.3 | Design and develop electronic circuits such as feedback amplifiers, oscillators and power ampliers for the given specifications. | Create |
| C219.4 | Compare the experimental results with that of theoretical ones and infer the conclusions. | Analyze |
| C219.5 | Able to analyze and design analog circuits such as Differential Amplifier circuit. | Analyze |
| C219.6 | Draw the relevant graphs between important metrics of the system from the observed measurements. | Understand |
| **Python Programming (22A3205)** | | |
| C2110.1 | Understand various data types like lists, tuples, strings etc. | Understand |
| C2110.2 | Illustrate the practical and contemporary applications using Command Functions. | Apply |
| C2110.3 | Demonstrate the usage of Object-oriented concepts to solve Real-life problems | Understand |
| C2110.4 | Interpret Python packages in developing software applications | Apply |
| C2110.5 | Solve mathematical problems using Python programming language | Apply |
| C2110.6 | Analyze the flow control, looping statements and its functions in Python. | Analyze |
| **Constitution of India (22A0029M)** | | |
| C2111.1 | Understand historical background of the constitution making and its importance for building a democratic India. | Understand |
| C2111.2 | Understand the functioning of three wings of the government i.e., executive, legislative and judiciary. | Understand |
| C2111.3 | Understand the value of the fundamental rights and duties for becoming good citizen of India. | Understand |
| C2111.4 | Analyze the decentralization of power between central, state and local self-government | Analyze |
| C2111.5 | Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy | Apply |
| C2111.6 | Evaluate various commissions viz SC/ST/OBC and women | Evaluate |

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY**
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## Course Outcomes

**Batch: 2021-25** **A.Y: 2023-24**

| Course Outcomes (III Year- I Sem) | | |
|---|---|---|
| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Control Systems Engineering (20A04501)** | | |
| C311.1 | Determine the transfer function for a given system using block diagram and signal flow graph methods | Apply |
| C311.2 | Formulate Mathematical Model for physical systems and control systems concepts | Evaluate |
| C311.3 | Compute the time response of systems and steady state errors | Evaluate |
| C311.4 | Determine the absolute and relative stability of a system using RH Criterion and root loci concepts | Apply |
| C311.5 | Design closed-loop control system to satisfy dynamic performance specifications using frequency response | Analyse |
| C311.6 | Describe the state variable representation of physical system and solve the state equation | Understand |
| **Digital Signal Processing (20A04502T)** | | |
| C312.1 | Understand the basic concepts of discrete-time signals and systems, classify systems based on their properties. | Understand |
| C312.2 | Determine the frequency response for the given LTI systems using difference equations and also plot its pole-zero. | Apply |
| C312.3 | Analyze discrete-time signals and systems using discrete time Fourier transform (DFT) and Fast Fourier transform (FFT). | Analyze |
| C312.4 | Design and implement digital filters (FIR & IIR) for the given specifications | Design |
| C312.5 | Compare the digital filters and also realize the various filters for different structures in discrete-time systems | Evaluate |
| C312.6 | Understand and develop the sampling rate conversion techniques, find the quantization errors in digital signal processing. | Understand |
| **Microprocessors and Microcontrollers (20A04503T)** | | |
| C313.1 | Explain the Architecture, Register sets and Memory organization of 8086 Microprocessors. | Understand |
| C313.2 | Understand the Instruction set, Addressing modes and Assembler directives of 8086 Microprocessor | Apply |
| C313.3 | Demonstrate memory and I/O interfacing with various peripheral devices with 8086 Microprocessor | Analyze |
| C313.4 | Explain the Architecture and features of 8051 Microcontroller. | Design |
| C313.5 | Explain the Interfacing of I/O peripherals of 8051 Microcontroller. | Evaluate |
| C313.6 | Develop Various Programs of 8086 Microprocessor & 8051 Microcontroller. | Understand |
| **Computer Architecture & Organization (20A04504a)** | | |
| C314.1 | Understand the basics of instructions sets and their impact on processor design. | Understand |
| C314.2 | Understand the Instruction set, Addressing modes and Assembler directives of 8086 Microprocessor. | Apply |
| C314.3 | Evaluate performance in designing and constructing a computer processor | Evaluate |

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| | including memory. | |
| C314.4 | Design a pipeline for consistent execution of instructions with minimum hazards. | Apply |
| C314.5 | Understanding various representations of numbers stored in digital computers. | Understand |
| C314.6 | Applying various Arithmetic operations with examples using algorithms | Apply |
| **Java Programming (20A05505a)** | | |
| C315.1 | Understand the syntax, semantics of Java Programming Language and apply object-oriented programming principles to real world problems | Understand |
| C315.2 | Apply code reusability through inheritance, packages and interfaces | Apply |
| C315.3 | Develop User defined Exceptions in real world problems | Apply |
| C315.4 | Develop applications by using parallel streams for better performance. | Remember |
| C315.5 | Use multithreading and collection framework for real world problems | Apply |
| C315.6 | Build GUI using applets, swings and access the database using JDBC | Apply |
| **Digital Signal Processing Lab (20A04502P)** | | |
| C316.1 | Demonstrate DSP and its applications using MATLAB software | Understand |
| C316.2 | Examine the frequency response of discrete-time LTI systems | Apply |
| C316.3 | Designs of IIR, FIR digital filters for the given specifications also observe the frequency response. | Evaluate |
| C316.4 | Learn the architecture details of floating point DSPs. | Apply |
| C316.5 | Implement DSP algorithms in software using CCS with DSP floating point Processor. | Understand |
| C316.6 | Analyze the basic signals and also find the discrete Fourier transform (DFT) for discrete-time signals/sequences. | Apply |
| **Microprocessors and Microcontrollers Lab (20A04503P)** | | |
| C317.1 | Design and implement programs on 8086 microprocessor | Understand |
| C317.2 | To provide solid foundation on interfacing the external devices to the processor according to the user requirements | Apply |
| C317.3 | Design and implement 8051 microcontroller based systems | Evaluate |
| C317.4 | To Understand the concepts related to I/O and memory interfacing | Apply |
| C317.5 | To learn about interfacing stepper motor working and its interfacing | Understand |
| C317.6 | To learn about generation of waveforms using microcontroller | Apply |
| **PCB Design and Prototype development (20A04509)** | | |
| C318.1 | Demonstrate the performance of PCB Design and Prototype Development. | Apply |
| C318.2 | Analyze the Fundamentals of basic electronics: Component identification, Component symbols & their footprints | Analyze |
| C318.3 | Calculate the PCB layers, Design rule checking, Track width selection, Component selection, Routing and completion of the design. | Apply |
| C318.4 | Describe the various Types of PCB, Classes of PCB Design Terminology in PCB Design | Understand |
| C318.5 | Analyze the various PCB Design Flow, Placement and routing, Steps involved in layout design, Artwork generation Methods - manual and CAD. | Create |
| C318.6 | Evaluate General design factors for digital and analogue circuits, Layout and Artwork making for Single-side, double-side and Multilayer Boards, Design for manufacturability, Design-specification standards | Evaluate |

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## Course Outcomes

**Batch: 2020-24** **A.Y: 2023-24**

| Course Outcomes (IV Year- I Sem) | | |
|---|---|---|
| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Satellite Communications(20A04701c)** | | |
| C411.1 | Able to learn the dynamics of Satellite | Understand |
| C411.2 | Study the Satellite launch systems and their performance | Understand |
| C411.3 | Understand the spacecraft and subsystems. | Understand |
| C411.4 | Understand how analog and digital technologies are used for satellite communication networks. | Understand |
| C411.5 | Understand the radio frequency channel from Earth station to Satellite | Understand |
| C411.6 | Study the design of Earth station and tracking of the satellites. | Understand |
| **Digital Image Processing(20A04702b)** | | |
| C412.1 | Compare different methods for image acquisition, storage and representation in digital devices and computers. | Understand |
| C412.2 | Determine the role of image transforms in representing, highlighting, and modifying image features. | Apply |
| C412.3 | Interpret the mathematical principles in digital image enhancement and apply them in spatial domain and frequency domain | Understand |
| C412.4 | Understand various methods for segmenting image and identifying image components | Understand |
| C412.5 | Summarize different reshaping operations on the image. | Understand |
| C412.6 | Apply image representation techniques that enable encoding and decoding images. Describe the architecture, hardware details and memory organization of 8051 microcontroller. | Apply |
| **Cellular & Mobile Communications(20A04703c)** | | |
| C413.1 | Know about cell coverage for signal and traffic, diversity techniques and mobile antennas by the use of Engineering Mathematics | Understand |
| C413.2 | Explain impairments due to multipath fading channel, fundamental techniques to overcome different fading effects, frequency management, Channel assignment and types of handoff | Understand |
| C413.3 | Apply concepts to solve problems on mobile antennas and cellular systems | Apply |
| C413.4 | Analyze Co-channel and Non Co-channel interferences, different Hand-offs and dropped call rates | Analyse |
| C413.5 | Evaluate performance of dropped call rate and false alarm rate | Evaluate |
| C413.6 | Compare different handoffs | Analyse |
| **Management Science(20A52701b2)** | | |
| C414.1 | Discuss the basic concepts of management in modern contexts. | Analyse |
| C414.2 | Analyse the organization chart & structure for an enterprise. | Evaluate |
| C414.3 | Demonstrate production and marketing aspects. | Remember |
| C414.4 | Apply Managerial and operative functions of HRM | Apply |

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| C414.5 | Formulate strategies for successful completion of the project | Apply |
| C414.6 | Understand modern management techniques | Evaluate |
| **Cost Effective Housing Techniques (20A01704)** | | |
| C415.1 | Interpret about the housing scenario and housing financial systems of urban poor | Understand |
| C415.2 | Recite the different innovative cost effective construction techniques | Remember |
| C415.3 | Restate the alternative building materials for low cost housing | Remember |
| C415.4 | Illustrate the traditional practices of rural housing | Apply |
| C415.5 | Paraphrase the repair and restore action of Natural disaster non engineered buildings | Understand |
| C415.6 | Explore knowledge on low cost infrastructure services | Apply |
| **Cyber Security(20A05705a)** | | |
| C416.1 | Classify the cyber crimes and understand the Indian ITA 2000 | Understand |
| C416.2 | Analyse the vulnerabilities in any computing system and find the solutions | Analyse |
| C416.3 | Predict the security threats of the future | Apply |
| C416.4 | Investigate the protection mechanisms | Apply |
| C416.5 | Design security solutions for organizations | Create |
| C416.6 | Design security solutions for Social media marketing | Create |
| **Industrial IoT & Automation (20A04707)** | | |
| C417.1 | Choose the sensors and actuators for an IoT application | Understand |
| C417.2 | Select protocols for a specific IoT application | Remember |
| C417.3 | Utilize the cloud platform and APIs for IoT application | Analyse |
| C417.4 | Experiment with embedded boards for creating IoT prototypes | Analyse |
| C417.5 | Design a solution for a given IoT application | Understand |
| C417.6 | Simulation of PLC to understand the process control concept | Understand |

# Course Outcomes

**Batch: 2023-27** **A.Y: 2023-24**

| Course Outcomes (I Year- II Sem) | | |
|---|---|---|
| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Communicative English (23A0009T)** | | |
| C121.1 | The learner will acquire the ability to understand the academic text from multiple dimensions employing ethical and logical reasoning based on accurate comprehension | Understand |
| C121.2 | The learner will build strong vocabulary skills to enhance language skills | Apply |
| C121.3 | The learner will be able to speak and write grammatically accurate sentences through applications of principles of English grammar. | Apply |
| C121.4 | The learner will understand the potential of standard reading & listening strategies to grasp the core essence and spirit of the text. | Understand |
| C121.5 | The learner will gain mastery on speaking & writing skills through the application of relevant guidelines, through consistent practice of functional English expression. | Apply |
| **Chemistry (23A0004T)** | | |
| C122.1 | Apply the basic principles of quantum theory and molecular orbital theory for Diatomic molecules to predict the structure | Apply |
| C122.2 | Demonstrate the semiconductors, super conductors, super capacitors and nano materials. | Understand |
| C122.3 | To impart knowledge on different types of batteries , potentiometry, conductometry and electrochemical sensors | Remember |
| C122.4 | Understand the mechanism and applications of different polymers in electronic devices. | Understand |
| C122.5 | Summarize the concepts of different Instrumental methods. | Understand |
| **Differential Equations & Vector Calculus (23A0002T)** | | |
| C123.1 | Solve the Various types of Ordinary Differential equations | Understand |
| C123.2 | Solve the linear differential equations with constant coefficients by appropriate method. | Understand |
| C123.3 | Apply a range of techniques to find solutions of standard partial differential equations | Apply |
| C123.4 | Calculate gradient, divergence, curl of point functions and directional derivative of scalar point function. | Understand |
| C123.5 | Apply Green's, Stokes and Divergence theorem in the evaluation of line, double and triple integrals. | Apply |
| **Basic Civil & Mechanical Engineering (23A0101T)** | | |
| C124.1 | Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society and basic characteristics of Civil Engineering Materials | Understand |
| C124.2 | Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying. | Apply |
| C124.3 | Realize the importance and the engineering measures related to Transportation and to Understand the importance of Water Storage and Conveyance Structures | Remember |
| C124.4 | understand the properties of various engineering materials and their applications | Understand |
| C124.5 | Understand the different manufacturing processes and explain the basics of thermal engineering and its applications | Understand |
| C124.6 | Describe the working of different mechanical power transmission systems and power plants, learn basics of robotics | Understand |
| **Network Analysis (23A0205T)** | | |

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| C125.1 | Understand basic electrical circuits with nodal and mesh analysis. | Understand |
| C125.2 | Apply network theorems to the complicated networks. | Apply |
| C125.3 | Find Transient response and Steady state response of a network. | Apply |
| C125.4 | Understand the fundamental concepts of coupled circuits | Understand |
| C125.5 | Explain the electrical networks in the Laplace domain. | Understand |
| C125.6 | Compute the parameters of a two-port network. | Apply |
| **Engineering Workshop (23A0302P)** | | |
| C126.1 | Apply wood working skills in real life applications | Apply |
| C126.2 | Build different parts with metal sheets in real life applications | Apply |
| C126.3 | Develop various fitting models in industrial applications | Apply |
| C126.4 | Apply different types of basic electric circuit connections | Apply |
| C126.5 | Demonstrating Joining operations like welding and Plumbing | Apply |
| | Develop various patterns in foundry in real life applications | Apply |
| **Communicative English Lab (23A0010P)** | | |
| C127.1 | Understand the English speech sounds, stress, and intonation for better Listening practice | Understand |
| C127.2 | Apply communication skills through various language learning activities | Apply |
| C127.3 | Application of writing skills through design and preparation of professional Resume & email writing. | Apply |
| C127.4 | Construct Team Spirit by participating in team activities | Apply |
| C127.5 | Prepare effective resonate and prepare themselves to face interviews and deliver Presentation in future. | Apply |
| **Chemistry Lab (23A0007P)** | | |
| C128.1 | Determine the cell constant and conductance of solutions and the strength of an acid by conductometry | Understand |
| C128.2 | Synthesize of advanced polymer and nano materials | Remember |
| C128.3 | Measure the strength of an acid present in secondary battery and Ferrous ion using volumetric analysis | Remember |
| C128.4 | Identify the EMFs and pH of solutions using potentiometer and pH meter. | Apply |
| C128.5 | Apply the principle of beer- lamberts law | Apply |
| **Network Analysis Lab (23A0206P)** | | |
| C129.1 | Verify Kirchoff's laws and network theorems. | Understand |
| C129.2 | Measure time constants of RL & RC circuits. | Apply |
| C129.3 | Analyze behavior of RLC circuit for different cases. | Analyse |
| C129.4 | Determine the band width and Q-Factor for resonant circuit for given specifications. | Apply |
| C129.5 | Study the Frequency response of first and second order circuits. | Understand |
| C129.6 | Characterize and model the network in terms of all network parameters. | Apply |

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## Course Outcomes

**Batch: 2022-26** **A.Y: 2023-24**

| Course Outcomes (II Year- II Sem) | | |
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| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Managerial Economics & Financial Analysis (22A0022T)** | | |
| C221.1 | Outline the Managerial Economic concepts for decision making and forward planning. Also know law of demand and its exceptions, to use different forecasting methods for predicting demand for various products and services. | Understand |
| C221.2 | Assess the functional relationship between Production and factors of production and list out various costs associated with production and able to compute breakeven point to illustrate the various uses of breakeven analysis. | Evaluate |
| C221.3 | Outline the different types of business organizations and provide a framework for analyzing money in its functions as a medium of exchange. | Understand |
| C221.4 | Interpret various techniques for assessing the proposals of project for financial position of the business. | Understand |
| C221.5 | Evaluate the capital budgeting techniques | Evaluate |
| C221.6 | Identify the principles of accounting to record, classify and summarize various transactions in books of accounts for preparation of final accounts. | Remember |
| **Electrical Engineering (22A0205T)** | | |
| C222.1 | Acquire knowledge about how to determine the transient response of R-L, R-C, R-L-C series circuits for D.C and A.C excitations. | Apply |
| C222.2 | Acquire knowledge about how to determine the relation between quality factor and band width in resonance circuits | Apply |
| C222.3 | Analyze the filter circuits and 3-phase circuits | Apply |
| C222.4 | Analyze the various parameters of two port networks | Analyze |
| C222.5 | Analyze the load characteristics of DC Generaor and DC motor | Analyze |
| C222.6 | understand the construction, operation and windings of a 1-phase Transformers and Alternator | understand |
| **Electromagnetic Waves and Transmission Lines (22A0414T)** | | |
| C223.1 | Describe vector algebra, coordinate systems, vector calculus and fundamentals of electrostatic fields duo to point, line, sheet, and volume charges using Coulomb's law and Gauss's law. | Understand |
| C223.2 | Calculate magnetic field intensity using Biot-Savart's law and Ampere's law | Apply |
| C223.3 | Analyze Maxwell's equations for Time-varying EM fields. | Analyze |
| C223.4 | Analyze boundary conditions of EM fields for dielectric-dielectric, dielectric-conductor media and UPW in single medium. | Analyze |
| C223.5 | Describe the normal and oblique incidence of UPW while incident on a perfect conductor and a perfect dielectric media, Poynting theorem. | Analyze |

| | | |
|---|---|---|
| C223.6 | Analyze the concept of transmission lines & their applications. | Analyze |
| **Analog & Digital Communications (22A0415T)** | | |
| C224.1 | Recognize the basic terminology used in analog and digital communication techniques for transmission of information/data. | Remember |
| C224.2 | Explain the basic operation of different analog and digital communication systems at baseband and pass band level. | Understand |
| C224.3 | Compute various parameters of baseband and pass band transmission schemes by applying basic engineering knowledge. | Apply |
| C224.4 | Analyze the performance of different modulation & demodulation techniques to solve complex problems in the presence of noise. | Analyze |
| C224.5 | Evaluate the performance of all analog and digital modulation techniques to know the merits and demerits of each one of them in terms of bandwidth and power efficiency. | Evaluate |
| C224.6 | Understand the basics of information theory and error correcting codes. | Understand |
| **Linear and Digital IC Applications (20A04403T)** | | |
| C225.1 | Explain the Classification, building blocks and characteristics of linear integrated circuits. | Understand |
| C225.2 | Discuss the various applications of linear and Non- linear OP-AMP. | Understand |
| C225.3 | Solve the application based problems using Active Filters, Timer and Phase Locked Loops. | Apply |
| C225.4 | Analyze various applications based circuits of Voltage Regulator and Converters. | Analyze |
| C225.5 | Design the circuits using CMOS logic. | Create |
| C225.6 | Design of various Combinational and Sequential Circuits. | Create |
| **Soft Skills (20A52401)** | | |
| C226.1 | Memorize various elements of effective communicative skills. | Remember |
| C226.2 | Interpret people at the emotional level through emotional intelligence. | Understand |
| C226.3 | Apply critical thinking skills in problem solving. | Apply |
| C226.4 | Analyze the needs of an organization for team building. | Analyze |
| C226.5 | Judge the situation and take necessary decisions as a leader. | Evaluate |
| C226.6 | Develop social and work-life skills as well as personal and emotional well-being. | Create |
| **Digital Logic Design Lab (20A04303P)** | | |
| C227.1 | Understand the properties of Boolean algebra, other logic operations, and minimization of Boolean functions | Understand |
| C227.2 | Analyze the concepts of minimization of Boolean functions using karnaugh map | Analyze |
| C227.3 | Analyze the Combinational logic circuits | Analyze |
| C227.4 | Analyze the Sequential logic circuits | Analyze |
| C227.5 | Realization of FSM and PLDs | Understand |
| C227.6 | Develop digital circuits using HDL and verilog | Analyze |
| **Communication Systems Lab (20A04402P)** | | |

| | | |
|---|---|---|
| C228.1 | Explain the usage of equipment/components used to conduct the experiments in analog and Digital modulation techniques. | Understand |
| C228.2 | Demonstrate the experiment about various modulation and demodulation schemes to find the important metrics of the communication system experimentally. | Understand |
| C228.3 | Analyze the performance of analog modulation scheme to find the important metrics of the system theoretically. | Analyze |
| C228.4 | Analyze the performance of digital modulation scheme to find the important metrics of the system theoretically. | Analyze |
| C228.5 | Draw the relevant graphs between important metrics of the system from the observed measurements. | Apply |
| C228.6 | Compare the experimental results with that of theoretical ones and infer the conclusions. | Analyze |
| **Linear and Digital IC Applications Lab (20A04403P)** | | |
| C229.1 | Explain the Classification, building blocks and characteristics of linear integrated circuits. | Understand |
| C229.2 | Discuss the various applications of linear and Non- linear OP-AMP. | Understand |
| C229.3 | Solve the application based problems using Active Filters, Timer and Phase Locked Loops. | Apply |
| C229.4 | Analyze various applications based circuits of Voltage Regulator and Converters. | Analyze |
| C229.5 | Design the circuits using CMOS logic. | Create |
| C229.6 | Design of various Combinational and Sequential Circuits. | Create |

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY**
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## Course Outcomes

**Batch: 2021-25** **A.Y: 2023-24**

| Course Outcomes (III Year- II Sem) | | |
|---|---|---|
| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Antennas & Microwave Engineering (20A04601T)** | | |
| C321.1 | Learn about the antenna's basics and wire antennas. | Remember |
| C321.2 | Gain knowledge on few types of antennas, their operation and applications. | Analyse |
| C321.3 | Understand the uses of antenna arrays and analyze waveguides and resonators | Understand |
| C321.4 | Analyze various microwave components | Analyse |
| C321.5 | Understand the principles of different microwave sources.. | Understand |
| C321.6 | Gain knowledge on microwave semiconductor devices and microwave measurements. | Analyse |
| **VLSI Design (20A04602T)** | | |
| C322.1 | Describe Electrical Properties of MOS and BiCMOS Circuits | Remember |
| C322.2 | Determine Lambda(λ)-based design rules for wires, contacts and Transistors | Apply |
| C322.3 | Calculate Driving large Capacitive Loads, Wiring Capacitances for CMOS | Apply |
| C322.4 | Design & develop for Full-custom and Semi-custom devices | Create |
| C322.5 | Describe testing combinational logic –testing sequential logic | Understand |
| C322.6 | Analyze practical design for test guide lines – scan design techniques | Analyze |
| **Communication Networks (20A04603T)** | | |
| C323.1 | Understand the basics of data communication, networking, internet and their importance. | Understand |
| C323.2 | Analyse the services and features of various protocol layers in data networks. | Analyze |
| C323.3 | Differentiate wired and wireless computer networks | Understand |
| C323.4 | Analyse TCP/IP and their protocols. | Analysis |
| C323.5 | Recognize the different internet devices and their functions. | Understand |
| C323.6 | Student shall understand the principles and operations behind various application layer protocols like HTTP, SMTP, FTP. | Understand |
| **Embedded System Design (20A04604b)** | | |
| C324.1 | Describe the History of embedded systems, Classification of embedded systems based on generation and complexity, Purpose of embedded systems. | Understand |
| C324.2 | Describe Core of the embedded system-general purpose and domain specific processors, ASICs, PLDs, COTs, I/O components. | Understand |
| C324.3 | Describe the Onboard communication interfaces-I2C, SPI, CAN, parallel interface; External communication interfaces-RS232 and RS485, USB, infrared, Bluetooth, Wi-Fi, ZigBee, GPRS, GSM. | Understand |
| C324.4 | Describe the Embedded firmware design approaches-super loop based approach, operating system based approach | Understand |

| | | |
|---|---|---|
| C324.5 | Describe the Operating system basics, types of operating systems, tasks, process and threads, multiprocessing and multitasking, task scheduling | Understand |
| C324.6 | Describe the Task Synchronization: Task Communication /Synchronizatio Issues, Task Synchronization Techniques | Understand |
| **Principles of Operating Systems (20A05605a)** | | |
| C325.1 | Describe the fundamental organization of a computer systems | Understand |
| C325.2 | Explain about Operating systems functions | Understand |
| C325.3 | Differentiate between process and thread and classify scheduling algorithm | Understand |
| C325.4 | Determine Synchronization and deadlock problems | Apply |
| C325.5 | Describe about various memory management schemes | Understand |
| C325.6 | Explain file systems concepts and I/O management | Understand |
| **Antennas & Microwave Engineering Lab (20A04601P)** | | |
| C326.1 | Understand the working, different microwave components and sources in a microwave bench | Understand |
| C326.2 | Verify the characteristics of various microwave components using microwave benchsetup | Create |
| C326.3 | Understand the Radiation pattern of different Antennas | Understand |
| C326.4 | Verify the bandwidth and power of various Antennas | Create |
| C326.5 | Design and study of various antennas | Create |
| C326.6 | Analyze performance characteristics ofAntennas | Analyse |
| **VLSID Lab (20A04503P)** | | |
| C327.1 | Understand how to use Microwind software tools in the lab. | Understand |
| C327.2 | Sketch the different circuits by using CMOS and perform AC, DC analysis. | Apply |
| C327.3 | Apply Verilog source code for the given problem/experiment, and simulate the given circuit with suitable simulator and verify the results. | Evaluate |
| C327.4 | Analyze the CMOS inverter, MOS amplifiers and differential amplifier results of the given experiment/problem. | Apply |
| C327.5 | Assess the characteristics of NMOS and PMOS transistors and find the parametric sweep. | Understand |
| C327.6 | Design and verify the experiments in 180nm technology also draw the layout diagrams. | Apply |
| **Communication Networks Lab (20A04509)** | | |
| C328.1 | Identify and use various networking components Understand different transmission media and design cables for establishing a network | Understand |
| C328.2 | Implement any topology using network devices | Create |
| C328.3 | Analyze performance of various communication protocols. | Analyze |
| C328.4 | Understand the TCP/IP configuration for Windows and Linux | Understand |
| C328.5 | Compare routing algorithms | Analyze |
| C328.6 | Learn the major software and hardware technologies used on computer networks | Analyze |

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## Course Outcomes

**Batch: 2020-24** **A.Y: 2023-24**

| Course Outcomes (IV Year- II Sem) | | |
|---|---|---|
| **S. No** | **Course Outcomes Statement** | **Taxonomy** |
| **Project (20A04801)** | | |
| C421.1 | Identify the problem of social relevance to be solved. | Understand |
| C421.2 | Summarize the existing technology, its merits and demerits used to solve the problem. | Analyze |
| C421.3 | Design the appropriate solution using the sophisticated hardware or software. | Create |
| C421.4 | Compare the results of the proposed solution with the existing solution. | Evaluate |
| C421.5 | Demonstrate the project along with the complete documentation report of the project. | Evaluate |
| C421.6 | Show the interpersonal, professional and work with team skills. | Apply |

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**COURSE OUTCOMES**

**Academic Year: 2023-24**

| **Course Outcomes -IV CSE- I Semester ACY: 2023-24 Regulation :: R20** | | |
|---|---|---|
| **Cloud Computing (20A05701a)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C411.1 | Know the Cloud concepts and Technologies. | Understand |
| C411.2 | Design & develop backup strategies for cloud data based on features. | Apply |
| C411.3 | Ability to design applications for Cloud environment. | Apply |
| C411.4 | Apply Python language for accessing different cloud services | Apply |
| C411.5 | Develop Cloud Security Architecture and Identity access management. | Apply |
| C411.6 | Apply different cloud programming model as per need. | Apply |
| **Cryptography and Network Security (20A05701b)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C412.1 | Identify information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of finite fields and number theory. | Understand |
| C412.2 | Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication. | Analyze |
| C412.3 | Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes. | Apply |
| C412.4 | Apply different digital signature algorithms to achieve authentication and create secure applications. | Apply |
| C412.5 | Apply network security basics, analyse different attacks on networks and evaluate the performance of firewalls and security protocols like TLS, IPSec, and PGP. | Apply |
| C412.6 | Apply the knowledge of cryptographic utilities and authentication mechanisms to design secure applications. | Apply |
| **Deep Learning (20A05703c)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C413.1 | Demonstrate the mathematical foundation of neural network. | Apply |
| C413.2 | Describe the Machine Learning basics. | Understand |
| C413.3 | Use the regularization concepts for Deep Learning. | Apply |
| C413.4 | Understand the optimization methods for training deep models. | Understand |
| C413.5 | Show a development of Convolutional Neural Network. | Apply |
| C413.6 | Use sequence model to specify neural networks. | Apply |

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**COURSE OUTCOMES**

**Academic Year: 2023-24**

| Management Science (20A05504c) | | |
|---|---|---|
| **No** | **Course Outcome** | **Taxonomy** |
| C414.1 | Discuss the basic concepts of management in modern contexts. | Understand |
| C414.2 | Analyze the organization chart & structure for an enterprise. | Analyse |
| C414.3 | Demonstrate production and marketing aspects. | Apply |
| C414.4 | Apply Managerial and operative functions of HRM. | Apply |
| C414.5 | Formulate strategies for successful completion of the project. | Create |
| C414.6 | Understand modern management techniques. | Understand |
| **Principle of Communication System (20A04506)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C415.1 | Understand the concept of Amplitude modulation scheme and multiplexing. | Understand |
| C415.2 | Understand the concept of Angle modulation scheme and FM Broadcasting. | Understand |
| C415.3 | Understand the concept of Pulse modulation scheme and Sampling Theorem. | Understand |
| C415.4 | Understand the concept of Digital modulation schemes. | Understand |
| C415.5 | Apply the concept of various modulation schemes to solve engineering problems. | Apply |
| C415.6 | Analyze various modulation schemes, and evaluate various modulation scheme in real time applications. | Analyse |
| **Renewable Energy Systems (20A02705)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C416.1 | Understand the energy scenario and the consequent growth of the power generation from renewable energy sources. | Understand |
| C416.2 | Estimate the solar energy, Utilization of solar energy, Principles involved in solar energy collection and conversion of it to electricity generation. | Understand |
| C416.3 | Understand the concept of Wind and Biomass energy resources and their classification, types Plants- applications. | Understand |
| C416.4 | Acquire the knowledge on Geothermal energy and itâ€™s harnessing methods. | Analyse |
| C416.5 | Illustrate ocean energy and explain the operational methods of their utilization. | Analyse |
| C416.6 | Describe the concept of direct energy conversion and their types and working principle. | Remember |
| **Mobile Application Development (20A02706)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C417.1 | Define development environment to produce mobile applications. | Remember |
| C417.2 | Operate mobile applications on handheld devices. | Apply |
| C417.3 | Develop various widgets in mobile applications. | Apply |
| C417.4 | Design mobile applications with various layouts. | Apply |
| C417.5 | Build mobile application along with Media. | Apply |
| C417.6 | Design and develop menus in mobile applications. | Apply |
| **Evaluation of Industry Internship(20A05707)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C418.1 | Describe tools and technologies encountered during industrial training | Remember |

| | | |
|---|---|---|
| C418.2 | Understanding the process of using tools and techniques for solving real time problems | Understand |
| C418.3 | Participate in the real time projects in industrial training. | Apply |
| C418.4 | Applying engineering knowledge and technical skills in real time Project | Apply |
| C418.5 | Develop Communication, Interpersonal and Technical skills needed for placement | Apply |
| C418.6 | Build professional work reports and presentations. | Apply |

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**COURSE OUTCOMES**

**Academic Year: 2023-24**

| **Course Outcomes IV CSE II Semester ACY: 2023-24 Regulation :: R20** | | |
|---|---|---|
| **Project Work (19A05803)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C411.1 | Identify the problem of Social/Industrial relevance to be solved | Understand |
| C411.2 | Summarize the existing technology, its merits and demerits used to solve the problem | Analyse |
| C411.3 | Design the appropriate solution using the sophisticated hardware and/or software | Create |
| C411.4 | Compare the results of the proposed solution with the existing solution | Evaluate |
| C411.5 | Demonstrate the project along with the complete documentation report of the project | Evaluate |
| C411.6 | Show the interpersonal, professional and work with team skills | Apply |

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**COURSE OUTCOMES**

**Academic Year: 2023-24**

| **III-CSE 2023-24 I Semester Regulation ::R20** | | |
|---|---|---|
| **Computer Networks(20A05501T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C311.1 | Illustrate Hardware, Software Components, Parameters of a Network, which are used to find efficiency of network. | Analyse |
| C311.2 | Explain Design Issues and Services of Data Link Layer | Understand |
| C311.3 | Apply various Error Detection and Correction Techniques used for data transmission in real time Applications. | Apply |
| C311.4 | Classify routing protocols and analyse how to assign IP addresses for given Network | Analyse |
| C311.5 | Describe Transport Layer Design Issues and Protocols of Transport Layer. | Understand |
| C311.6 | Describe Application Layer Design Issues and Protocols of Application Layer. | Understand |
| **Artificial Intelligence(20A05502T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C312.1 | Design Intelligent Agents. | Create |
| C312.2 | Apply searching techniques for solving a problem. | Apply |
| C312.3 | Develop Natural Language Interface for Machines. | Create |
| C312.4 | Implementing programs that translate from one language to another language. | Apply |
| C312.5 | Explain the techniques that provide robust object recognition in restricted context. | Understand |
| C312.6 | Design mini robots. | Create |
| **Formal Languages and Automata Theory (20A05503 )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C313.1 | Enumerate the basic properties of deterministic and nondeterministic finite automata and also compare Moore and Mealy Machines. | Remember |
| C313.2 | Interpret the basic concepts of Regular expressions, regular languages and pumping lemma for Regular Languages. | Understand |
| C313.3 | Demonstrate context free grammar for various languages, normal forms and pumping lemma for CFL's | Apply |
| C313.4 | Interpret and design different types of PDA and also explain the relationship among language classes and grammars with the help of Chomsky Hierarchy | Understand |
| C313.5 | Solve the computational model using Turing Machine and variations of Turing machine. | Apply |
| C313.6 | Examine the concepts of decidable and undecidable problems | Apply |
| **Big Data Technologies (20A05504c )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C314.1 | Understand the elements of Big Data | Understand |
| C314.2 | Use different technologies to tame Big Data | Apply |
| C314.3 | Using Map Reduce and HBase to process given data | Apply |
| C314.4 | Implementing Map Reduce Program and Customizing Map Reduce Execution | Apply |
| C314.5 | Testing and Debugging Map Reduce Application | Analyze |
| C314.6 | Develop applications using Hive and NoSQL | Apply |
| **3D Printing Technology(20A03505)** | | |

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**COURSE OUTCOMES**

**Academic Year: 2023-24**

| No | Course Outcome | Taxonomy |
|---|---|---|
| C315.1 | Introduction of 3D- printing and various techniques for processing of CAD models for rapid prototyping . | Understand |
| C315.2 | Understand and apply fundamentals of rapid prototyping techniques. | Understand |
| C315.3 | Use appropriate tooling for rapid prototyping process. | Apply |
| C315.4 | Use rapid prototyping techniques for reverse engineering. | Apply |
| C315.5 | Identify various pre-processing, processing and post processing errors in RP processes. | Understand |
| C315.6 | Applications of rapid prototype in different sections. | Apply |
| **Computer Networks Lab (20A05501P)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C316.1 | Explain the different types of networks. | Understand |
| C316.2 | Describe the software and hardware components of a network | Understand |
| C316.3 | Explain the working of networking commands supported by operating system | Understand |
| C316.4 | Design the Network simulator 2/3 | Create |
| C316.5 | Develop the use of networking functionality supported by JAVA | Apply |
| C316.6 | Apply with computer networking tools. | Apply |
| **Artificial Intelligence Lab (20A04304P)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C317.1 | Implement searching algorithms for solving a given problem. | Create |
| C317.2 | Build Intelligent Agents and Chatbots. | Apply |
| C317.3 | Develop Natural Language Interface for Machines. | Create |
| C317.4 | Implementing programs that translates from one language to another language. | Apply |
| C317.5 | Design Chatbot and virtual assistant | Create |
| C317.6 | Design mini robots. | Create |
| **Advanced Web Application Development (20A05506)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C318.1 | Install XAMPP/WAMP and Develop a Student Database | Apply |
| C318.2 | Develop dynamic websites using PHP and MySQL | Apply |
| C318.3 | Handle Authentication using Sessions, JWT. | Apply |
| C318.4 | Secure Web applications from common attacks like Injection, XSS. | Apply |
| C318.5 | Integrate Libraries to dynamically generate documents, spreadsheets, PDFs, etc. | Apply |
| C318.6 | Host Websites in traditional web hosting platforms and also Cloud based infrastructure | Apply |
| **Evaluation of Community Service Project(20A05507)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C319.1 | To enhance comprehension of the challenges faced by vulnerable and marginalized segments of society | Understand |
| C319.2 | To initiate team processes with the student groups for societal change. | Analyse |
| C319.3 | To provide students an opportunity to familiarize themselves with urban /rural community they live in. | Create |
| C319.4 | To enable students to engage in the development of the community. | Evaluate |
| C319.5 | To plan activities based on the focused groups. | Evaluate |
| C319.6 | To know the ways of transforming the society through systematic programme implementation | Apply |

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**COURSE OUTCOMES**

**Academic Year: 2023-24**

| **(III-CSE) 2023-24 II SEMESTER** | **Regulations::R20** | |
|---|---|---|
| **COMPILER DESIGN (20A05601T )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C321.1 | Discuss the major phases of compilers and use the knowledge of the Lex tool. | Understand |
| C321.2 | Develop the parsers and experiment with the knowledge of different parsers design. | Apply |
| C321.3 | Describe intermediate code representations using syntax trees and DAG's as well as use this knowledge to generate intermediate code. | Understand |
| C321.4 | Classify various storage allocation strategies. | Analyze |
| C321.5 | Examine the design issues of code generator and generate machine code from the source code of a language. | Analyze |
| C321.6 | Summarize various optimization techniques and Implement these in dataflow analysis. | Evaluate |
| **MACHINE LEARNING (20A05602T )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C322.1 | Understand machine learning techniques to solve the given problem. | Understand |
| C322.2 | Understand various aspects of model selection and feature engineering. | Understand |
| C322.3 | Solve the classification problems using various machine learning techniques. | Apply |
| C322.4 | Analyse the performance of different regression techniques on various types of data sets. | Analyze |
| C322.5 | Analyse the performance of various clustering techniques to deal with unlabelled data. | Analyze |
| C322.6 | Apply the principle of Apriori algorithm on real-time data sets to find frequent patterns. | Apply |
| **INTERNET OF THINGS(20A05603T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C323.1 | Interpret the design principles that govern connected devices | Understand |
| C323.2 | Develop simple applications using Raspberry Pi and Arduino. | Apply |
| C323.3 | Analyse various types of M2M communication protocols and IOT architectures. | Analyse |
| C323.4 | Illustrate and develop a solution for a given application using APIs | Understand |
| C323.5 | Distinguish various types of manufacturing techniques and storage models in IOT. | Analyse |
| C323.6 | Demonstrate various IOT solutions using sensors, actuators and devices. | Understand |

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Department of Computer Science and Engineering

**COURSE OUTCOMES**

**Academic Year: 2023-24**

| SOFTWARE TESTING ( 20A05604A ) | | |
|---|---|---|
| **No** | **Course Outcome** | **Taxonomy** |
| C324.1 | Understand the basic concepts of software testing and its essentials. | Understand |
| C324.2 | Identify Transaction Flows, Transaction Flow Testing Technique and Strategies in Dataflow Testing. | Apply |
| C324.3 | Develop test techniques for domain and interface testing. | Apply |
| C324.4 | Develop paths, regular expressions and logic-based testing. | Apply |
| C324.5 | Analyze the state, implement state graph and state testing, | Analyze |
| C324.6 | Develop graph matrices and Node Reduction Algorithm, Building Tools . | Apply |
| **BASIC VLSI DESIGN ( 20A04606 )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C325.1 | Explain the MOS fabrication flow and Design layers used in the process sequenc | Understand |
| C325.2 | Explain the Basic Electrical Properties of MOS and Bi-CMOS Circuits | Understand |
| C325.3 | Estimate the sheet resistance, square capacitance, propagation delays inverter delays in MOS circuits | Understand |
| C325.4 | Apply the design Rules to draw the Stick diagrams and layout of a given MOS circuits | Apply |
| C325.5 | Analyze the behaviour of static and dynamic logic circuits | Analyze |
| C325.6 | Select the various CAD tools for Design and Simulation in to the Practical aspects and testability. | Analyze |
| **COMPILER DESIGN ( 20A05601P )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C326.1 | Design and implement fundamental concepts of finite Automata | Apply |
| C326.2 | Design and implement a lexical analyzer for given language | Apply |
| C326.3 | Use LEX and YACC tools for developing a scanner and a parser | Apply |
| C326.4 | Design and implement LL and LR parsers | Apply |
| C326.5 | Design algorithms to perform code optimization in order to improve the performance of program | Apply |
| C326.6 | Design and implement code generation for given expression. | Apply |
| **MACHINE LEARNING ( 20A05602P )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C327.1 | Understand the Mathematical and statistical prospectives of machine learning | Understand |

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| | algorithms through python programming. | |
| C327.2 | Apply the basics of learning problems with hypothesis and version spaces | Apply |
| C327.3 | Apply appropriate datasets to the classification techniques | Apply |
| C327.4 | Apply clustering techniques to deal with unlabelled data for correct predictions | Apply |
| C327.5 | Use visualization tool to deal with regression-based algorithms. | Apply |
| C327.6 | Experiment End – to – End machine learning systems. | Apply |
| **INTERNET OF THINGS ( 20A05603P)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C328.1 | Choose the Sensors and Actuators for an IOT application | Remember |
| C328.2 | Develop simple applications using raspberry pi and Arduino. | Apply |
| C328.3 | Select protocols for a specific IOT application | Remember |
| C328.4 | Experiment with embedded boars for creating IOT prototyping | Apply |
| C328.5 | Utilize the Cloud platform and APIs for an IOT application | Apply |
| C328.6 | Build a solution for a given IOT application | Apply |
| **SOFT SKILLS (20A52401 )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C329.1 | Memorize various elements of effective communicative skills | Understand |
| C329.2 | Interpret people at the emotional level through emotional intelligence | Understand |
| C329.3 | Apply critical thinking skills in problem solving | Apply |
| C329.4 | Analyze the needs of an organization for team building | Analyze |
| C329.5 | Judge the situation and take necessary decisions as a leader | Analyze |
| C329.6 | Develop social and work- life skills as well as personal and emotional wee-being | Analyze |
| **INTELLECTUAL PROPERTY RIGHTS AND LAW (20A99601)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C3210.1 | Use intellectual property rights for product development | Apply |
| C3210.2 | Illustrate Rights Afforded by Copyright Law | Apply |
| C3210.3 | Illustrate the Patent Infringement and Litigation | Apply |
| C3210.4 | Apply Trade Mark registration process and maintenance | Apply |
| C3210.5 | Demonstrate the trade secret law implantation for developing a product. | Apply |
| C3210.6 | Use the concepts of Cyber Law implantation for developing a product | Apply |

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::NELLORE**

Department of Computer Science and Engineering

**COURSE OUTCOMES**

**Academic Year: 2023-24**

| **II-CSE- 2023-24 I Sem** | **Regulations :RG22** | |
|---|---|---|
| **Probability& Statistics(22A0016T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C211.1 | Summarize the basic concepts of data science and its importance in engineering analyze the data quantitatively or categorically , measure of averages, variability, adopt correlation methods and principle of least squares, regression analysis . | **Understand** |
| C211.2 | Define the terms trial, events, sample space, probability, and laws of probability, Make use of probabilities of events in finite sample spaces from experiments, apply Baye's theorem to real time problems and explain the notion of random variable, distribution functions and expected value | **Understand** |
| C211.3 | Apply Binomial and Poisson distributions for real data to compute probabilities, theoretical frequencies, interpret the properties of normal distribution and its applications | **Apply** |
| C211.4 | Explain the concept of estimation, interval estimation and confidence intervals, apply the concept of hypothesis testing for large samples | **Understand** |
| C211.5 | Apply the concept of testing hypothesis for small samples to draw the inferences and estimate the goodness of fit | **Understand** |
| **ComputerOrganization(22A0506T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C212.1 | Determine the basic concepts of Computer Organization. | **Understand** |
| C212.2 | Interpret the Machine Instructions and basic Input / Output Operations | **Understand** |
| C212.3 | Demonstrate Arithmetic Operations on signed and unsigned numbers, design of Control Unit | **Apply** |
| C212.4 | Differentiate types of memories and distinguish I/O Devices. | **Understand** |
| C212.5 | Illustrate the concepts of Pipelining | **Understand** |
| C212.6 | Illustrate the concepts of Large Computer Systems | **Understand** |
| **Object Oriented ProgrammingthroughJava(22A0507T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C213.1 | UnderstandtheObject-OrientedProgrammingPrinciplestodevelopjavaprograms. | **Understand** |
| C213.2 | Apply code reusability through inheritance, packages and interfaces. | **Apply** |
| C213.3 | Implementing theExceptionHandlingandmulti-threadingmechanismsinrealtimeapplications. | **Apply** |
| C213.4 | Understand the I/O streams for better performance. | **Understand** |
| C213.5 | Construct GUI based applications using applets, AWT and swings for internet and system-based applications. | **Understand** |
| C213.6 | Compare AWT and Swing classes for GUI based applications. | **Understand** |

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::NELLORE**

Department of Computer Science and Engineering

**COURSE OUTCOMES**

**Academic Year: 2023-24**

## Digital Electronics and Micro Processors(22A0410T)

| No | Course Outcome | Taxonomy |
|---|---|---|
| C214.1 | Differentiate various number sytems,binary codes. | **Understand** |
| C214.2 | Solve the Boolean Expressions using Boolean algebra and k- maps | **Apply** |
| C214.3 | Implement different combinational and sequential circuits | **Apply** |
| C214.4 | Explain the internal architecture and organization of the 8086 microprocessor | **Understand** |
| C214.5 | Demonstrate the assembly level language programming for 8086 and 8051 | **Apply** |
| C214.6 | Describe the architecture ,hardware details and memory organization of 8051 microcontroller | **Understand** |

## Software Engineering (22A0520T)

| No | Course Outcome | Taxonomy |
|---|---|---|
| C215.1 | Use software lifecycle activities for process models | **Apply** |
| C215.2 | Use software requirements specifications for given problems | **Apply** |
| C215.3 | Apply design concepts ,component leveland user interface design for given problems | **Apply** |
| C215.4 | Apply various test cases for a given problems | **Apply** |
| C215.5 | Apply quality management concepts at the application level | **Apply** |
| C215.6 | Determine risk management plans and implementation | **Apply** |

## Universal Human Values( 22A0021T)

| No | Course Outcome | Taxonomy |
|---|---|---|
| C216.1 | Understand the essentials of human values and skills, self exploration, happiness and prosperity. | **Understand** |
| C216.2 | Understand the coexistence of the “I” with the body. | **Understand** |
| C216.3 | Describe the role of harmony in family, society and universal order. | **Understand** |
| C216.4 | Understand the holistic perception of harmony at all levels of existence. | **Understand** |
| C216.5 | Express the appropriate technologies and management patterns to create harmony in professional and personal lives. | **Understand** |
| C216.6 | Understand the concept of Universal Human Order, At the level of individual, At the level of society. | **Understand** |

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::NELLORE**

Department of Computer Science and Engineering

**COURSE OUTCOMES**

**Academic Year: 2023-24**

| **(II-CSE-A, B and C) 2023-24 II SEMESTER** | | |
|---|---|---|
| **DISCRETE MATHEMATICAL STRUCTURES (22A0017T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C221.1 | Interpret basic logic statements using truth tables and properties of logic and solve the PCNF and PDNF | Apply |
| C221.2 | Describe the properties of sets,functions and groups | Apply |
| C221.3 | Discuss the concepts of algebraicstructures | Understand |
| C221.4 | Apply basic counting techniques to solve combinatorial problems. | Apply |
| C221.5 | Solve Homogeneous recurrence relations by various methods. | Apply |
| C221.6 | Classify the basic concepts of graphs &Apply the concepts of functions to solve the isomorphic graphs and spanning trees | Analyse |
| **DATABASE MANAGEMENT SYSTEMS (22A0512T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C222.1 | Understand the basic concepts of database systems and data models | Understand |
| C222.2 | Choose the specific Data models for large enterprise database design | Apply |
| C222.3 | Analyze the data efficiently through SQL instructions | Analyze |
| C222.4 | Apply normalization to minimize redundancy | Apply |
| C222.5 | Demonstrate the Basic Concepts of transaction management techniques. | Understand |
| C222.6 | Apply concurrency control techniques for Database recovery. | Apply |
| **OPERATING SYSTEMS (22A0513T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C223.1 | Explain the role of Operating System, its functions and Types | Understand |
| C223.2 | Illustrate the concepts of Process, multiprocessing, thread, and multithreading. | Analyse |
| C223.3 | Compare the performance of various CPU scheduling algorithms and process synchronization. | Evaluate |
| C223.4 | Outline different ways to handle the deadlocks and process synchronization and memory management techniques. | Analyse |
| C223.5 | Describe the concepts of Mass Storage Structure and file systems. | Understand |
| C223.6 | Describe the concepts of System Protection and System Security | Understand |
| **Python Programming (22A0514T)** | | |

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::NELLORE**

Department of Computer Science and Engineering

**COURSE OUTCOMES**

**Academic Year: 2023-24**

| No | Course Outcome | Taxonomy |
|---|---|---|
| C224.1 | Explain the syntax and semantics of python programming constructs | Understand |
| C224.2 | Make use of control statements, Input / Output functions and user-defined functions of Python | Apply |
| C224.3 | Analyse various methods to create and manipulate data structures like lists, dictionaries, tuples, strings | Analyze |
| C224.4 | Demonstrate the usages of file ,modules and packages in python | Apply |
| C224.5 | Explain the usage of OOPs Concepts in python | Understand |
| C224.6 | Analyze exceptions and errors in python | Analyze |
| **Managerial Economics &Financial Analysis (22A0022T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C225.1 | Explain the role and responsibilities of a managerial economist in modern business scenario | Understand |
| C225.2 | Applythe demand of a product by using demand forecasting methods. | Apply |
| C225.3 | Calculate the Break Even Point (BEP) with the help of production and cost analysis. | Apply |
| C22654 | Explain their learnings about competitive markets and business economic environment. | Understand |
| C225.5 | Apply the process of selection of investment alternatives using different appraisal methods. | Apply |
| C225.6 | Examine the process of preparing financial statements to know financial position of the firm. | Analyse |
| **Constitution of India (22A0030T)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C226.1 | Summarize the concept of Indian Constitution | Understand |
| C226.2 | Describe the structure of Union | Understand |
| C226.3 | Explain the structure of state government and its administration | Understand |
| C22654 | Summarize the roles of Local Administration | Understand |
| C226.5 | Describe the purpose of different departments in Local Administration | Understand |
| C226.6 | Express the importance of election commission and functionalities of commissions of welfare | Understand |
| **LINUX PROGRAMMING (SKILL) (22A0518)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C227.1 | Understand the Basic commands and utilities in Linux Environment. | Understand |

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| C227.2 | Understand the Linux utilities to create and manage simple file processing operations; organize directory structures with appropriate security. | Understand |
| C227.3 | Analyze the Linux utilities and Linux environment. | Analyze |
| C227.4 | Use shell script to automate different tasks as Linux. | Apply |
| C227.5 | Illustrate file processing operations such as standard I/O and formatted I/O. | Apply |
| C227.6 | Analyse various client server applications using TCP or UDP protocols. | Understand |
| Operating Systems Laboratory(22A0516P) | | |
| **No** | **Course Outcome** | **Taxonomy** |
| 228.1 | Analyze and simulate CPU Scheduling Algorithms | Analyze |
| 228.2 | Solve process Synchronization problems using different algorithms. | Apply |
| 228.3 | Apply algorithms to avoid deadlock problems. | Apply |
| 228.4 | Implement memory management schemes and page replacement schemes. | Understand |
| 228.5 | Analyze and simulate Disk Scheduling Algorithms. | Analyze |
| 228.6 | Simulate file allocation and organization techniques. | Understand |
| **Python Programming Lab(22A0517P )** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| 229.1 | Describe Installation of python and numpy on windows & Linux environment. | Understand |
| 229.2 | Implement python programs on conditional and loop statements | Apply |
| 229.3 | Use sequence data types for problem solving (strings, list tupes and ranges) | Apply |
| 229.4 | Implement python programs on files and packages | Apply |
| 229.5 | Solve the array modules for real time applications in different ways | Analyze |
| 229.6 | Implement python programs on different modules | Apply |
| **DATABASE MANAGEMENT SYSTEMS LAB(22A0515P)** | | |
| **No** | **Course Outcome** | **Taxonomy** |
| C2210.1 | Choose appropriate DBMS software to perform various operations on the database | Remember |
| C210.2 | Develop ER diagrams to solve real-time problems | Apply |
| C2210.3 | Build database and extract information through query processing | Apply |
| C2210.4 | Implement the integrity constraints and PL/SQL programs to build efficient | Apply |

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| | databases. | |
| C2210.5 | Compare solutions of database applications by using procedures and functions | Analyze |
| C2210.6 | Distinguish solutions of database applications by using cursors and triggers | Analyze |

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::Nellore**
**Department of Electrical and Electronics Engineering**

## Course Outcomes

| CAY : 2023-24 | REG : RG22 | | Year /Sem: II -I |
|---|---|---|---|

| SNO | Course Outcome Statement | Taxonomy |
|---|---|---|
| SPECIFIC LEARNING OUTCOMES – **Complex Variables & Transforms** | | |
| C211.1 | Find the analytic functions using C-R equations, the image using conformal mapping and bi-linear transformation. | Apply |
| C211.2 | Use Cauchy's theorem, Cauchy's integral formula and Cauchy's residues theorem to evaluate complex integrations and expansion of complex functions using Taylor's and Laurent's series. | Apply |
| C211.3 | Define Laplace and inverse Laplace transforms of various functions and solve ordinary differential equations using Laplace transform. | Apply |
| C211.4 | Determine Fourier series of periodic functions in a given interval and Parseval's formula- Complex form of Fourier series. | Apply |
| C211.5 | Find the Fourier Transform of certain functions. | Understand |
| C211.6 | Solve the difference equations using Z-Transforms. | Apply |
| SPECIFIC LEARNING OUTCOMES – **Universal Human Values** | | |
| C212.1 | Understand the need, concept and content of value-education individual's life and modifies their aspiration for happiness & prosperity | Understand |
| C212.2 | Comprehend the term self-exploration and its application for self-evaluation and devolpment. | Understand |
| C212.3 | Reconstruct the concepts about different values and discriminate between them. | Understand |
| C212.4 | Understand the concept of co-existence & evaluate the program to ensure self regulation. | Understand |
| C212.5 | Identify the holistic perception of harmony at level of self, family, society, nature . | Understand |
| C212.6 | Apply professional ethics in their future profession & contribute for making a value based society | Remember |
| SPECIFIC LEARNING OUTCOMES – **Electrical Circuit Analysis & Synthesis** | | |
| C213.1 | Understand the analysis of three phase balanced and unbalanced circuits and to measure active and reactive powers in three phase circuits. | Analyze |

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|---|---|---|
| C213.2 | Illustrate the locus diagram for series and parallel circuits | Apply |
| C213.3 | Describe the properties and characteristics of network functions and verify the mathematical constraints for their physical realization. | Understand |
| C213.4 | Synthesize passive one-port networks using standard Foster and Causer forms | Analyze |
| C213.5 | To get knowledge about how to determine the transient response of R-L, R-C, R-L-C series circuits for D.C and A.C excitations | Apply |
| C213.6 | Analyze the two-port networks by calculating the two port network parameters. | Analyze |
| SPECIFIC LEARNING OUTCOMES – **Analog & Digital Electronics** | | |
| C214.1 | List various types of feedback amplifiers and oscillators | Remember |
| C214.2 | List out the characteristics of Linear and Digital ICs | Understand |
| C214.3 | Analyze the various applications of linear & Digital ICs | Analyze |
| C214.4 | Solve the application-based problems related to linear and digital ICs | Analyze |
| C214.5 | Design the circuits using either linear ICs or Digital ICs from the given specifications. | Create |
| C214.6 | Able to design and implement digital logic circuits | Create |
| SPECIFIC LEARNING OUTCOMES – **DC Machines & Transformers** | | |
| C215.1 | Explain the concepts of magnetic circuits and principles of electromagnetic energy conversion. | Understand |
| C215.2 | Explain the construction, operation and armature windings of a DC generator | Understand |
| C215.3 | Explain the operation of a DC motors. | Understand |
| C215.4 | Demonstrate the speed control of DC motors, testing methods and parallel operation of DC machines | Apply |
| C215.5 | Illustrate the single phase transformers circuits | Apply |
| C215.6 | Analyse the three phase transformers circuits. | Analyze |
| SPECIFIC LEARNING OUTCOMES – **Electrical Power Generating Systems** | | |
| C216.1 | Explain the operation of thermal power station and understand the importance of various components in it. | Apply |
| C216.2 | Estimate the coal requirement, cost per kWh generation and number of units generated for thermal power station | Apply |
| C216.3 | Explain the operation of hydro and nuclear power station and understand the importance of various components in them . | Understand |
| C216.4 | Estimate the required flow of river water, cost of generation and number of units generated in hydel power generation | Understand |
| C216.5 | Explain different methods of generating electrical energy from solar energy and wind energy | Understand |
| C216.6 | Explain different methods of generating electrical energy from Bio mass | Apply |
| SPECIFIC LEARNING OUTCOMES – **Electrical Circuits &Simulation** | | |

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| **Lab** | | |
| C217.1 | Explain Various Resonance Phenomenon Circuits | Apply |
| C217.2 | Understand and Analyze Various Current Locus Diagrams | Analyse |
| C217.3 | Apply Experimentally for finding Two port parameters | Apply |
| C217.4 | Experimentally verify AC and DC circuits. | Apply |
| C217.5 | Analyse Various circuits using DC Excitation | Analyse |
| C217.6 | Analyse Various circuits using AC Excitation | Analyse |
| SPECIFIC LEARNING OUTCOMES – **Analog & Digital Electronics Lab** | | |
| C218.1 | Analyze various amplifier circuits | Analyze |
| C218.2 | Construct multistage amplifiers | Apply |
| C218.3 | Construct OPAMP based analog circuits | Apply |
| C218.4 | Understand working of logic gates | Understand |
| C218.5 | Construct and implement Combinational circuits | Apply |
| C218.6 | Construct and implement Sequential logic circuits | Apply |
| SPECIFIC LEARNING OUTCOMES – **DC Machines & Transformers Lab** | | |
| C219.1 | Explain the concepts of magnetic circuits and principles of electromagnetic energy conversion. | Understand |
| C219.2 | Explain the construction, operation and armature windings of a DC generator | Understand |
| C219.3 | Explain the operation of a DC motors. | Understand |
| C219.4 | Demonstrate the speed control of DC motors, testing methods and parallel operation of DC machines | Apply |
| C219.5 | Illustrate the single phase transformers circuits | Apply |
| C219.6 | Analyse the three phase transformers circuits. | Analyse |
| SPECIFIC LEARNING OUTCOMES – **Electrical work shop** | | |
| C2110.1 | Demonstrate knowledge on different tools, abbreviations and symbols used in Electrical Engineering | Apply |
| C2110.2 | Measure different electrical quantities using measuring instruments | Apply |
| C2110.3 | Demonstrate how to trouble shoot the electrical equipment's (like fan, grinder, Motor, etc.) | Apply |
| C2110.4 | Understand different types of wiring | Understand |
| C2110.5 | Do wiring and Earthing for residential houses | Apply |
| C2110.6 | Identification of color code and Measurement of wire guages using guage meter. | Understand |
| SPECIFIC LEARNING OUTCOMES – **Environmental Science** | | |
| C2111.1 | knowledge about environment , natural resources and different techniques involved in its conservation. | Understand |
| C2111.2 | nformation about different eco-systems and its functions. | Understand |
| C2111.3 | e the types of bio-diversity along with values and conservation methods. | Analyse |
| C2111.4 | knowledge about various environmental pollutions and able to design the environmental friendly process in engineering. | Apply |
| C2111.5 | knowledge about sustainable development concept and practice it in life, society and Industry. | Apply |
| C2111.6 | nd the both impacts of population growth on environment and needed | Understand |

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| | measures to protect the environment . | |

Coordinator HoD

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::Nellore**

**Department of Electrical and Electronics Engineering**

**Course Outcomes**

| CAY : 2023-24 | Reg : R20 | SEM : I | Year : III |
|---|---|---|---|

| SNO | Course Outcome Statement | Taxonomy |
|---|---|---|
| **SPECIFIC LEARNING OUTCOMES – Power Systems Architecture** | | |
| C311.1 | Remember and understand the concepts of conventional and nonconventional power generating systems | Remember |
| C311.2 | Apply the economic aspects to the power generating systems. | Apply |
| C311.3 | Analyse the transmission lines and obtain the transmission line parameters and constants. | Analyse |
| C311.4 | Design and Develop the schemes to improve the generation and capability of transmission line to meet the day to day power requirements. | Analyse |
| C311.5 | Design of Distribution Feeders, Voltage Drop and power loss in A.C. Distributors. | Analyse |
| C311.6 | Explain different types of Substations, Various arrangements in Substations | Remember |
| **SPECIFIC LEARNING OUTCOMES – Control Systems** | | |
| C312.1 | Find the transfer function model for physical system and control system components. | Apply |
| C312.2 | Determine the transfer function for a given system using block diagram and signal flow graph methods. | Apply |
| C312.3 | Compute the time response of systems and steady state errors. | Apply |
| C312.4 | Determine the absolute and relative stsbility of a system using RH and Root loci concepts. | Analyse |
| C312.5 | Analyse the stability of the system and design compensation networks. | Analyse |
| C312.6 | Describe the state variable representation of physical system and solve the state equation. | Apply |
| **SPECIFIC LEARNING OUTCOMES – Measurements & Sensors** | | |
| C313.1 | Understand the operation of different instruments, different types of errors and their compensation and analyze the different operation of extension range ammeters and voltmeters | Understand |
| C313.2 | Understand the concepts of measurement of active and reactive powers using wattmeters, Distinguish between low and high power factor ranges in watt meters and working of different types of power factor meters | Understand |
| C313.3 | Understand the working principles and construction of different types of Energy meters and Distinguish between CTs and PTs, Determination of ration and phase angle errors | Understand |
| C313.4 | Distinguish between DC and AC potentiometers, Design the various voltage and current measuring instruments for the various electric / | Apply |

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| | magnetic field applications and Identify errors in measurements and to mitigate them for desired precision and accuracy | |
| C313.5 | Understand the bridge configurations and their applications for various ranges of resistance measurement, unknown parameters of Inductance, unknown parameters of Capacitance using the bridges, and Identify errors in measurements and to mitigate them for desired precision and accuracy | Evaluate |
| C313.6 | Analyze different characteristics of periodic and a periodic signals using CRO and Know about Digital Instruments and sensors | Analyse |
| **SPECIFIC LEARNING OUTCOMES – Power Electronics Drives** | | |
| C314.1 | Understand the Electrical Drive system and its components and their importance | Understand |
| C314.2 | Understand the dynamics of Electrical drives | Understand |
| C314.3 | Analyze the speed control of DC motor with single phase and three phase controlled rectifiers | Analyze |
| C314.4 | Apply the knowledge of Choppers for speed control of DC Motors. | Apply |
| C314.5 | Understand the speed control of induction motor with variable voltage and frequency control | Understand |
| C314.6 | Understand the speed control of synchronous motor drives Using Inverters | Understand |
| **SPECIFIC LEARNING OUTCOMES – Java Programming** | | |
| C315.1 | understand object oriented concepts and problem solving techniques | Understand |
| C315.2 | obtain knowledge about the principles of inheritance and polymorphism | Apply |
| C315.3 | implement the concept of packages, interfaces, exception handling and concurrency mechanism | Evaluate |
| C315.4 | design the GUIs using applets and swing controls. | Apply |
| C315.5 | Analyze the Java Database Connectivity Architecture Model. | Analyse |
| C315.6 | Understand basic steps in developing JDBC applications. | Evaluate |
| **SPECIFIC LEARNING OUTCOMES – Control Systems Lab** | | |
| C316.1 | Design the controllers/compensators to achieve desired specifications | Apply |
| C316.2 | Understand the effect of location of poles and zeros on transient and steady state behavior of systems | Understand |
| C316.3 | Assess the performance, in terms of time domain specifications, of first and second order systems. | Evaluate |
| C316.4 | Design PID controllers for given control system model | Apply |
| C316.5 | Determine the response of a given control system model | Apply |
| C316.6 | Use MATLAB/SIMULINK software for control system analysis and design | Apply |
| **SPECIFIC LEARNING OUTCOMES – Measurements & Sensors Lab** | | |
| C317.1 | Measure error of PMMC Voltmeters, PMMC Ammeters and Single Phase Energy meter. | Understand |
| C317.2 | Examine the output of turns ratio and ratio error of CT. | Apply |
| C317.3 | Analyze the measuring parameters of Anderson & Schering bridge. | Analyse |
| C317.4 | Accurate determination of resistance, inductance and capacitance using D.C and A.C Bridges. | Apply |

| | | |
|---|---|---|
| C317.5 | Acquire hand-on experience on measurement of choke coil. | Understand |
| C317.6 | Measure reactive power in 3-phase circuit using single watt meter | Apply |
| **SPECIFIC LEARNING OUTCOMES – Soft skills** | | |
| C318.1 | Memorize various elements of effective communicative skills | Apply |
| C318.2 | Interpret people at the emotional level through emotional intelligence<br>soft skills | Apply |
| C318.3 | Apply critical thinking skills in problem solving | Analyse |
| C318.4 | Analyze the needs of an organization for team building | Analyse |
| C318.5 | Judge the situation and take necessary decisions as a leader | Analyse |
| C318.6 | Develop social and work- life skills as well as personal and emotional well-being | Analyse |
| **SPECIFIC LEARNING OUTCOMES – Evaluation of Community Service Project** | | |
| C319.1 | Understand the living conditions of the people who are around them | Understand |
| C319.2 | Understand societal consciousness, attitudinal change, sensibility, responsibility and accountability. | Understand |
| C319.3 | Uunderstand the aware of their inner strength and help them to find new /out of box solutions to the social problems. | Understand |
| C319.4 | Understand how to be as socially responsible citizens | Understand |
| C319.5 | Develop activities in the community in coordination with public and government authorities. | Apply |
| C319.6 | Develop a holistic life perspective among the students. | Apply |
| **SPECIFIC LEARNING OUTCOMES – Environmental Science** | | |
| C3110.1 | Gain the knowledge about environment, natural resources and different techniques involved in its conservation. | Understand |
| C3110.2 | Get the information about different eco-systems and its functions. | Understand |
| C3110.3 | Recognize the types of bio-diversity along with values and conservation methods. | Analyse |
| C3110.4 | Gain the knowledge about various environmental pollutions and able to design the environmental friendly process in engineering. | Apply |
| C3110.5 | Gain the knowledge about sustainable development concept and practice it in life, society and Industry. | Apply |
| C3110.6 | Understand the both impacts of population growth on environment and needed measures to protect the environment . | Understand |

Coordinator HoD

**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::NELLORE**

**Department of Electrical and Electronics Engineering**

**Course Outcomes**

| CAY : 2023-24 | Reg : R20 | SEM : I | Year : IV |
|---|---|---|---|

| SNO | Course Outcome Statement | Taxonomy |
|---|---|---|
| **SPECIFIC LEARNING OUTCOMES – Power System Operation and Control** | | |
| C411.1 | Explain an optimal operation setup of power system which minimizes operation costs and power loss to meet the desired needs. | Apply |
| C411.2 | Illustrate about thermal and hydro power plants operation in meeting the load demand optimally. | Analyze |
| C411.3 | Acquire the knowledge of Turbine Speed Governing System. | Understand |
| C411.4 | Discuss single area load frequency control and two area load frequency control. | Apply |
| C411.5 | Apply the compensating techniques to control power flows, frequency and voltage in power system. | Apply |
| C411.6 | Understand the necessity of deregulation aspects and demand side management problems in the modern power system era. | Understand |
| **SPECIFIC LEARNING OUTCOMES – ELECTRICAL DISTRIBUTION SYSTEM AUTOMATION** | | |
| C412.1 | Understand basics of distribution systems and substations | Understand |
| C412.2 | Understand about modelling of various loads | Understand |
| C412.3 | Perform distribution load flow solutions | Apply |
| C412.4 | Understand about installation of capacitors at various locations | Understand |
| C412.5 | Evaluate power loss and feeder cost | Apply |
| C412.6 | Know the principles of SCADA, Automation distribution system and management | Understand |
| **SPECIFIC LEARNING OUTCOMES – Electric Vehicle Technologies** | | |
| C413.1 | Understand the concepts of electric vehicles, hybrid electric vehicles and their impact on environment | Understand |
| C413.2 | Describe different configurations of electric and hybrid electric drive trains | Analyze |
| C413.3 | Explain plug – in hybrid electric vehicle architecture, design and component sizing used in hybrid electric vehicles. | Apply |
| C413.4 | Analyze the drive-train topologies and advanced propulsion techniques | Analyze |
| C413.5 | Analyze hybrid energy storage methodologies | Analyze |
| C413.6 | Analyze suitable power converter topologies for motor control and hybrid energy storage | Analyze |
| **SPECIFIC LEARNING OUTCOMES – Management Science** | | |
| C414.1 | Explain the basic concepts of management in modern contexts | Understand |
| C414.2 | Discuss the organization structures and principles | Understand |

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| C414.3 | Outline the production and marketing aspects | Analyze |
| C414.4 | Explain the roles and responsibilities of Human Resource Manager | Understand |
| C414.5 | Prepare and implement strategies in the modern management | Create |
| C414.6 | Outline the modern management practices | Analyze |
| **SPECIFIC LEARNING OUTCOMES – Software Engineering** | | |
| C415.1 | Illustrate the different software process models and able to categorize the types of soft wares | Apply |
| C415.2 | Use the requirements analysis and specification for software development | Apply |
| C415.3 | Sketch Software Design for product implementation. | Apply |
| C415.4 | Apply Coding guidelines for conventional and object oriented programming. | Apply |
| C415.5 | Apply Testing guidelines for conventional and object oriented programming. | Apply |
| C415.6 | Use various non functional requirements for design and development of product or process. | Apply |
| **SPECIFIC LEARNING OUTCOMES – Cyber Security** | | |
| C416.1 | Describe the cybercrimes and understand the Indian ITA 2000 | Understand |
| C416.2 | Illustrate the vulnerabilities in any computing system and find the solutions | Remember |
| C416.3 | Predict the security threats of the future | Apply |
| C416.4 | Demonstrate the protection mechanisms | Analyze |
| C416.5 | Develop Security and privacy implications | Apply |
| C416.6 | Design security solutions for organizations | Analyze |
| **SPECIFIC LEARNING OUTCOMES – Energy Conservation and Audit Laboratory** | | |
| C417.1 | Understand energy conservation policies in India. | Understand |
| C417.2 | Apply the knowledge of energy scenario | Apply |
| C417.3 | Design energy conservation techniques in electrical machines. | Analyze |
| C417.4 | Apply energy conservation techniques in electrical installations, Co-generation and relevant tariff for reducing losses in facilities | Analyze |
| C417.5 | Examine the different energy efficient technologies in electrical system | Analyze |
| C417.6 | Analyze energy audit for electrical system. | Analyze |
| **SPECIFIC LEARNING OUTCOMES – Evaluation of Industry Internship** | | |
| C418.1 | Communicate effectively through report preparation and presentation | Understand |
| C418.2 | Describe the use of advanced tools and techniques available in industry and also industrial safety measures practiced in industry | Apply |
| C418.3 | Develop interpersonal and team skills, confidence of working in industry, awareness about the working environment and self-learning capability | create |
| C418.4 | learn the application of knowledge in real world problems. | Understand |

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| C418.5 | Get exposure to team-work and leadership quality | Analyse |
| C418.6 | Deal with industry-professionals and ethical issues in the work environment | Apply |

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**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::Nellore**

**Department of Electrical and Electronics Engineering**

**COURSE OUTCOMES**

| CAY : 2021-22 | Reg : R20 | SEM : II | Year : II |
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| SNO | COURSE OUTCOME STATEMENT | Taxonomy |
|---|---|---|
| **SPECIFIC LEARNING OUTCOMES – Numerical Methods & Probability theory** | | |
| **C221.1** | Use the numerical techniques find solution of algebraic and transcendental Equations. | Apply |
| **C221.2** | Determine the interpolating value of the function using Numerical techniques. | Apply |
| **C221.3** | Evaluate definite integrals using Newton cotes Formula. | Apply |
| **C221.4** | Utilize numerical methods to find numerical solution of ordinary and partial differential equations. | Apply |
| **C221.5** | Explain the basic concepts of probability, random variables and solve real time problems using Baye's theorem. | Understand |
| **C221.6** | Apply probability distributions like Bionomial, Poisson and Normal distributions to solve statistical problems | Apply |
| **SPECIFIC LEARNING OUTCOMES – Analog Electronic Circuits** | | |
| **C222.1** | List various types of feedback amplifiers, oscillators and large signal amplifiers | Remember |
| **C222.2** | Explain the operation of various electronic circuits and linear ICs | Understand |
| **C222.3** | Apply various types of electronic circuits to solve engineering problems | Apply |
| **C222.4** | Analyze various electronic circuits and regulated power supplies for proper understanding | Analyze |
| **C222.5** | Infer choice of transistor configuration in a cascade amplifier | Understand |
| **C222.6** | Construct electronic circuits for a given specification | Apply |
| **SPECIFIC LEARNING OUTCOMES – Power Electronics** | | |
| **C223.1** | Articulate the basics of power electronic devices | Understand |
| **C223.2** | compare voltages and currents, active and reactive power inputs to converter with and without freewheeling diode for 1Ø and 3Ø converters. | Apply |
| **C223.3** | Understand the concepts of various control strategies, types of choppers and analyze their principle operation, waveforms of | Understand |

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| | voltages and currents at different loads. | |
| **C223.4** | Understand the construction, working of single phase and three phase voltage inverters with their waveforms. | Understand |
| **C223.5** | Understand the concept of AC voltage controllers | Understand |
| **C223.6** | Understand the concept of Cyclo Converters | Understand |
| **SPECIFIC LEARNING OUTCOMES – AC Machines** | | |
| **C224.1** | Understand the basics of ac machine windings, construction, principle of working, equivalent circuit of induction and synchronous machines | Understand |
| **C224.2** | Analyze the phasor diagrams of induction and synchronous machine | Analyze |
| **C224.3** | Understand the constructional features, principle involved, equivalent circuit of single phase induction motor and various starting methods and its applications | understand |
| **C224.4** | Analyze the parallel operation of alternators, synchronization and load division of synchronous generators | Analyze |
| **C224.5** | Apply the concepts to determine V and inverted V curves and power circles of synchronous motor | apply |
| **C224.6** | Analyze the various methods of starting in both induction and synchronous machines | Analyze |
| **SPECIFIC LEARNING OUTCOMES – Electro Magnetic Field Theory** | | |
| **C225.1** | Acquires the Knowledge to understand basic principles, concepts and fundamental laws of electric fields. | Understand |
| **C225.2** | To describe static electric fields, their behavior in different media and associated Maxwell's equations. | Understand |
| **C225.3** | Acquires the Knowledge to understand basic principles, concepts and fundamental laws of magnetic fields. | Understand |
| **C225.4** | To describe static magnetic fields, their behavior in different media and associated Maxwell's equations. | Understand |
| **C225.5** | Acquires the knowledge to understand time- varying fields and interaction between electricity and magnetism. | Understand |
| **C225.6** | Acquires the knowledge to calculate the quantities associated with uniform plane wave motion in different media of transmission. | Apply |
| **SPECIFIC LEARNING OUTCOMES – Analog Electronics Laboratory** | | |
| **C226.1** | Analyze various amplifier circuits | Analyze |
| **C226.2** | Construct multistage amplifiers | Apply |
| **C226.3** | Construct OPAMP based analog circuits | Apply |
| **C226.4** | Understand working of logic gates | Understand |
| **C226.5** | Construct and implement Combinational circuits | Apply |
| **C226.6** | Construct and implement Sequential logic circuits | Apply |
| **SPECIFIC LEARNING OUTCOMES – Power Electronics Laboratory** | | |
| **C227.1** | Understand the various characteristics of power electronic devices with gate firing circuits and forced commutation techniques. | Understand |
| **C227.2** | Analyze the operation of single-phase half & fully-controlled converters and inverters with different types of loads. | Analyze |
| **C227.3** | Analyze the operation of DC-DC converters, single-phase AC Voltage controllers, | Analyze |
| **C227.4** | Analyze various power electronic converters using PSPICE | Analyze |

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| | software. | |
| **C227.5** | Analyze the operation cyclo converters with different loads. | Analyze |
| **C227.6** | Analyze the operation DC choppers with different loads. | Analyze |
| **SPECIFIC LEARNING OUTCOMES – AC Machines Laboratory** | | |
| **C228.1** | Analyze load test, no-load and blocked-rotor tests for construction of circle diagram and equivalent circuit determination in a single phase induction motor | Analyze |
| **C228.2** | understand and analyze speed control techniques of three phase induction motor | Apply |
| **C228.3** | understand to predetermine regulation of a three-phase alternator by synchronous impedance and MMF method | understand |
| **C228.4** | understand to predetermine regulation of a three-phase alternator by Zero Power Factor method | understand |
| **C228.5** | Determine Xd and Xq salient pole synchronous machine | Apply |
| **C228.6** | Evaluate and analyze V and inverted V curves of 3 phase synchronous motor | Evaluate |
| **SPECIFIC LEARNING OUTCOMES – Circuits Simulation & Analysis Using Pspice** | | |
| **C229.1** | Analyse various DC & AC circuits using PSPICE software | Analyse |
| **C229.2** | Analyse single-phase half controlled converters | Analyse |
| **C229.3** | Analyse single-phase fully controlled converters | Analyse |
| **C229.4** | Analyse single-phase Square wave and PWM inverters | Analyse |
| **C229.5** | Analyse three-phase Square wave and PWM inverters | Analyse |
| **C229.6** | Analyse single-phase AC Voltage controllers with different loads. | Analyse |
| **SPECIFIC LEARNING OUTCOMES – Design Thinking For Innovation** | | |
| **C2210.1** | Understand the concepts related to design thinking | Understand |
| **C2210.2** | Understand the fundamentals of Design Thinking and innovation | Understand |
| **C2210.3** | Apply the design thinking techniques for solving problems in various sectors | Apply |
| **C2210.4** | Analyse to work in a multidisciplinary environment | Analyse |
| **C2210.5** | Evaluate the value of creativity | Evaluate |
| **C2210.6** | Understand specific problem statements of real time issues | Understand |

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## GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::Nellore

### Department of Electrical and Electronics Engineering

**COURSE OUTCOMES**

| CAY : 2022-23 | Reg: R20 | SEM : II | Year : III |
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| SNO | COURSE OUTCOME STATEMENT | Taxonomy |
|---|---|---|
| **SPECIFIC LEARNING OUTCOMES – Power System Analysis** | | |
| C321.1 | Form the Zbus and Ybus of a given power system network | Apply |
| C321.2 | Conduct load flow studies using GS and NR methods | Apply |
| C321.3 | Make Calculations for various types of faults | Apply |
| C321.4 | Determine the transient stability by equal area criterion | Apply |
| C321.5 | Determine steady state stability power limit | Apply |
| C321.6 | Distinguish between different types of buses used in load flow solution. | Understand |
| **SPECIFIC LEARNING OUTCOMES – Digital Computer Platforms** | | |
| C322.1 | Understand the basic architecture & pin diagram of 8086 microprocessor, 8051 Microcontroller, DSP Processor and FPGA Processors | Understand |
| C322.2 | Apply the concepts to design Assembly language programming to perform a given task. | Apply |
| C322.3 | Understand the Interrupt service routines for all interrupt types | Understand |
| C322.4 | Understand the Real time applications by writing Assembly Language Programs for the Digital Signal Processors | Understand |
| C322.5 | Analyze Xilinx programming for Spartan FPGA boards and use Interrupts for real-time control applications | Analyze |
| C322.6 | Analyze various real time systems by using various controllers | Analyze |
| **SPECIFIC LEARNING OUTCOMES – Digital Signal Processing** | | |
| C323.1 | Understand the basic concepts of discrete-time signals and systems, classify systems based on their properties. | Understand |
| C323.2 | Determine the frequency response for the given LTI systems using difference equations and also plot its pole-zero. | Apply |
| C323.3 | Analyze discrete-time signals and systems using discrete time Fourier transform(DFT) and Fast Fourier transform(FFT). | Analyze |
| C323.4 | Design and implement digital filters (FIR & IIR) for the given specifications. | Design |
| C323.5 | Compare the digital filters and also realize the various filters for different structures in discrete-time systems. | Evaluate |
| C323.6 | Understand and develop the sampling rate conversion techniques, find the quantization errors in digital signal processing. | Understand |
| **SPECIFIC LEARNING OUTCOMES – HVDC and FACTS** | | |
| C324.1 | Understand the necessity of HVDC systems as emerging transmission networks | Understand |
| C324.2 | Analyze the Graetz circuit with various conditions. | Analyze |
| C324.3 | Apply various control schemes for the control of power flow in HVDC system. | Apply |
| C324.4 | Understand the Operation of converters and Transformer Connections in HVDC . | Understand |

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| C324.5 | Analyze the Operation of various Shunt devices and their control. | Analyze |
| C324.6 | Understand Principle of operation and Characteristics of UPFC and IPFC. | Understand |
| **SPECIFIC LEARNING OUTCOMES – Principles of Operating Systems** | | |
| C325.1 | Describe the fundamental organization of a computer systems | Understand |
| C325.2 | Explain about Operating systems functions | Understand |
| C325.3 | Differentiate between process and thread and classify scheduling Algorithms | Understand |
| C325.4 | Determine Synchronization and deadlock problems | Apply |
| C325.5 | Describe about various memory management schemes | Understand |
| C325.6 | Explain file systems concepts and I/O management | Understand |
| **SPECIFIC LEARNING OUTCOMES – Power Systems Analysis Lab** | | |
| C326.1 | Determination of sequence impedance and sub transient reactance of synchronous machine | Apply |
| C326.2 | Conduct experiments to analyze LG, LL, LLG, LLLG faults | Analyze |
| C326.3 | Estimate the parameters of three winding transformer equivalent circuit | Evaluate |
| C326.4 | Develop MATLAB program for formation of Y and Z buses | Analyze |
| C326.5 | Develop MATLAB programs for gauss-seidel Newton Raphson and fast decoupled load flow studies. | Analyze |
| C326.6 | Develop the SIMULINK model load frequency control problem | Analyze |
| **SPECIFIC LEARNING OUTCOMES – Digital Computing Platforms Lab** | | |
| C327.1 | Understand the basic concepts to write assembly language programming on 8086 Microprocessors. | Understand |
| C327.2 | | |
| C327.3 | Analyze various device configurations and Interfacing of various devices with 8086. | Analyze |
| C327.4 | Analyze the parallel and serial communication between two microprocessors using USART. | Analyze |
| C327.5 | Understand the basic concepts to write programming on 8051 Microcontroller | Understand |
| C327.6 | Understand various device configurations and Interfacing of various devices with 8051 | Understand |
| **SPECIFIC LEARNING OUTCOMES – Digital Signal Processing Lab** | | |
| C328.1 | Demonstrate DSP and its applications using MATLAB software | Understand |
| C328.2 | Examine the frequency response of discrete-time LTI systems. | Apply |
| C328.3 | Design of IIR, FIR digital filters for the given specifications also observe the frequency response. | Analyze |
| C328.4 | Learn the architecture details of floating point DSPs | Understand |
| C328.5 | Implement DSP algorithms in software using CCS with DSP floating point Processor | Evaluate |
| C328.6 | Analyze the basic signals and also find the discrete Fourier transform (DFT) for discrete-time signals/sequences. | Understand |
| **SPECIFIC LEARNING OUTCOMES – Applications of Soft Computing Tools in Electrical Engineering** | | |
| 329.1 | Analyse the transient response of Electrical Network and Power System using equal area criterion. | Analyse |
| 329.2 | Apply the concepts to design models of Transformers through MATLAB | Apply |
| 329.3 | Analyse various converters through MATLAB. | Analyse |
| 329.4 | Analyse Sine-PWM techniques for various inverters through MATLAB | Analyse |
| 329.5 | Analyse the faults by using Zbus Matrix | Analyse |

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| 329.6 | Analyse real time models using MATLAB | Analyse |
| **SPECIFIC LEARNING OUTCOMES – Intellectual Property Rights & Patents** | | |
| 3210.1 | Understand the details of IPR law | Understand |
| 3210.2 | Understand the details of Cyber law | Understand |
| 3210.3 | Illustrate the copy right law | Remember |
| 3210.4 | Discuss about registration process associated with trademarks | Understand |
| 3210.5 | Discuss about maintenance and litigations associated with trademarks | Understand |
| 3210.6 | Understand the trade secret law | Understand |

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**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::NELLORE**
**Department of Electrical and Electronics Engineering**

## COURSE OUTCOMES

| CAY : 2022-23 | SEM : II | R19 | Year : IV |
|---|---|---|---|

| SNO | COURSE OUTCOME STATEMENT | Taxonomy |
|---|---|---|
| **SPECIFIC LEARNING OUTCOMES – ELECTRICAL DISTRIBUTION SYSTEM AUTOMATION** | | |
| C421.1 | Understand basics of distribution systems and substations | Understand |
| C421.2 | Understand about modelling of various loads | Understand |
| C421.3 | Perform distribution load flow solutions | Apply |
| C421.4 | Understand about installation of capacitors at various locations | Understand |
| C421.5 | Evaluate power loss and feeder cost | Apply |
| C421.6 | Know the principles of SCADA, Automation distribution system and management | Understand |
| **SPECIFIC LEARNING OUTCOMES –** ELECTRONICS INSTRUMENTATION | | |
| C422.1 | Understand the different methods for measurement of various electrical quantities. | Understand |
| C422.2 | Compare the various measuring techniques for measuring voltage. | Analyse |
| C422.3 | Use oscilloscope to determine frequency and phase of a sinusoidal signal. | Apply |
| C422.4 | Select specific instruments for specific measurement function. | Analyse |
| C422.5 | Compare different types of bridge circuits. | Analyse |
| C422.6 | Analyze various measuring techniques for both electrical and nonelectrical quantities. | Analyse |
| **SPECIFIC LEARNING OUTCOMES – Project Work** | | |
| C423.1 | Demonstrate a sound technical knowledge of their selected project topic. | Apply |
| C423.2 | Able to identify the problem, formulate a prospective solution | Understand |
| C423.3 | Design engineering solutions to the given problem using a systems approach. | Create |
| C423.4 | Conduct experiments or simulation and collect observation for the engineering project | Analyse |
| C423.5 | Develop a prototype of the project by distribution of tasks among the team | Create |
| C423.6 | Communicate with engineers and the community at large in written an oral forms | Create |

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