## 2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website

### JNTUA - R15 Regulation - Course Outcomes



**Principal**

PRINCIPAL
Vaagdevi Institute of Technology & Science
PEDDASETTIPALLI.
PRODDATUR. Kadapa (Dist.)

# DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: II B.TECH - I SEM | | | BRANCH: ECE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Mathematics-III | 15A54301 | CO1 | Explain the concepts of matrices and its applications |
| | | | CO2 | Able to solve the algaebraic and transcendental equations using numerical methods |
| | | | CO3 | Able to understand inter polation and extra polation and apply the appropriate methods to solve the problems. |
| | | | CO4 | Construct the different types of curves by using the different numerical techniques. |
| | | | CO5 | Solve the ordinary differential equations by applying the various numerical techniques. |
| 2 | Electronic Devices and Circuits | 15A04301 | CO1 | Analyze the operating principles of major electronic devices, its characteristics and applications. |
| | | | CO2 | Design and analyze the DC bias circuitry of BJT and FET. |
| | | | CO3 | Design and analyze basic transistor amplifier circuits using BJT and FET. |
| 3 | Switching Theory and Logic Design | 15A04302 | CO1 | To introduce basic postulates of Boolean algebra and the methods for simplifying Boolean expressions |
| | | | CO2 | To illustrate the concepts and study the procedures for the analysis and design of combinational circuits and sequential circuits. |
| | | | CO3 | To introduce the concepts of programmable logic devices. |
| 4 | Signals and Systems | 15A04303 | CO1 | For integro-differential equations, the students will have the knowledge to make use of Laplace transforms. |
| | | | CO2 | For continuous time signals the students will make use of Fourier transform and Fourier series. |
| | | | CO3 | For discrete time signals the students will make use of Z transforms. |
| | | | CO4 | The concept of convolution is useful for analysis in the areas of linear systems and communication theory |
| 5 | Probability Theory and Stochastic Processes | 15A04304 | CO1 | Understand the concept of a Random Variable and operations that may be performed on a single Random variable. |

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| | | | CO2 | Understand the concept of a Multiple Random Variable and operations that may be performed on a single Multiple Random variable |
| | | | CO3 | Determine the temporal characteristics of random signal response of a given linear system. |
| | | | CO4 | To determine the spectral characteristics of random signal response of a given linear system. |
| | | | CO5 | To understand Linear Systems with Random inputs |
| 6 | Electrical Technology | 15A02306 | CO1 | Understand DC Generators and its operation |
| | | | CO2 | Understand D.C. Motors, and its operation |
| | | | CO3 | Understand Single Phase transformers. |
| | | | CO4 | Understand3-Phase Induction Motors. |
| | | | CO5 | Understand Synchronous Machines |
| 7 | Electronic Devices and Circuits Laboratory | 15A04305 | CO1 | Get knowledge about Semiconductor devices and also learn the current and voltage characteristics of various devices. |
| | | | CO2 | Get knowledge about different types rectifiers and filters along with their efficiency and ripple factors. |
| | | | CO3 | Learn about different types of BJT Transistor configurations along with current and voltage characteristics |
| | | | CO4 | Learn about different types of FET Transistor configurations along with current and voltage characteristics |
| | | | CO5 | Get knowledge about small signal low frequency BJT Transistor amplifiers along with their h-parameters. |
| 8 | Electrical Technology and Basic Simulation Laboratory | 15A02307 | CO1 | Perform the Characteristics of D.C.Shunt Generator |
| | | | CO2 | Perform various operations on signals |
| | | | CO3 | Verify the properties of LTI system and its response for different inputs. |
| | | | CO4 | Analyze the signals using various transforms |
| | | | CO5 | Analyze the characteristics of signals in noisy environment. |

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| YEAR/SEM: II B.TECH - II SEM | | | BRANCH: ECE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Mathematics-IV | 15A54402 | CO1 | Able to get knowledge inbeta and gamma functionsand Techniques of Beta andGamma functions to improper integrals, Expressing complex functions in power series, Conformal mappings and bilinear transformations. |
| | | | CO2 | Develop skills in Analyzing the properties exhibited by complex functions in Argand plane, Properties of real integrals through complex variable techniques, the properties of improper integrals through residue theory, Conformal transformations of complex valued functions for inferences. |
| | | | CO3 | Develop skills in designing mathematical models involving Integrals of complex variable functions, Improper integrals using beta and gamma functions, Residue theory of complex functions. |
| | | | CO4 | Develop analytical skills in providing solutions for problems involving Integration of complex functions, Improper real integrals |
| | | | CO5 | Use relevant Complex variable techniques for Residues and integrals of complex functions, Improper real integrals through complex functions. |
| 2 | Electronic Circuit Analysis | 15A04401 | CO1 | Demonstrate different feedback amplifiers including Voltage series, Voltage shunt, Current series and Current shunt Feedback amplifiers. |
| | | | CO2 | Analyze the frequency response of the BJT amplifiers at low and high frequencies. |
| | | | CO3 | Illustrate the parameters of Single stage and multistage amplifiers. |
| | | | CO4 | Design and analyze different types of power amplifiers including Class-A, Class-B, Class-AB & Class –D power amplifiers and compare them in terms of Efficiency. |
| | | | CO5 | Design and analyze different types of Tuned Amplifiers. |
| 3 | Analog Communication Systems | 15A04402 | CO1 | Acquire knowledge on the basic concepts of Analog Communication Systems. |
| | | | CO2 | Analyze the analog modulated and demodulated systems. |

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| | | | CO3 | Verify the effect of noise on the performance of communication systems. |
| | | | CO4 | Know the fundamental concepts of information and capacity. |
| 4 | Electromagnetic Theory and Transmission Lines | 15A04403 | CO1 | Analyze and solve the problems of electric and magnetic fields that vary with three dimensional spatial co-ordinates as well as with time. |
| | | | CO2 | Become proficient with analytical skills for understanding propagation of electromagnetic waves in different media. |
| | | | CO3 | Understand the concept of transmission lines & their applications. |
| | | | CO4 | Develop technical & writing skills important for effective communication. |
| | | | CO5 | Acquire team-work skills for working effectively in groups. |
| 5 | Data Structures | 15A05201 | CO1 | Ability to analyze algorithms and algorithm correctness. |
| | | | CO2 | Ability to summarize searching and sorting techniques |
| | | | CO3 | Ability to describe stack, queue and linked list operation. |
| | | | CO4 | Ability to have knowledge of tree and graphs concepts |
| | | | CO5 | Ability to have knowledge of algorithms |
| 6 | Control Systems Engineering | 15A02303 | CO1 | Evaluate the effective transfer function of a system from input to output using (i) block diagram reduction techniques (ii) Mason's gain formula |
| | | | CO2 | Compute the steady state errors and transient response characteristics for a given system and excitation. |
| | | | CO3 | Determine the absolute stability and relative stability of a system |
| | | | CO4 | Draw root loci. |
| | | | CO5 | Design a compensator to accomplish desired performance |
| | | | CO6 | Derive state space model of a given physical system and solve the state equation |
| 7 | Electronic Circuit Analysis Laboratory | 15A04404 | CO1 | The ability to analyze and design single and multistage amplifiers at low, mid and high frequencies. |
| | | | CO2 | Designing and analyzing the transistor at high frequencies. |
| | | | CO3 | Determine the efficiencies of power amplifiers. |

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| | | | CO4 | Determine Frequency response and design of tuned amplifiers. |
| | | | CO5 | Able to Analyze all the circuits using simulation software and Hardware. |
| 8 | Analog Communication Systems Laboratory | 15A04405 | CO1 | To experience real time behavior of different analog modulation schemes. |
| | | | CO2 | Technically visualize spectra of different analog modulation schemes |
| | | | CO3 | Analyze practical behavior of different elements available in analog communication system such as filters, amplifiers etc. |
| | | | CO4 | Measure characteristics of radio receiver and antenna measurements. |

B. Siddeswara

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| YEAR/SEM: III B.TECH - I SEM | | | BRANCH: ECE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Computer Organization | 15A04511 | CO1 | Identify functional units, bus structure and addressing modes |
| | | | CO2 | Design the hardwired and micro-programmed control units. |
| | | | CO3 | Understand pipelined execution and instruction scheduling |
| 2 | Antennas and Wave Propagation | 15A04501 | CO1 | Approximate parametric equations for the calculation in the farfield region. |
| | | | CO2 | Write parametric integral expressions for a given current source. |
| | | | CO3 | Calculate electromagnetic fields for a given vector potential. |
| | | | CO4 | Discover pattern multiplication principle for array antennas. |
| 3 | Digital Communication Systems | 15A04502 | CO1 | Understand the elements of DCS & the fundamentals concepts of sampling theorem along with different coding and modulation techniques |
| | | | CO2 | Understand the basic principles of base band and pass band digital modulation schemes. |
| | | | CO3 | Analyze probability of error performance of digital systems and are able to design digital communication systems |
| 4 | Linear Integrated Circuits and Applications | 15A04503 | CO1 | Understand the basic building blocks of linear integrated circuits and its characteristics. |
| | | | CO2 | Analyze the linear, non-linear and specialized applications of operational amplifiers. |
| | | | CO3 | Understand the theory of ADC and DAC. |
| | | | CO4 | Realize the importance of Operational Amplifier. |
| 5 | Digital System Design | 15A04504 | CO1 | Identify functional units, bus structure and addressing modes |
| | | | CO2 | Design the hardwired and micro-programmed control units. |
| | | | CO3 | Understand pipelined execution and instruction scheduling. |
| 6 | MEMS & Micro Systems | 15A04506 | CO1 | Describe about introduction to mems and Microsystems and properties and materials for MEMS devices. |
| | | | CO2 | Explain about different micro maching technique and fabrication of Mems |

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| | | | | Devices. |
| | | | CO3 | Explain about different micro sensors and applications of Mems Sensors. |
| | | | CO4 | Describe different Mems accelerometer and case study on Mems applications. |
| | | | CO5 | Explain about Mems applications. |
| 7 | IC Applications Laboratory | 15A04507 | CO1 | Design analog circuits for practical applications using Op Amp IC-741 |
| | | | CO2 | Design waveform generators and PLL circuits using ICs. |
| | | | CO3 | Design multi vibrators using IC555 and Schmitt trigger using IC741. |
| | | | CO4 | Analyze the practical applications of Voltage Regulator using various ICs. |
| 8 | Digital Communication Systems Laboratory | 15A04508 | CO1 | The students will be able to experience real time behavior of different digital modulation schemes. |
| | | | CO2 | Experiment with the principle of PCM, DPCM, DM, ADM and TDM |
| | | | CO3 | Analyze different digital modulation and demodulation schemes. |
| | | | CO4 | Analyze Spectral characteristics of PAM, PWM and QAM |
| | | | CO5 | Experiment with OFDM generation and detection. |
| 9 | Audit course – Social Values & Ethics | 15A99501 | CO1 | Able recall family,and human values and compare his family with others. |
| | | | CO2 | Classify the fundamental Rights and fundamental duties of citizen Influence the factors affecting youth crime.. |
| | | | CO3 | Explain the Environmental issues and Justify the objectives of civil defense. |
| | | | CO4 | Demonstrate Gender inequality, Domestic violence and Appraise the government schemes ,laws. |
| | | | CO5 | Importance the games ,sports,and benefits of exercise, Recommend the yoga asanas ,mudras and pranayama. |

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| YEAR/SEM: III B.TECH - II SEM | | | BRANCH: ECE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Managerial Economics and Financial Analysis | 15A52301 | CO1 | The student will able to understand various aspects of Managerial Economics. |
| | | | CO2 | To Analyze the financial statements and inputs. |
| | | | CO3 | To Understand the sound and effective decisions under different economic environment and market situations. |
| | | | CO4 | To Remember and Apply the Profitability, and Activity Ratios (simple problems). |
| | | | CO5 | Methods and Evaluation of Capital Budgeting Projects. |
| 2 | Microprocessors & Micro controllers | 15A04601 | CO1 | Do programming with 8086 microprocessors. |
| | | | CO2 | Understand concepts of Intel x86 series of processors. |
| | | | CO3 | Program MSP 430 for designing any basic Embedded System. |
| | | | CO4 | Design and implement some specific real time applications Using MSP 430 low power microcontroller. |
| 3 | Electronic Measurements and Instrumentation | 15A04602 | CO1 | Understand basic principles involved in the meters for measuring voltage, current, resistance, frequency and so on. |
| | | | CO2 | Employ CRO for measuring voltage, current, resistance, frequency and so on. |
| | | | CO3 | Understand principles of measurements associated with different bridges. |
| | | | CO4 | Get complete knowledge regarding working of advanced instruments such as logic analyzers and spectrum analyzers. |
| 4 | Digital Signal Processing | 15A04603 | CO1 | Formulate engineering problems in terms of DSP tasks. |
| | | | CO2 | Apply engineering problems solving strategies to DSP problems. |
| | | | CO3 | Design and test DSP algorithms. |
| | | | CO4 | Analyze digital and analog signals and systems. Analyze and compare different signal processing strategies. |
| | | | CO5 | Analyze digital and analog signals and systems. |
| | | | CO6 | Analyze and compare different signal processing strategies. |
| 5 | VLSI Design | 15A04604 | CO1 | Complete Knowledge about Fabrication process of ICs. |

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| | | | CO2 | Able to design VLSIcircuits as per specifications given. |
| | | | CO3 | Capable of optimizing the design of Arithmetic / logic building Blocks at all levels of Design/Fabrication. |
| | | | CO4 | Can implement circuit through various design styles ( semi- Custom, Full Custom) |
| 6 | MATLAB Programming | 15A04605 | CO1 | To able to familiarize the MATLAB Windows, syntaxes for basic computing. |
| | | | CO2 | To understand and familiarize of Numeric, Cell and structure arrays and their operations |
| | | | CO3 | To apply built -in and user defined functions concepts in writing MATLAB scripts in developing the solutions. |
| | | | CO4 | To use various data operators, flow controls and advanced plotting commands in writing MATLAB scripts. |
| | | | CO5 | To differentiate underdetermined and overdetermined systems and use appropriate MATLAB commands to provide the solutions of each . |
| 7 | Microprocessors & Micro Controllers Laboratory | 15A04607 | CO1 | Can Ensure the completely use of MASM programming environment. |
| | | | CO2 | Debug assembly language programs using 8086 assembler. |
| | | | CO3 | Analyze the interfacing between external peripherals and 8086 microprocessor using development kit. |
| | | | CO4 | Debug msp430 assembly language programs using CCS. |
| | | | CO5 | Analyze the interfacing between external peripherals and MSP 430 microcontroller using development kit. |
| 8 | Digital Signal Processing Laboratory | 15A04608 | CO1 | Find the response of a Linear time invariant discrete time system. |
| | | | CO2 | Analyze the frequency spectrum of a discrete time signal |
| | | | CO3 | Determine the spectrum of a real world signal using Fast Fourier Transform Algorithm |
| | | | CO4 | Design real time DSP systems and real world applications. |
| | | | CO5 | Implement DSP algorithms using both fixed and floating point processors |
| 9 | Advanced English | 15A52602 | CO1 | Analyze the performance of both digital and analog optical fiber systems |

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| | Language Communication Skills (AELCS) Laboratory | | CO2 | Calculate the system bandwidth, noise, probability of error and maximum usable bit rate of a digital fiber system |
| | | | CO3 | Calculate the system link loss, distortion and dynamic range of an RF photonic link |
| | | | CO4 | To perform characteristics of fiber sources and detectors, design as well as conduct experiment in software and hardware, and analyze the results to provide valid conclusions. |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: IV B.TECH - I SEM | | | BRANCH: ECE | |
| **S.No** | **Subject Name** | **Subject Code** | **Course Outcomes (CO):** Student will be able to | |
| 1 | Optical Fiber Communication | 15A04701 | CO1 | Analyze the performance of both digital and analog optical fiber systems |
| | | | CO2 | Calculate the system bandwidth, noise, probability of error and maximum usable bit rate of a digital fiber system |
| | | | CO3 | Calculate the system link loss, distortion and dynamic range of an RF photonic link |
| | | | CO4 | To perform characteristics of fiber sources and detectors, design as well as conduct experiment in software and hardware, and analyze the results to provide valid conclusions. |
| 2 | Embedded Systems | 15A04702 | CO1 | Design of embedded systems leading to 32-bit application development. |
| | | | CO2 | Understand hardware-interfacing concepts to connect digital as well as analog sensors while ensuring low power considerations. |
| | | | CO3 | Review and implement the protocols used by micro controller to communicate with external sensors and actuators in real world. |
| | | | CO4 | Understand Embedded Networking and IoT concepts based upon connected MCUs . |
| 3 | Microwave Engineering | 15A04703 | CO1 | Ability to analyze micro-wave circuits incorporating hollow, dielectric and planar wave guides, transmission lines, filters and other passive components, active devices. |
| | | | CO2 | Ability to Use S-parameter terminology to describe circuits and to explain how microwave devices and circuits are characterized in terms of their "S"- Parameters. |
| | | | CO3 | Ability to understanding of microwave transmission lines and how to Use microwave components such as isolators, Couplers, Circulators, Tees, Gyrators etc. |
| 4 | Data Communications and Networking | 15A04704 | CO1 | Understand and explain the concept of Data Communication and networks, layered architecture and their applications. |
| | | | CO2 | Analyze and Set up protocol designing issues for Communication networks. |
| | | | CO3 | Evaluate data communication link considering elementary concepts of data link layer protocols for error detection and correction. |

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| | | | CO4 | Apply various network layer techniques for designing subnets and super nets and analyze packet flow on basis of routing protocols. |
| | | | CO5 | Understand and design application layer protocols and internet applications such as network security, Email and DNS. |
| 5 | Radar Systems | 15A04705 | CO1 | Understand radar fundamentals and analysis of the radar signals. |
| | | | CO2 | Understand various radar transmitters and receivers. |
| | | | CO3 | Understand various radar like MTI, Doppler and tracking radar and their comparison. |
| 6 | Cellular & Mobile Communication | 15A04709 | CO1 | The student will be able to understand impairments due to multipath fading channel. |
| | | | CO2 | Understand the fundamental techniques to overcome the different fading effects. |
| | | | CO3 | To understand Co-channel and Non Co-channel interferences. |
| | | | CO4 | Able to familiar with cell coverage for signal and traffic, diversity techniques and mobile antennas. |
| | | | CO5 | Understanding of frequency management, channel assignment and types of handoff. |
| 7 | Microwave and Optical Communication Laboratory | 15A04711 | CO1 | Capable of Applying microwave Concepts/ Microwave components and test them . |
| | | | CO2 | Able to design and analyse an optical fiber communications link |
| 8 | VLSI & Embedded Systems Laboratory | 15A04712 | CO1 | Design and draw the internal structure of the various digital integrated circuits. |
| | | | CO2 | Develop VHDL/Verilog HDL source code, perform simulation using relevant simulator and analyze the obtained simulation results using necessary synthesizer. |
| | | | CO3 | Verify the logical operations of the digital IC"s (Hardware) in the laboratory. |

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| YEAR/SEM: IV B.TECH - II SEM | | | BRANCH: ECE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Low Power VLSI Circuits & Systems | 15A04802 | CO1 | Under stand the concepts of velocity saturation, Impact Ionization and Hot Electron Effect. |
| | | | CO2 | Implement Low power design approaches for system level and circuit level measures. |
| | | | CO3 | Implement Low power design approaches for system level and circuit level measures. |
| | | | CO4 | Design low power adders, multipliers and memories for efficient design of systems. |
| 2 | RF Integrated Circuits | 15A04804 | CO1 | Gain a comprehensive understanding of radio frequency principles, including concepts such as impedance matching, transmission lines, Smith charts, and signal propagation in high-frequency circuits. |
| | | | CO2 | Students should learn various design techniques specific to RFICs, such as designing RF amplifiers, mixers, oscillators, and filters. This includes understanding the impact of parasitic elements and non-idealities on RF circuit performance. |
| | | | CO3 | Students should become proficient in using RF simulation tools like ADS (Advanced Design System), Cadence Virtuoso, or Keysight Genesys to simulate and analyze RF circuits. This includes understanding how to perform S-parameter analysis, noise analysis, and armonic balance simulations. |
| | | | CO4 | Understanding the fabrication process of RFICs, including semiconductor materials, lithography, etching, and packaging techniques specific to RF applications. |
| | | | CO5 | Understanding noise sources in RF circuits and techniques to minimize noise figure. Additionally, understanding linearity requirements in RF systems and techniques to improve linearity, such as distortion cancellation and linearization techniques. |

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|---|---|---|---|---|
| YEAR/SEM: II B.TECH - I SEM | | | BRANCH: EEE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Mathematics-III | 15A54301 | CO1 | Explain the concepts of matrices and its applications |
| | | | CO2 | Able to solve the algaebraic and transcendental equations using numerical methods |
| | | | CO3 | Able to understand inter polation and extra polation and apply the appropriate methods to solve the problems. |
| | | | CO4 | Construct the different types of curves by using the different numerical techniques. |
| | | | CO5 | Solve the ordinary differential equations by applying the various numerical techniques. |
| 2 | Electrical Circuits – II | 15A02301 | CO1 | Determine the transient response of R-L, R-C, R-L-C circuits for D.C. and A.C. excitations. |
| | | | CO2 | Analyze three phase balanced and unbalanced circuits and determine line voltages, line currents, phase voltages and phase currents. |
| | | | CO3 | Measure active and reactive power consumed by a given three phase circuit. |
| | | | CO4 | Apply Fourier transforms to electrical circuits excited by non-sinusoidal sources. |
| | | | CO5 | Analysis of electrical networks, duality and dual networks. |
| | | | CO6 | Design different types of filters. |
| | | | CO7 | Simulate D.C. Circuits. |
| 3 | Electrical Machines – I | 15A02302 | CO1 | Calculate the e.m.f. generated on open circuit and find terminal voltage on load. |
| | | | CO2 | Diagonise the failure of DC generator to build up voltage |
| | | | CO3 | Compute the load shared by each generator when several generators operate in parallel. |
| | | | CO4 | Determine the gross torque and useful torque developed by DC motor . |
| | | | CO5 | Identify suitable method and conditions for obtaining the required speed of DC motor |
| | | | CO6 | Calculate the losses and efficiency of DC generators and motors |
| 4 | Control Systems Engineering | 15A02303 | CO1 | Evaluate the effective transfer function of a system from input to output using (i) block diagram reduction techniques (ii) Mason's gain formula. |
| | | | CO2 | Compute the steady state errors and transient |

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| | | | | response characteristics for a given system and excitation |
| | | | CO3 | Determine the absolute stability and relative stability of a system |
| | | | CO4 | Draw root loci. |
| | | | CO5 | Design a compensator to accomplish desired performance |
| | | | CO6 | Derive state space model of a given physical system and solve the state equation. |
| 5 | Electronic Devices & Circuits | 15A04301 | CO1 | Analyze the operating principles of major electronic devices, its characteristics and applications. |
| | | | CO2 | Design and analyze the DC bias circuitry of BJT and FET. |
| | | | CO3 | Design and analyze basic transistor amplifier circuits using BJT and FET. |
| 6 | Data Structures | 15A05201 | CO1 | Ability to analyze algorithms and algorithm correctness. |
| | | | CO2 | Ability to summarize searching and sorting techniques. |
| | | | CO3 | Ability to describe stack, queue and linked list operation. |
| | | | CO4 | Ability to have knowledge of tree and graphs concepts. |
| | | | CO5 | Ability to have knowledge of algorithms |
| 7 | Electric Circuits Simulation Laboratory | 15A02305 | CO1 | Explain electric circuit concepts by interpreting the simulation results. |
| | | | CO2 | Design RLC series circuit for specified frequency response. |
| | | | CO3 | Analyze three phase balanced and unbalanced circuits. |
| | | | CO4 | Design RL, RC and RLC circuits for specified transient response. |
| 8 | Electronic Devices & Circuits Laboratory | 15A04305 | CO1 | Get knowledge about Semiconductor devices and also learn the current and voltage characteristics of various devices. |
| | | | CO2 | Get knowledge about different types rectifiers and filters along with their efficiency and ripple factors. |
| | | | CO3 | Learn about different types of BJT Transistor configurations along with current and voltage characteristics. |
| | | | CO4 | Learn about different types of FET Transistor configurations along with current and voltage characteristics. |

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| | | | CO5 | Get knowledge about small signal low frequency BJT Transistor amplifiers along with their h-parameters. |

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| YEAR/SEM: II B.TECH - II SEM | | | BRANCH: EEE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Mathematics-IV | 15A54402 | CO1 | Able to get knowledge inbeta and gamma functionsand Techniques of Beta andGamma functions to improper integrals, Expressing complex functions in power series, Conformal mappings and bilinear transformations. |
| | | | CO2 | Develop skills in Analyzing the properties exhibited by complex functions in Argand plane, Properties of real integrals through complex variable techniques, the properties of improper integrals through residue theory, Conformal transformations of complex valued functions for inferences. |
| | | | CO3 | Develop skills in designing mathematical models involving Integrals of complex variable functions, Improper integrals using beta and gamma functions, Residue theory of complex functions. |
| | | | CO4 | Develop analytical skills in providing solutions for problems involving Integration of complex functions, Improper real integrals |
| | | | CO5 | Use relevant Complex variable techniques for Residues and integrals of complex functions, Improper real integrals through complex functions. |
| 2 | Managerial Economics and Financial Analysis | 15A52301 | CO1 | The student will able to understand various aspects of Managerial Economics. |
| | | | CO2 | To Analyze the financial statements and inputs. |
| | | | CO3 | To Understand the sound and effective decisions under different economic environment and market situations. |
| | | | CO4 | To Remember and Apply the Profitability, and Activity Ratios (simple problems). |
| | | | CO5 | Methods and Evaluation of Capital Budgeting Projects. |
| 3 | Electrical Machines – II | 15A02401 | CO1 | Draw the equivalent circuit of transformer |
| | | | CO2 | Conduct O.C, S.C tests and predetermine the regulation and efficiency of transformer |
| | | | CO3 | Compute the load shared by each transformer when several transformers operate in parallel |
| | | | CO4 | Draw the circle diagram of a three phase Induction motor and predetermine the |

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| | | | | performance characteristics |
| | | | CO5 | Determine the starting torque, maximum torque, slip at maximum torque using given data |
| 4 | Electrical Power Generating Systems | 15A02402 | CO1 | Estimate the coal requirement, cost per kWh generation and number of units generated for thermal power station |
| | | | CO2 | Estimate the required flow of river water, cost of generation and number of units generated in hydel power generation |
| | | | CO3 | Compute various factors like load factor, plant factor |
| | | | CO4 | Evaluate the tariffs to be charged for the consumers |
| | | | CO5 | Plot the load curve, load duration curve and hence determine the load capacity of the plant |
| 5 | Electromagnetic Fields | 15A02403 | CO1 | Knowledge on basic principles, concepts and fundamental laws of electromagnetic fields. |
| | | | CO2 | The knowledge to understand 3-dimensional co-ordinate systems, electrostatics, magneto statics, time-varying fields and interaction between electricity and magnetism. |
| | | | CO3 | The knowledge to calculate the quantities associated with uniform plane wave motion in different media of transmission. |
| 6 | Analog Electronic Circuits | 15A04409 | CO1 | Understand the Methods ofbiasing transistors & Design of simple amplifier circuits. |
| | | | CO2 | Understand the Mid – band analysis ofamplifier circuits using small - signal equivalent circuits to determine gain, input impedance and output impedance. |
| | | | CO3 | Understand the Method ofcalculating cutofffrequencies and to determine bandwidth. |
| | | | CO4 | Design and analyse different Oscillator circuits. |
| | | | CO5 | Design ofcircuits for linear wave shaping and Multi-vibrators. |
| 7 | Electrical Machines Laboratory – I | 15A02404 | CO1 | Conduct experiments to obtain the no-load and load characteristics of D.C. Generators |
| | | | CO2 | Conduct tests on D.C. motors for predetermination of efficiency |
| | | | CO3 | Conduct tests on D.C. motors for determination of efficiency |
| | | | CO4 | Control the speed of D.C. motor in a given range using appropriate method |
| | | | CO5 | Identify the reason as to why D.C. Generator is not building up voltage |

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| 8 | Control Systems & Simulation Laboratory | 15A02405 | CO1 | Design the controllers/compensators to achieve desired specifications. |
| | | | CO2 | Understand the effect of location of poles and zeros on transient and steady state behavior of systems. |
| | | | CO3 | Assess the performance, in terms of time domain specifications, of first and second order systems. |
| | | | CO4 | Use MATLAB/SIMULINK software for control system analysis and design. |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: III B.TECH - I SEM | | | BRANCH: EEE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Electrical Measurements | 15A02501 | CO1 | Use wattmeters, pf meters, and energy meters in a given circuit. |
| | | | CO2 | Extend the range of ammeters and voltmeters Measure active power, reactive power, power factor, and energy in both 1 -phase and 3-phase circuits |
| | | | CO3 | Measure active power, reactive power, power factor, and energy in both 1 -phase and 3-phase circuits |
| | | | CO4 | Determine the resistance values of various ranges, L and C values using appropriate bridges. |
| | | | CO5 | Analyze the different characteristic features of periodic, and aperiodic signals using CRO. |
| | | | CO6 | Use CTs and PTs for measurement of very large currents and high voltages |
| 2 | Linear & Digital IC Applications | 15A04509 | CO1 | Understand the basic building blocks of linear integrated circuits and its characteristics. |
| | | | CO2 | Analyze the linear, non-linear and specialized applications of operational amplifiers. |
| | | | CO3 | Understand the theory of ADC and DAC. |
| | | | CO4 | Able to use computer-aided design tools for development of complex digital logic circuits. |
| | | | CO5 | Able to model, simulate, verify, analyze, and synthesize with hardware description languages. |
| | | | CO6 | Able to design and prototype with standard cell technology and programmable logic. |
| | | | CO7 | Able to design tests for digital logic circuits, and design for testability. |
| 3 | Electrical Power Transmission Systems | 15A02502 | CO1 | Compute the transmission line parameters. |
| | | | CO2 | Model a given transmission line. |
| | | | CO3 | Estimate the performance of a given transmission line. |
| | | | CO4 | Analyze the effect of over voltages on transmission lines. |
| | | | CO5 | Explain the construction, types and grading of underground cables and analyze cable performance. |
| 4 | Power Electronics | 15A02503 | CO1 | Acquires Knowledge about Basic operating principles of power semiconductor switching devices. |

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| | | | CO2 | Acquires Knowledge about the operation of power electronic converters, choppers, inverters, AC voltage controllers, and cycloconverters, and their control. |
| | | | CO3 | Acquires Knowledge about how to apply the learnt principles and methods to practical applications. |
| 5 | Electrical Machines – III | 15A02504 | CO1 | Predetermine the regulation of synchronous generators using different methods. |
| | | | CO2 | Determine how several alternators running in parallel share the load on the system. |
| | | | CO3 | Analyze the performance characteristics of synchronous motors. |
| | | | CO4 | Make necessary calculations for power factor improvement using synchronous condenser. |
| | | | CO5 | Choose specific 1 -phase motor and/or special motors for a given application. |
| 6 | Digital Circuits and Systems | 15A04510 | CO1 | Manipulate numeric information in different forms, e.g. different bases, signed integers, various codes such as ASCII, Gray, and BCD. |
| | | | CO2 | Manipulate simple Boolean expressions using the theorems and postulates of Boolean a lgebra and t o minimize combinational functions. |
| | | | CO3 | Design and analyze small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits. |
| | | | CO4 | Design and analyze small sequential circuits and devices and to use standard sequential functions/building blocks to build larger more complex circuits. |
| 7 | Electrical Machines Laboratory – II | 15A02506 | CO1 | Acquires sufficiently good practical knowledge about the operation, testing, and characteristics of important A.C equipment like transformers, Induction Motors, Alternators and Synchronous Motors. |
| | | | CO2 | Acquire the knowledge about the fixation of the rating of transformers, induction motors and synchronous machines. |
| 8 | Electrical Measurements Laboratory | 15A02507 | CO1 | Calibrate various electrical measuring/recording instruments. |
| | | | CO2 | Accurately determine the values of inductance and capacitance using a.c bridges |
| | | | CO3 | Accurately determine the values of very low resistances |

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| | | | CO4 | Measure reactive power in 3-phase circuit using single wattmeter |
| | | | CO5 | Determine ratio error and phase angle error of CT |
| 9 | Audit course – Social Values & Ethics | 15A99501 | CO1 | Able recall family,and human values and compare his family with others. |
| | | | CO2 | Classify the fundamental Rights and fundamental duties of citizen Influence the factors affecting youth crime.. |
| | | | CO3 | Explain the Environmental issues and Justify the objectives of civil defense. |
| | | | CO4 | Demonstrate Gender inequality, Domestic violence and Appraise the government schemes ,laws. |
| | | | CO5 | Importance the games ,sports,and benefits of exercise, Recommend the yoga asanas ,mudras and pranayama. |

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| YEAR/SEM: III B.TECH - II SEM | | | BRANCH: EEE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Management Science | 15A52601 | CO1 | To understand the concepts of management its functions, theories of Motivation, Leadership and organization Structures |
| | | | CO2 | To know about plant location and layout, inventory Management, PLC, channels and ASPM strategies. |
| | | | CO3 | To tell about the HRM concepts like HRP, Performance appraisal, Employee grievances, Recruitment strategies, Training and Development. |
| | | | CO4 | To know about the Corporate Planning process, Environmental scanning, SWOT analysis, Program Evaluation, Review Technique and Critical Path method. |
| | | | CO5 | To describe the contemporary management practices like BPR, BPO, Balance score card, six-sigma, Total Quality Management. |
| 2 | Power Semiconductor Drives | 15A02601 | CO1 | Identify the choice of the electric drive system based on their applications |
| | | | CO2 | Explain the operation of single and multi quadrant electric drives |
| | | | CO3 | Analyze single phase and three phase rectifiers fed DC motors as well as chopper fed DC motors |
| | | | CO4 | Explain the speed control methods for AC-AC & DC-AC converters fed to Induction motors and Synchronous motors with closed loop, and open loop operations. |
| 3 | Power System Protection | 15A02602 | CO1 | Explain the principles of operation of various types of electromagnetic relays, Static relays as well as Microprocessor based relays. |
| | | | CO2 | Understanding the protection of generators and determination of what % generator winding is unprotected under fault occurrence |
| | | | CO3 | Understanding the protection of transformers and make design calculations to determine the required CT ratio for transformer protection |
| | | | CO4 | Explain the use of relays in protecting Feeders, lines and bus bars<br>Solve numerical problems concerning the arc interruption and recovery in circuit breakers |

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| | | | CO5 | Understand why over voltages occur in power system and how to protect the system |
| 4 | Microprocessors & Micro controllers | 15A04601 | CO1 | Do programming with 8086 microprocessors |
| | | | CO2 | Understand concepts of Intel x86 series of processors |
| | | | CO3 | Program MSP 430 for designing any basic Embedded System |
| | | | CO4 | Design and implement some specific real time applications Using MSP 430 low power microcontroller. |
| 5 | Power System Analysis | 15A02603 | CO1 | Form the Zbus and Ybus of a given power system network |
| | | | CO2 | Compare different methods used for obtaining load flow solution |
| | | | CO3 | Conduct load flow studies on a given system |
| | | | CO4 | Make fault calculations for various types of faults |
| | | | CO5 | Determine the transient stability by equal area criterion |
| | | | CO6 | Determine steady state stability power limit |
| | | | CO7 | Distinguish between different types of buses used in load flow solution |
| 6 | Programmable Logic Controller And Its Applications | 15A02605 | CO1 | Program a PLC for a given application |
| | | | CO2 | Implement Ladder logic for various Industrial applications |
| | | | CO3 | Design control circuits for various applications |
| 7 | Microprocessors & Microcontrollers Laboratory | 15A04607 | CO1 | Can Ensure the completely use of MASM programming environment. |
| | | | CO2 | Debug assembly language programs using 8086 assembler. |
| | | | CO3 | Analyze the interfacing between external peripherals and 8086 microprocessor using development kit. |
| | | | CO4 | Debug msp430 assembly language programs using CCS. |
| | | | CO5 | Analyze the interfacing between external peripherals and MSP 430 microcontroller using development kit. |
| 8 | Power Electronics & Simulation Laboratory | 15A02607 | CO1 | Test the turn on –turn off characteristics of various power electronic devices. |
| | | | CO2 | Test and analyze firing circuits for SCRs |
| | | | CO3 | Test different types of voltage controllers, converters and Inverters with R and RL loads |
| | | | CO4 | Analyze the TPS7A4901, TPS7A8300 and TPS54160 buck regulators. |

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| 9 | Advanced English Language Communication Skills (AELCS) Laboratory (Audit Course) | 15A52602 | CO1 | Accomplishment of sound vocabulary and its proper use contextually |
| | | | CO2 | Flair in Writing and felicity in written expression. |
| | | | CO3 | Enhanced job prospects. |
| | | | CO4 | Effective Speaking Abilities |

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|---|---|---|---|---|
| YEAR/SEM: IV B.TECH - I SEM | | | BRANCH: EEE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Electrical Distribution Systems | 15A02701 | CO1 | Compute the various factors associated with power distribution |
| | | | CO2 | Make voltage drop calculations in given distribution networks |
| | | | CO3 | Learn principles of substation maintenance |
| | | | CO4 | Compute power factor improvement for a given system and load |
| | | | CO5 | Understand implementation of SCADA for distribution automation |
| 2 | Digital Signal Processing | 15A04603 | CO1 | Formulate engineering problems in terms of DSP tasks. |
| | | | CO2 | Apply engineering problems solving strategies to DSP problems. |
| | | | CO3 | Design and test DSP algorithms. |
| | | | CO4 | Analyze digital and analog signals and systems. Analyze and compare different signal processing strategies. |
| | | | CO5 | Analyze digital and analog signals and systems. |
| | | | CO6 | Analyze and compare different signal processing strategies. |
| 3 | Power System Operation and Control | 15A02702 | CO1 | Develop the mathematical models of turbines and governors |
| | | | CO2 | Address the Load Frequency Control problem |
| | | | CO3 | Explain how shunt and series compensation helps in reactive power control |
| | | | CO4 | Explain the issues concerned with power system operation in competitive environment |
| 4 | Utilization of Electrical Energy | 15A02703 | CO1 | Develop a lighting scheme for a given practical case. |
| | | | CO2 | Analyze the performance of Heating and Welding methods |
| | | | CO3 | Make all numerical calculations associated with electric traction. |
| | | | CO4 | Assess the economic aspects in utilisation of electrical energy |
| 5 | Energy Auditing & Demand Side Management | 15A02706 | CO1 | Carry out motor energy audit |
| | | | CO2 | Carry out motor energy audit |
| | | | CO3 | Analyze demand side management concepts through case study |
| 6 | Power Quality | 15A02709 | CO1 | Address power quality issues to ensure meeting of standards |

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| | | | CO2 | Apply the concepts of compensation for sags and swells using voltage regulating devices |
| | | | CO3 | Assess harmonic distortion and its mitigation. |
| | | | CO4 | Explain the power measurement data according to standards |
| 7 | Digital Signal Processing Laboratory | 15A04608 | CO1 | Find the response of a Linear time invariant discrete time system. |
| | | | CO2 | Analyze the frequency spectrum of a discrete time signal |
| | | | CO3 | Determine the spectrum of a real world signal using Fast Fourier Transform Algorithm |
| | | | CO4 | Design real time DSP systems and real world applications. |
| | | | CO5 | Implement DSP algorithms using both fixed and floating point processors |
| 8 | Power Systems & Simulation Laboratory | 15A02710 | CO1 | Experimental determination (in machines lab) of sequence impedance and subtrasient reactances of synchronous machine |
| | | | CO2 | Conducting experiments to analyze LG, LL, LLG, LLLG faults |
| | | | CO3 | The equivalent circuit of three winding transformer by conducting a suitable experiment. |
| | | | CO4 | Developing MATLAB program for formation of Y and Z buses. |
| | | | CO5 | Developing MATLAB programs for gauss-seidel and fast decoupled load flow studies. |
| | | | CO6 | Developing the SIMULINK model for single area load frequency control problem. |

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| **S.No** | **Subject Name** | **Subject Code** | **Course Outcomes (CO):** Student will be able to | |
| 1 | Instrumentation | 15A02801 | **CO1** | Identify and explain the types of errors occuring in measurement systems. |
| | | | **CO2** | Differentiate among the types of data transmission and modulation techniques. |
| | | | **CO3** | Apply digital techniques to measure voltage, frequency and speed. |
| | | | **CO4** | Choose suitable transducers for the measurement of non-electrical quantities. |
| 2 | Energy Resources & Technology | 15A02805 | **CO1** | Understand different types of sources of energy |
| | | | **CO2** | Analyse the generation principles and operation of variety of sources of energy |
| | | | **CO3** | Understand energy storage and economy |

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# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: II B.TECH - I SEM | | | BRANCH: CSE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Mathematics-III | 15A54301 | CO1 | Explain the concepts of matrices and its applications |
| | | | CO2 | Able to solve the algaebraic and transcendental equations using numerical methods |
| | | | CO3 | Able to understand inter polation and extra polation and apply the appropriate methods to solve the problems. |
| | | | CO4 | Construct the different types of curves by using the different numerical techniques. |
| | | | CO5 | Solve the ordinary differential equations by applying the various numerical techniques. |
| 2 | Database Management Systems | 15A05301 | CO1 | Demonstrate the basic elements of a relational database management system, |
| | | | CO2 | Ability to identify the data models for relevant problems. |
| | | | CO3 | Ability to design entity relationship and convert entity relationship diagrams into |
| | | | CO4 | RDBMS and formulate SQL queries on the respect data. |
| | | | CO5 | Apply normalization for the development of application software. |
| 3 | Discrete Mathematics | 15A05302 | CO1 | Write an argument using logical notation and determine if the argument is or is not valid. able to express a logic sentence in terms of predicates, quantifiers, and logical connectives. |
| | | | CO2 | Demonstrate an understanding of relations and functions and be able to determine their properties. Determine when a function is 1-1 and "onto" |
| | | | CO3 | Able to apply algebraic structures such as group theory and group codes to solve the real world problems. able to evaluate Boolean functions and simplify expressions using the properties of Boolean algebra. |
| | | | CO4 | Demonstrate different traversal methods for trees and graphs. Model problems in Computer Science using graphs and trees. |
| | | | CO5 | Apply counting principles to determine probabilities |

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| 4 | Basic Electrical And Electronics Engineering | 15A99301 | CO1 | Understand basic concepts of the currents and voltage by using theorems and two-port networks. |
| | | | CO2 | Analyze the performance of AC & DC Machines. |
| | | | CO3 | Analyze the operating principles of major electronic devices, its characteristics and Explain different rectifiers and filters used in power supply section. |
| | | | CO4 | Explain and analyze basic transistor amplifier circuits using BJT and FET. |
| | | | CO5 | Design and analyze the application of BJT. |
| 5 | Digital Logic Design | 15A04306 | CO1 | To introduce basic postulates of Boolean algebra and the methods for simplifying Boolean expressions |
| | | | CO2 | To illustrate the concepts and study the procedures for the analysis and design of combinational circuits and sequential circuits. |
| | | | CO3 | To introduce the concepts of programmable logic devices. |
| 6 | Managerial Economics And Financial Analysis | 15A52301 | CO1 | The student will able to understand various aspects of Managerial Economics. |
| | | | CO2 | To Analyze the financial statements and inputs. |
| | | | CO3 | To Understand the sound and effective decisions under different economic environment and market situations. |
| | | | CO4 | To Remember and Apply the Profitability, and Activity Ratios (simple problems). |
| | | | CO5 | Methods and Evaluation of Capital Budgeting Projects. |
| 7 | Database Management Systems Laboratory | 15A05303 | CO1 | Design databases |
| | | | CO2 | Retrieve information from data bases |
| | | | CO3 | Use procedures to program the data access and manipulation |
| | | | CO4 | Create user interfaces and generate reports |
| 8 | Basic Electrical And Electronics Laboratory | 15A99302 | CO1 | Understand and compare basic electric circuit theorems with actual working circuits. |
| | | | CO2 | Apply and Conduct experiments to obtain the load characteristics of D.C. Generators |
| | | | CO3 | Apply and Conduct tests on D.C. motors for predetermination of efficiency |
| | | | CO4 | Understand electrical model for various semiconductor devices. |
| | | | CO5 | Create the practical applications of the semiconductor devices. |

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| YEAR/SEM: II B.TECH - II SEM | | | BRANCH: CSE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Probability and Statistics | 15A54401 | CO1 | Understand and apply the basic axioms of Probability. |
| | | | CO2 | Tables and rules the moments of discrete & Continuous random variables |
| | | | CO3 | Analyze the problem of engineering and industry using testing of hypothesis techniques |
| | | | CO4 | Apply the knowledge of SQC in industry and engineering related areas. |
| | | | CO5 | Able to understand the queuing techniques |
| 2 | Software Engineering | 15A05401 | CO1 | Define and develop a software project from requirement gathering to Implementation. |
| | | | CO2 | Ability to code and test the software |
| | | | CO3 | Ability to plan, Estimate and Maintain software systems |
| 3 | Computer Organization | 15A05402 | CO1 | Ability to use memory and I/O devices effectively |
| | | | CO2 | Explore the hardware requirements for cache memory and virtual memory |
| | | | CO3 | Ability to design algorithms to exploit pipelining and multiprocessors |
| 4 | Microprocessors & Interfacing | 15A04407 | CO1 | Understand the architecture of 8085 and 8086 microprocessor |
| | | | CO2 | Explains addressing modes, instructions of 8086 and programming in 8086. |
| | | | CO3 | Explains about Interrupts ,Memory and I/O interfacing. |
| | | | CO4 | Explains features and interfacing of programmable devices. |
| | | | CO5 | Understand and analyze the architecture ,instructions, registers ,instructions and interfacing devices with microcontroller 8051 |
| 5 | Object Oriented Programming using Java | 15A05403 | CO1 | Ability to solve problems using object oriented approach and implement them using Java |
| | | | CO2 | Ability to write Efficient programs with multitasking ability and handle exceptions. |
| | | | CO3 | Create user friendly interface. |
| 6 | Formal Languages and Automata Theory | 15A05404 | CO1 | Construct finite state diagrams while solving problems of computer science. |
| | | | CO2 | Find solutions to the problems using Turing machines. |
| | | | CO3 | Design of new grammar and language. |
| 7 | Microprocessors & | 15A04408 | CO1 | Write8086 Assembly Language programs. |

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| | Interfacing Laboratory | | CO2 | Understand programmable peripheral devices and their interfacing. |
| | | | CO3 | Write 8051 assembly Language programs. |
| 8 | Java Programming Laboratory | 15A05405 | CO1 | Write portable programs which work in all environments. |
| | | | CO2 | Ability to create user friendly interfaces. |
| | | | CO3 | Ability to solve the problem using object oriented approach and design. |

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| YEAR/SEM: III B.TECH - I SEM | | | BRANCH: CSE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Operating Systems | 15A05501 | CO1 | Use operating systems effectively. |
| | | | CO2 | Write System and application programs to exploit operating system functionality. |
| | | | CO3 | Add functionality to the exiting operating systems |
| | | | CO4 | Design new operating systems |
| 2 | Computer Networks | 15A05502 | CO1 | Ability to choose the transmission media depending on the requirements. |
| | | | CO2 | Ability to design new protocols for computer network. |
| | | | CO3 | Ability to configure a computer network logically. |
| 3 | Object Oriented Analysis and Design | 15A05503 | CO1 | Ability to find solutions to the complex problems using object oriented approach. |
| | | | CO2 | Represent classes, responsibilities and states using UML notation |
| | | | CO3 | Identify classes and responsibilities of the problem domain |
| 4 | Principles of Programming Languages | 15A05504 | CO1 | Discuss software development environment, design models for programming languages and their syntax and semantics. |
| | | | CO2 | Discuss structure of data types and implementation models. |
| | | | CO3 | Explain language constructs, pattern matching, Non determinism and backtracking, Event driven computations, concurrent computations.Describe Software Design methods for modularity and generic. |
| | | | CO4 | Discuss the basic concepts of Object-oriented Programming languages. |
| | | | CO5 | Discuss the functional, logic and rule based languages. |
| 5 | Software Testing | 15A05505 | CO1 | Understand the basic testing procedures. |
| | | | CO2 | Able to support in generating test cases and test suites. |
| | | | CO3 | Able to test the applications manually by applying different testing methods and automation tools. |
| | | | CO4 | Apply tools to resolve the problems in Real time environment. |

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| 6 | Introduction To Operations Management | 15A05508 | CO1 | Identify an operations system with some known standard configurations |
| | | | CO2 | Make an assessment of the complexity of an operations system |
| | | | CO3 | Understand the various components of a supply chain and the need to configure them appropriately |
| | | | CO4 | Identify methods for reducing bullwhip effect in supply chains |
| | | | CO5 | Understand and relate the concept of Lean Management to one's own business situation |
| | | | CO6 | Understand & use specific tools and techniques to analyze quality problems |
| 7 | Object Oriented Analysis and Design & Software Testing Laboratory | 15A05509 | CO1 | Demonstrate fundamentals of UML Tools. |
| | | | CO2 | Develop Structural diagrams for modeling complex systems. |
| | | | CO3 | Develop Behavioral diagrams for modeling complex systems. |
| | | | CO4 | Execute the working of control statements in C programming. |
| | | | CO5 | Describe SRS and test cases for Banking applications and Library management system reporting bugs. |
| 8 | Operating Systems Laboratory | 15A05510 | CO1 | Simulate the following CPU scheduling algorithms a) Round Robin b) SJF c) FCFS d) Priority. |
| | | | CO2 | Simulate all file allocation strategies a) Sequential b) Indexed c) Linked. |
| | | | CO3 | Simulate MVT and MFT. |
| | | | CO4 | Simulate all File Organization Techniques a) Single level directory b) Two level c) Hierarchical d) DAG. |
| | | | CO5 | Simulate Bankers Algorithm for Dead Lock Avoidance. |
| 9 | Social Values & Ethics (Audit Course) | 15A99501 | CO1 | Able recall family,and human values and compare his family with others. |
| | | | CO2 | Classify the fundamental Rights and fundamental duties of citizen Influence the factors affecting youth crime.. |
| | | | CO3 | Explain the Environmental issues and Justify the objectives of civil defense. |
| | | | CO4 | Demonstrate Gender inequality, Domestic violence and Appraise the government schemes ,laws. |
| | | | CO5 | Importance the games ,sports,and benefits of |

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| | | | | exercise, Recommend the yoga asanas ,mudras and pranayama. |

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|---|---|---|---|---|
| YEAR/SEM: III B.TECH - II SEM | | | BRANCH: CSE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Compiler Design | 15A05601 | CO1 | Design a compiler for a simple programming language. |
| | | | CO2 | Able to use the tools related to compiler design effectively and efficiently. |
| | | | CO3 | Ability to write optimized code |
| 2 | Data Warehousing & Mining | 15A05602 | CO1 | Understand the basic concepts of data warehouse and data Mining. |
| | | | CO2 | Apply pre-processing techniques for data cleansing. |
| | | | CO3 | Analyze and evaluate performance of algorithms for Association Rules. |
| | | | CO4 | Analyze Classification and Clustering algorithms. |
| 3 | Design Patterns | 15A05603 | CO1 | Know the underlying object oriented principles of design patterns. |
| | | | CO2 | Understand the context in which the pattern can be applied. |
| | | | CO3 | Understand how the application of a pattern affects the system quality and its trade offs. |
| 4 | Design and Analysis of Algorithms | 15A05604 | CO1 | Analyze the complexity of the algorithms. |
| | | | CO2 | Use techniques divide and conquer, greedy, dynamic programming, backtracking, branch and bound to solve the problems. |
| | | | CO3 | Identify and analyze criteria and specifications appropriate to new problems, and choose the appropriate algorithmic design technique for their solution. |
| | | | CO4 | Able to prove that a certain problem is NP-Complete. |
| 5 | Web and Internet Technologies | 15A05605 | CO1 | Ability to create dynamic and interactive web sites. |
| | | | CO2 | Gain knowledge of client side scripting using java sript and DHTML. |
| | | | CO3 | Demonstrate understanding of what is XML and how to parse and use XML data |
| | | | CO4 | Able to do server side programming with Java Servelets, JSP and PHP. |
| | | | CO5 | Able to design rich client presentation using AJAX. |
| 6 | Linux Environment System | 15A05607 | CO1 | Able to describe and use the LINUX operating system. |

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| | | | CO2 | Able to describe and use the fundamental LINUX system tools and utilities. |
| | | | CO3 | Able to describe and write shell scripts in order to perform basic shell programming. |
| | | | CO4 | Able to describe and understand the LINUX file system. |
| 7 | Web and Internet Technologies Laboratory | 15A05609 | CO1 | Ability to create dynamic and interactive web sites. |
| | | | CO2 | Gain knowledge of client side scripting using java sript and DHTML. |
| | | | CO3 | Demonstrate understanding of what is XML and how to parse and use XML data. |
| | | | CO4 | Able to do server side programming with Java Servelets, JSP and PHP. |
| 8 | Data Warehousing & Mining Laboratory | 15A05610 | CO1 | Ability to build Data Warehouse and Explore WEKA |
| | | | CO2 | Ability to perform data preprocessing tasks and Demonstrate performing association rule mining on data sets |
| | | | CO3 | Ability to perform classification, clustering and regression on data sets |
| | | | CO4 | Ability to design data mining algorithms |
| 9 | Advanced English Language Communication Skills(AELCS) Laboratory) (Audit Course) | 15A52602 | CO1 | Accomplishment of sound vocabulary and its proper use contextually |
| | | | CO2 | Flair in Writing and felicity in written expression. |
| | | | CO3 | Enhanced job prospects. |
| | | | CO4 | Effective Speaking Abilities |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: IV B.TECH - I SEM | | | BRANCH: CSE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Management Science | 15A52601 | CO1 | To understand the concepts of management its functions, theories of Motivation, Leadership and organization Structures |
| | | | CO2 | To know about plant location and layout, inventory Management, PLC, channels and ASPM strategies. |
| | | | CO3 | To tell about the HRM concepts like HRP, Performance appraisal, Employee grievances, Recruitment strategies, Training and Development. |
| | | | CO4 | To know about the Corporate Planning process, Environmental scanning, SWOT analysis, Program Evaluation, Review Technique and Critical Path method. |
| | | | CO5 | To describe the contemporary management practices like BPR, BPO, Balance score card, six-sigma, Total Quality Management. |
| 2 | Grid & Cloud Computing | 15A05701 | CO1 | Apply the security models in the grid and the cloud environment. |
| | | | CO2 | Use the grid and cloud tool kits. |
| | | | CO3 | Apply the concept of virtualization. |
| | | | CO4 | Apply grid computing techniques to solve large scale scientific problems |
| 3 | Information Security | 15A05702 | CO1 | Protect the network from both internal and external attacks. |
| | | | CO2 | Design of new security approaches |
| | | | CO3 | Ability to choose the appropriate security algorithm based on the requirements. |
| 4 | Mobile Application Development | 15A05703 | CO1 | Create data sharing with different applications and sending and intercepting SMS. |
| | | | CO2 | Develop applications using services and publishing android applications. |
| | | | CO3 | To demonstrate their skills of using Android software development tools. |
| 5 | Software Architecture | 15A05704 | CO1 | Design and motivate software architecture for large scale software systems. |
| | | | CO2 | Recognize major software architectural styles, design patterns, and frameworks. |
| | | | CO3 | Describe a software architecture using various documentation approaches and architectural description languages. |

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| | | | CO4 | Generate architectural alternatives for a problem and select among them. |
| | | | CO5 | Use well-understood paradigms for designing new systems. |
| 6 | Software Project Management | 15A05707 | CO1 | Describe and determine the purpose and importance of project management from the perspectives of planning, tracking and completion of project. |
| | | | CO2 | Compare and differentiate organization structures and project structures. |
| | | | CO3 | Implement a project to manage project schedule, expenses and resources with the application of suitable project management tools. |
| 7 | Grid & Cloud Computing Laboratory | 15A05710 | CO1 | Design and Implement applications on the Cloud. |
| | | | CO2 | Design and implement applications on the Grid. |
| | | | CO3 | Use the grid and cloud tool kits. |
| 8 | Mobile Application Development Laboratory | 15A05711 | CO1 | Create data sharing with different applications and sending and intercepting SMS. |
| | | | CO2 | Develop applications using services and publishing android applications. |
| | | | CO3 | To demonstrate their skills of using Android software development tools. |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: IV B.TECH - II SEM | | | BRANCH: CSE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Mobile Computing | 15A05802 | CO1 | Use mobile computing more effectively |
| | | | CO2 | Gain understanding of the current topics in MANETs and WSNs, both from an industry and research point of views. |
| | | | CO3 | Acquire skills to design and implement a basic mobile ad hoc or wireless sensor network via simulations. |
| 2 | Enabling Technologies for Data Science & Analytics : IoT | 15A05805 | CO1 | Able to understand the application areas of IoT. |
| | | | CO2 | Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks. |
| | | | CO3 | Able to understand building blocks of Internet of Things and characteristics. |

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# DEPARTMENT OF
# BASIC SCIENCE & HUMANITIES

| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: I B.TECH - I SEM | | | BRANCH: ECE | |
| **S.No** | **Subject Name** | **Subject Code** | **Course Outcomes (CO):** Student will be able to | |
| 1 | Functional English | 15A52101 | CO1 | Have improved communication in listening, speaking, reading and writing skills in general. |
| | | | CO2 | Have developed their oral communication and fluency in group discussions and interviews. |
| | | | CO3 | Have improved awareness of English in science and technology context. |
| | | | CO4 | Have achieved familiarity with a variety of technical reports. |
| 2 | Mathematics – I | 15A54101 | CO1 | To become familiar with the application of differential and integral calculus. |
| | | | CO2 | To become familiar with the application of ODE and Vector calculus. |
| | | | CO3 | To attain abilities to use mathematical knowledge to analyze, formulate and solve problems in engineering applications. |
| | | | CO4 | To develop the skill pertinent to practice of mathematical concept. |
| | | | CO5 | To develop the mathematical concepts of ODEs and their applications. |
| 3 | Computer Programming | 15A05101 | CO1 | Apply problem solving techniques in designing the solutions for a wide-range of problems. |
| | | | CO2 | Choose appropriate control structure depending on the problem to be solved. |
| | | | CO3 | Modularize the problem and also solution. |
| 4 | Engineering Chemistry | 15A51101 | CO1 | Differentiate between hard and soft water. Understand the disadvantages of using hard water domestically and industrially. Select and apply suitable treatments domestically and industrially. |
| | | | CO2 | Understand the electro chemical sources of energy. |
| | | | CO3 | Understand industrially based polymers, various engineering materials. |
| 5 | Environmental Studies | 15A01101 | CO1 | Students will get the sufficient information that will clarify modern environmental concepts like equitableuse of natural resources, more sustainable life styles etc. |
| | | | CO2 | Students will realize the need to change their approach so as to perceive our own environmental issuescorrectly, using practical approach based on observation and self |

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| | | | | learning. |
| | | | CO3 | Students become conversant with the fact that there is a need to create a concern for our environment thatwill trigger pro-environmental action; including simple activities we can do in our daily life to protect it. |
| | | | CO4 | By studying environmental sciences, students is exposed to the environment that enables one to find out solution of various environmental problems encountered on and often. |
| | | | CO5 | Identify and analyze environmental problems as well as the risks associated with these problems and efforts to be taken to protect the environment from getting polluted. This will enable every human being to live in a more sustainable manner. |
| 6 | English Language Communication Skills Lab | 15A52102 | CO1 | Become active participants in the learning process and acquire proficiency in spoken English. |
| | | | CO2 | Speak with clarity and confidence thereby enhance employability skills. |
| 7 | Engineering Chemistry Lab | 15A51102 | CO1 | Would be confident in handling energy storage systems and would be able combat chemical corrosion. |
| | | | CO2 | Would have acquired the practical skill to handle the analytical methods with confidence. |
| | | | CO3 | Would feel comfortable to think of design materials with the requisite properties. |
| | | | CO4 | Would be in a position to technically address the water related problems. |
| 8 | Computer Programming Lab | 15A05102 | CO1 | Apply problem solving techniques to find solutions to problems |
| | | | CO2 | Able to use C language features effectively and implement solutions using C language. |
| | | | CO3 | Improve logical skills. |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: I B.TECH - II SEM | | | BRANCH: ECE | |
| **S.No** | **Subject Name** | **Subject Code** | **Course Outcomes (CO):** Student will be able to | |
| 1 | English for Professional Communication | 15A52201 | CO1 | Have acquired ability to participate effectively in group discussions. |
| | | | CO2 | Have developed ability in writing in various contexts. |
| | | | CO3 | Have acquired a proper level of competence for employability. |
| 2 | Mathematics – II | 15A54201 | CO1 | To gain the knowledge to tackle the engineering problems using the concepts of Fourier series. |
| | | | CO2 | The students gains the knowledge to tackle the engineering problems using the concepts of Laplace transforms |
| | | | CO3 | To Understand the concepts of PDEs. |
| | | | CO4 | To Understand the concepts of Fourier sine and cosine integrals, Fourier transforms. |
| | | | CO5 | To understand the applications of Z-transforms. |
| 3 | Network Analysis | 15A04201 | CO1 | Apply the knowledge of basic circuital law and simplify the network using reduction techniques |
| | | | CO2 | Analyze the circuit using Kirchhoff's law and Network simplification theorems. |
| | | | CO3 | Infer and evaluate transient response, Steady state response, network functions. |
| | | | CO4 | Obtain the maximum power transfer to the load , and Analyze the series resonant and parallel resonant circuit. |
| | | | CO5 | Obtain the maximum power transfer to the load , and Analyze the series resonant and parallel resonant circuit. |
| 4 | Engineering Physics | 15A56101 | CO1 | The different realms of physics and their applications in both scientific and technological systems are achieved through the study of physical optics, lasers and fibre optics. |
| | | | CO2 | The important properties of crystals like the presence of long range order and periodicity, structure determination using X ray diffraction are focused along with defects in crystals and ultrasonic non-destructive techniques. |
| | | | CO3 | The discrepancies between the classical estimates and laboratory observations of physical properties exhibited by materials would be lifted through the understanding of quantum |

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| | | | | picture of subatomic world. |
| | | | CO4 | The electronic and magnetic properties of materials were successfully explained by free electron theory and the bases for the band theory are focused. |
| | | | CO5 | The properties and device applications of semiconducting and magnetic materials are illustrated. The importance of superconducting materials and nanomaterials along with their engineering applications are well elucidated. |
| 5 | Engineering Drawing | 15A03101 | CO1 | Drawing 2D and 3D diagrams of various objects. |
| | | | CO2 | Learning conventions of Drawing, which is an Universal Language of Engineers. |
| | | | CO3 | Drafting projections of points, planes and solids. |
| 6 | Network Analysis Lab | 15A04202 | CO1 | Apply Kirchoff's laws, network reduction techniques on simple electrical circuits with dependent & independent sources. |
| | | | CO2 | Select appropriate theorem for network simplification. |
| | | | CO3 | Analyze response of RL, RC & RLC circuits in time & frequency domains. |
| | | | CO4 | Determine voltages and currents in a resonant circuit. |
| | | | CO5 | Determine network parameters for given two port network. |
| 7 | Engineering Physics Lab | 15A56102 | CO1 | Would recognize the important of optical phenomenon like Interference and diffraction. |
| | | | CO2 | Would have acquired the practical application knowledge of optical fiber, semiconductor, dieclectric and magnetic materials, crystal structure and lasers by the study of their relative parameters. |
| | | | CO3 | Would recognize the significant importance of nanomaterials in various engineering fields. |
| 8 | Engineering and IT Workshop | 15A99201 | CO1 | Disassemble and Assemble a Personal Computer and prepare the computer ready to use. |
| | | | CO2 | Prepare the Documents using Word processors |
| | | | CO3 | Prepare Slide presentations using the presentation tool. |
| | | | CO4 | Interconnect two or more computers for information sharing. |
| | | | CO4 | Access the Internet and Browse it to obtain the required information |

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| | | | **CO5** | Install single or dual operating systems on computer |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: I B.TECH - I SEM | | | BRANCH: EEE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Functional English | 15A52101 | CO1 | Have improved communication in listening, speaking, reading and writing skills in general. |
| | | | CO2 | Have developed their oral communication and fluency in group discussions and interviews. |
| | | | CO3 | Have improved awareness of English in science and technology context. |
| | | | CO4 | Have achieved familiarity with a variety of technical reports. |
| 2 | Mathematics – I | 15A54101 | CO1 | To become familiar with the application of differential and integral calculus. |
| | | | CO2 | To become familiar with the application of ODE and Vector calculus. |
| | | | CO3 | To attain abilities to use mathematical knowledge to analyze, formulate and solve problems in engineering applications. |
| | | | CO4 | To develop the skill pertinent to practice of mathematical concept. |
| | | | CO5 | To develop the mathematical concepts of ODEs and their applications. |
| 3 | Computer Programming | 15A05101 | CO1 | Apply problem solving techniques in designing the solutions for a wide-range of problems. |
| | | | CO2 | Choose appropriate control structure depending on the problem to be solved. |
| | | | CO3 | Modularize the problem and also solution. |
| 4 | Engineering Physics | 15A56101 | CO1 | The different realms of physics and their applications in both scientific and technological systems are achieved through the study of physical optics, lasers and fibre optics. |
| | | | CO2 | The important properties of crystals like the presence of long range order and periodicity, structure determination using X ray diffraction are focused along with defects in crystals and ultrasonic non-destructive techniques. |
| | | | CO3 | The discrepancies between the classical estimates and laboratory observations of physical properties exhibited by materials would be lifted through the understanding of quantum picture of subatomic world. |
| | | | CO4 | The electronic and magnetic properties of materials were successfully explained by free electron theory and the bases for the band |

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| | | | | theory are focused. |
| | | | CO5 | The properties and device applications of semiconducting and magnetic materials are illustrated. The importance of superconducting materials and nanomaterials along with their engineering applications are well elucidated. |
| 5 | Engineering Drawing | 15A03101 | CO1 | Drawing 2D and 3D diagrams of various objects. |
| | | | CO2 | Learning conventions of Drawing, which is an Universal Language of Engineers. |
| | | | CO3 | Drafting projections of points, planes and solids. |
| 6 | English Language Communication Skills Lab | 15A52102 | CO1 | Become active participants in the learning process and acquire proficiency in spoken English. |
| | | | CO2 | Speak with clarity and confidence thereby enhance employability skills. |
| 7 | Engineering Physics Lab | 15A56102 | CO1 | Would recognize the important of optical phenomenon like Interference and diffraction. |
| | | | CO2 | Would have acquired the practical application knowledge of optical fiber, semiconductor, dieclectric and magnetic materials, crystal structure and lasers by the study of their relative parameters. |
| | | | CO3 | Would recognize the significant importance of nanomaterials in various engineering fields. |
| 8 | Computer Programming Lab | 15A05102 | CO1 | Apply problem solving techniques to find solutions to problems |
| | | | CO2 | Able to use C language features effectively and implement solutions using C language. |
| | | | CO3 | Improve logical skills. |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: I B.TECH - II SEM | | | BRANCH: EEE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Mathematics – II | 15A54201 | CO1 | To gain the knowledge to tackle the engineering problems using the concepts of Fourier series. |
| | | | CO2 | The students gains the knowledge to tackle the engineering problems using the concepts of Laplace transforms |
| | | | CO3 | To Understand the concepts of PDEs. |
| | | | CO4 | To Understand the concepts of Fourier sine and cosine integrals, Fourier transforms. |
| | | | CO5 | To understand the applications of Z-transforms. |
| 2 | English for Professional Communication | 15A52201 | CO1 | Have acquired ability to participate effectively in group discussions. |
| | | | CO2 | Have developed ability in writing in various contexts. |
| | | | CO3 | Have acquired a proper level of competence for employability. |
| 3 | Engineering Chemistry | 15A51101 | CO1 | Differentiate between hard and soft water. Understand the disadvantages of using hard water domestically and industrially. Select and apply suitable treatments domestically and industrially. |
| | | | CO2 | Understand the electrochemical sources of energy. |
| | | | CO3 | Understand industrially based polymers, various engineering materials. |
| 4 | Environmental Studies | 15A01101 | CO1 | Students will get the sufficient information that will clarify modern environmental concepts like equitableuse of natural resources, more sustainable life styles etc. |
| | | | CO2 | Students will realize the need to change their approach so as to perceive our own environmental issuescorrectly, using practical approach based on observation and self learning. |
| | | | CO3 | Students become conversant with the fact that there is a need to create a concern for our environment thatwill trigger pro-environmental action; including simple activities we can do in our daily life to protect it. |
| | | | CO4 | By studying environmental sciences, students is exposed to the environment that enables one to find out solution of various environmental |

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| | | | | problems encountered on and often. |
| | | | CO5 | Identify and analyze environmental problems as well as the risks associated with these problems and efforts to be taken to protect the environment from getting polluted. This will enable every human being to live in a more sustainable manner. |
| 5 | Elecrical Circuits-I | 15A02201 | CO1 | Given a network, find the equivalent impedance by using network reduction techniques. |
| | | | CO2 | Given a circuit and the excitation, determine the real power, reactive power, power factor etc,. |
| | | | CO3 | Determine the current through any element and voltage across any element |
| | | | CO4 | Apply the network theorems suitably |
| 6 | Engineering Chemistry Lab | 15A51102 | CO1 | Drawing 2D and 3D diagrams of various objects. |
| | | | CO2 | Learning conventions of Drawing, which is an Universal Language of Engineers. |
| | | | CO3 | Drafting projections of points, planes and solids. |
| 7 | Electrical Circuits Lab | 15A02202 | CO1 | Apply suitable theorems for circuit analysis and verify the results theoretically |
| | | | CO2 | Experimental determination of two port network parameters and theoretical verification |
| | | | CO3 | Measure active and reactive power experimentally and verify the theoretical values |
| | | | CO4 | Experimentally determine self inductance, mutual inductance and coefficient of coupling |
| | | | CO5 | Practically determine band width, Q-factor and verify with theoretical values. |
| 8 | Engineering and IT Workshop | 15A99201 | CO1 | Disassemble and Assemble a Personal Computer and prepare the computer ready to use. |
| | | | CO2 | Prepare the Documents using Word processors |
| | | | CO3 | Prepare Slide presentations using the presentation tool. |
| | | | CO4 | Interconnect two or more computers for information sharing. |
| | | | CO4 | Access the Internet and Browse it to obtain the required information |
| | | | CO5 | Install single or dual operating systems on computer |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
|---|---|---|---|---|
| YEAR/SEM: I B.TECH - I SEM | | | BRANCH: CSE | |
| S.No | Subject Name | Subject Code | Course Outcomes (CO): Student will be able to | |
| 1 | Functional English | 15A52101 | CO1 | Have improved communication in listening, speaking, reading and writing skills in general. |
| | | | CO2 | Have developed their oral communication and fluency in group discussions and interviews. |
| | | | CO3 | Have improved awareness of English in science and technology context. |
| | | | CO4 | Have achieved familiarity with a variety of technical reports. |
| 2 | Mathematics – I | 15A54101 | CO1 | To become familiar with the application of differential and integral calculus. |
| | | | CO2 | To become familiar with the application of ODE and Vector calculus. |
| | | | CO3 | To attain abilities to use mathematical knowledge to analyze, formulate and solve problems in engineering applications. |
| | | | CO4 | To develop the skill pertinent to practice of mathematical concept. |
| | | | CO5 | To develop the mathematical concepts of ODEs and their applications. |
| 3 | Computer Programming | 15A05101 | CO1 | Apply problem solving techniques in designing the solutions for a wide-range of problems. |
| | | | CO2 | Choose appropriate control structure depending on the problem to be solved. |
| | | | CO3 | Modularize the problem and also solution. |
| 4 | Engineering Physics | 15A56101 | CO1 | The different realms of physics and their applications in both scientific and technological systems are achieved through the study of physical optics, lasers and fibre optics. |
| | | | CO2 | The important properties of crystals like the presence of long range order and periodicity, structure determination using X ray diffraction are focused along with defects in crystals and ultrasonic non-destructive techniques. |
| | | | CO3 | The discrepancies between the classical estimates and laboratory observations of physical properties exhibited by materials would be lifted through the understanding of quantum picture of subatomic world. |
| | | | CO4 | The electronic and magnetic properties of materials were successfully explained by free |

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| | | | | electron theory and the bases for the band theory are focused. |
| | | | CO5 | The properties and device applications of semiconducting and magnetic materials are illustrated. The importance of superconducting materials and nanomaterials along with their engineering applications are well elucidated. |
| 5 | Engineering Drawing | 15A03101 | CO1 | Drawing 2D and 3D diagrams of various objects. |
| | | | CO2 | Learning conventions of Drawing, which is an Universal Language of Engineers. |
| | | | CO3 | Drafting projections of points, planes and solids. |
| 6 | English Language Communication Skills Lab | 15A52102 | CO1 | Become active participants in the learning process and acquire proficiency in spoken English. |
| | | | CO2 | Speak with clarity and confidence thereby enhance employability skills. |
| 7 | Engineering Physics Lab | 15A56102 | CO1 | Would recognize the important of optical phenomenon like Interference and diffraction. |
| | | | CO2 | Would have acquired the practical application knowledge of optical fiber, semiconductor, dieclectric and magnetic materials, crystal structure and lasers by the study of their relative parameters. |
| | | | CO3 | Would recognize the significant importance of nanomaterials in various engineering fields. |
| 8 | Computer Programming Lab | 15A05102 | CO1 | Apply problem solving techniques to find solutions to problems |
| | | | CO2 | Able to use C language features effectively and implement solutions using C language. |
| | | | CO3 | Improve logical skills. |

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| COURSE OUTCOMES | | | REGULATION: R15 | |
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| YEAR/SEM: I B.TECH - II SEM | | | BRANCH: CSE | |
| **S.No** | **Subject Name** | **Subject Code** | **Course Outcomes (CO):** Student will be able to | |
| 1 | English for Professional Communication | 15A52201 | CO1 | Have acquired ability to participate effectively in group discussions. |
| | | | CO2 | Have developed ability in writing in various contexts. |
| | | | CO3 | Have acquired a proper level of competence for employability. |
| 2 | Mathematics – II | 15A54201 | CO1 | To gain the knowledge to tackle the engineering problems using the concepts of Fourier series. |
| | | | CO2 | The students gains the knowledge to tackle the engineering problems using the concepts of Laplace transforms |
| | | | CO3 | To Understand the concepts of PDEs. |
| | | | CO4 | To Understand the concepts of Fourier sine and cosine integrals, Fourier transforms. |
| | | | CO5 | To understand the applications of Z-transforms. |
| 3 | Data Structures | 15A05201 | CO1 | Ability to analyze algorithms and algorithm correctness. |
| | | | CO2 | Ability to summarize searching and sorting techniques. |
| | | | CO3 | Ability to describe stack, queue and linked list operation. |
| | | | CO4 | Ability to have knowledge of tree and graphs concepts. |
| | | | CO5 | Ability to have knowledge of algorithms. |
| 4 | Engineering Chemistry | 15A51101 | CO1 | Differentiate between hard and soft water. Understand the disadvantages of using hard water domestically and industrially. Select and apply suitable treatments domestically and industrially. |
| | | | CO2 | Understand the electrochemical sources of energy. |
| | | | CO3 | Understand industrially based polymers, various engineering materials. |
| 5 | Environmental Studies | 15A01101 | CO1 | Students will get the sufficient information that will clarify modern environmental concepts like equitableuse of natural resources, more sustainable life styles etc. |
| | | | CO2 | Students will realize the need to change their approach so as to perceive our own environmental issuescorrectly, using practical |

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| | | | | approach based on observation and self learning. |
| | | | CO3 | Students become conversant with the fact that there is a need to create a concern for our environment thatwill trigger pro-environmental action; including simple activities we can do in our daily life to protect it. |
| | | | CO4 | By studying environmental sciences, students is exposed to the environment that enables one to find out solution of various environmental problems encountered on and often. |
| | | | CO5 | Identify and analyze environmental problems as well as the risks associated with these problems and efforts to be taken to protect the environment from getting polluted. This will enable every human being to live in a more sustainable manner. |
| 6 | Data Structures Lab | 15A05202 | CO1 | Apply problem solving techniques to find solutions to problems |
| | | | CO2 | Able to identify the appropriate data structure for a given problem or application. |
| | | | CO3 | Improve logical skills |
| 7 | Engineering Chemistry Lab | 15A51102 | CO1 | Drawing 2D and 3D diagrams of various objects. |
| | | | CO2 | Learning conventions of Drawing, which is an Universal Language of Engineers. |
| | | | CO3 | Drafting projections of points, planes and solids. |
| 8 | Engineering and IT Workshop | 15A99201 | CO1 | Disassemble and Assemble a Personal Computer and prepare the computer ready to use. |
| | | | CO2 | Prepare the Documents using Word processors |
| | | | CO3 | Prepare Slide presentations using the presentation tool. |
| | | | CO4 | Interconnect two or more computers for information sharing. |
| | | | CO4 | Access the Internet and Browse it to obtain the required information |
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