



COURSE OUTCOMES (R15 Regulation)

Course Name: Functional English (15A52101)

Course Code	Course Outcome
C111.1	Develop the communication and writing skills in general communication. (BL-3)
C111.2	Develop the writing and life skills in structural manner of real time scenarios. (BL-3)
C111.3	Apply the knowledge of writing and speaking skills to enhance the career opportunities. (BL-3)
C111.4	Illustrate the concepts of writing and speaking skills to develop the skills in job opportunities.(BL - 2)
C111.5	Analyze the concepts of various real time scenarios to represent in an effective model. (BL - 4)

Course Name: Mathematics-I (15A54101)

Course Code	Course Outcome
C112.1	Analyze the ordinary differential equations to provide solutions of various engineering applications. (BL-4)
C112.2	Apply the mathematical knowledge of higher order differential equations to solve various engineering problems. (BL-3)
C112.3	Explain Mean Value theorem, functions of several variables and Radius of Curvature for engineering applications. (BL-2)
C112.4	Evaluate the Multiple integrals to determine areas and volumes of engineering applications. (BL-5)
C112.5	Apply the techniques of vector calculus to solve various engineering problems. (BL-3)

Course Name: Computer Programming (15A05101)

Course Code	Course Outcome
C113.1	Explain computer basics and the requirement of the computer operation (BL-2)
C113.2	Explain loop control statements and arrays (BL-2)
C113.3	Analyze the pointer variables and their functions (BL-4)
C113.4	Apply structures and unions (BL-3)
C113.5	Explain about file processing systems (BL-2)

Course Name: Engineering Chemistry (15A51101)

Course Code	Course Outcome
C114.1	Explain the various water treatment techniques used for the softening and purification of water in industrial applications. (BL-2)
C114.2	Demonstrate preparation mechanisms of different polymers in engineering applications.(BL-2)
C114.3	Apply the concepts of electro chemistry and knowledge of protection of metals in engineering and scientific applications. (BL-3)
C114.4	Analyze the fuels and their synthesis to understand working of Internal Combustion and Diesel engines. (BL-4)
C114.5	Demonstrate the concepts of cement, refractories, lubricants & carbon clusters in various engineering applications. (BL-2)

Course Name: Environmental Studies (15A01101)

Course Code	Course Outcome
C115.1	Explain multidisciplinary nature of environmental studies and various renewable and nonrenewable resources. (BL-2)
C115.2	Outline flow and bio-geo- chemical cycles and ecological pyramids. (BL-2)
C115.3	Illustrate various causes of pollution and solid waste management and related preventive measures. (BL-2)
C115.4	Illustrate the social issues of environment to be a part of sustainable development.(BL-1)
C115.5	Identify causes of population explosion, value education and welfare programmes. (BL-3)

Course Name: English Language Communication Skills Lab (15A52102)

Course Code	Course Outcome
C116.1	Apply knowledge of human communication and language process in real time. (BL-3)
C116.2	Make use of interpersonal, intrapersonal communication and technology from multiple perspectives (BL-3)
C116.3	Demonstrate key theoretical approaches used in the interdisciplinary field of communication (BL-2)
C116.4	Interpret theoretical framework, constructs, and concepts for study of communication (BL-2)
C116.5	Identify the strengths and weaknesses of their approaches. (BL-3)

Course Name: Engineering Chemistry Lab (15A51102)

Course Code	Course Outcome
C117.1	Analyze the need, design and perform a set of experiments. (BL-4)
C117.2	Distinguish hard and soft water, solve the related numerical problems on water purification and its significance in industry and daily life. (BL-4)
C117.3	Explain the causes of corrosion, its consequences and methods to minimize corrosion. (BL-2)

Course Name: Computer Programming Lab (15A05102)

Course Code	Course Outcome
C118.1	Explain Software Development Process and features of Programming Languages. (BL-2)
C118.2	Classify Data types, Type systems and type structures of representative programming languages. (BL-2)
C118.3	Apply problem solving techniques to find solutions to problems (BL-3)
C118.4	Apply C language features effectively and implement solutions using C language. (BL-3)
C118.5	Make use of logical and control statements in writing the programs. (BL-3)

Course Name: English for Professional Communication (15A52201)

Course Code	Course Outcome
C121.1	Demonstrate listening, reading and writing skills of communication in general and obtain general awareness in science(BL-2)
C121.2	Develop the oral communication skills in real life scenarios. (BL-3)
C121.3	Illustrate the life and presentational skills for competitive opportunities. (BL-2)
C121.4	Apply the life skills to deliver presentation effectively in placements.(BL - 3)
C121.5	Develop employability skills to enhance career opportunities. (BL - 2)

Course Name: Mathematics-II (15A54201)

Course Code	Course Outcome
C122.1	Analyze the techniques of Laplace transforms and determine the solution of ODE in engineering problems.(BL-4)
C122.2	Make use of mathematical knowledge of Fourier series to solve various engineering problems.(BL-3)
C122.3	Illustrate the concepts of Fourier transforms to solve various engineering problems. (BL-2)
C122.4	Apply the partial differential equations generate the mathematical model for engineering applications.(BL-3)
C122.5	Apply the techniques of Z- transforms to solve difference equations in engineering applications.(BL-3)

Course Name: Network Analysis (15A04201)

Course Code	Course Outcome
C123.1	Explain the concepts of Electrical Networks (BL-2)
C123.2	Analyze transient response of different electrical element and their combination with DC excitation (BL-4)
C123.3	Analyze transient response of different electrical element and their combination with AC excitation (BL-4)
C123.4	Analyze the circuits to indentify the resonance, bandwidth and magnetic coupling characteristics (BL-4)
C123.5	Analyze the two port networks to indentify different parameters of the network and the filter circuits for pass band and attenuation (BL-4)

Course Name: Engineering Physics (15A56101)

Course Code	Course Outcome
C124.1	Explain the role of physical optics, lasers and fiber optics in various engineering applications. (BL-2)
C124.2	Illustrate the X-Ray diffraction techniques for determination of crystal structures & production and detection of ultrasonic waves for non destructive testing of materials. (BL-2)
C124.3	Analyze the knowledge of basic quantum mechanics and free electron theory of metals to describe the properties of metals. (BL-4)
C124.4	Demonstrate the physics of semiconductors for electronic devices & properties of various magnetic materials for engineering applications. (BL-3)
C124.5	Illustrate the concepts of super conducting materials and nano-materials for scientific and engineering applications. (BL-2)

Course Name: Engineering Drawing (15A03101)

Course Code	Course Outcome
C125.1	Apply the BIS conventions of drawing, Curves used in Engineering Practice like Conic sections & cycloidal curves. (BL-3)
C125.2	Explain variable parameters of different scales & concepts of orthographic projections (BL-2)
C125.3	Apply the Projections of straight lines, Projections of planes in various positions to reference planes (BL-3)
C125.4	Apply the Projections of solids in various positions to reference planes & concepts of development surfaces (BL-3)
C125.5	Analyze the concepts of Isometric to Orthographic & Orthographic to Isometric projections (BL-4)

Course Name: Network Analysis Lab (15A04202)

Course Code	Course Outcome
C126.1	Choose appropriate theorem for network simplification (BL-3)
C126.2	Apply Kirchoff's laws, network reduction techniques on simple electrical circuits with dependent & independent sources (BL-3)
C126.3	Analyze response of RL, RC & RLC circuits in time & frequency domains (BL-4)
C126.4	Identify of voltages and currents in a resonant circuit (BL-3)

Course Name: Engineering Physics Lab (15A56102)

Course Code	Course Outcome
C127.1	Explain the importance of optical phenomenon like Interference and diffraction (BL-2)
C127.2	Develop practical application knowledge of optical fiber, semiconductor, dielectric and magnetic materials, crystal structure and lasers by the study of their relative parameters (BL-3)
C127.3	Illustrate the significant importance of non-materials in various engineering fields (BL-2)

Course Name: Engineering & IT Workshop (15A99201)

Course Code	Course Outcome
C128.1	Demonstrate manufacturing of components using workshop trades including fitting, carpentry, foundry, house wiring and welding. (BL-2)
C128.2	Identify and apply suitable tools for different trades of Engineering processes demonstration on plumbing, machine shop, and metal cutting. (BL-3)
C128.3	Explain the process of Disassemble and Assemble a Personal Computer and prepare the computer ready to use. (BL-2)
C128.4	Explain the process of usage the MS Office tool for various applications (BL-2)
C128.5	Apply the knowledge to share the files, usage of internet and browings system (BL-3)

Course Name: Mathematics-III (15A54301)

Course Code	Course Outcome
C211.1	Analyze engineering problems using the concepts of Matrices.(BL-4)
C211.2	Solve the algebraic and transcendental equations using various numerical methods. (BL-3)
C211.3	Apply the concepts of interpolation techniques to estimate the suitable value for the given data. (BL-3)
C211.4	Apply the concepts of curve fitting to fit the curves for the given data. (BL-3)
C211.5	Solve the Ordinary Differential equations of various engineering problems through Numerical methods. (BL-3)

Course Name: Electronic Devices and Circuits (15A04301)

Course Code	Course Outcome
C212.1	Explain the operating principle of P-N Diode & special diodes.[BL:2]
C212.2	Analyze the working principle of rectifiers & filters [BL:3]
C212.3	Explain the working principle of BJT and FET [BL:2]
C212.4	Analyze the biasing techniques of BJT and FET [BL:3]
C212.5	Analyze BJT & FET amplifier circuits using small signal model.[BL:3]

Course Name: Switching Theory and Logic Design (15A04302)

Course Code	Course Outcome
C213.1	Translate the numeric information in to different forms. [BL:2]
C213.2	Apply K-Map and Tabular methods to minimize Boolean functions [BL:3]
C213.3	Design various combinational logic circuits. [BL:2]
C213.4	Design various sequential circuits [BL:3]
C213.5	Design digital circuits using programmable logic devices.[BL:3]

Course Name: Signals & Systems (15A04303)

Course Code	Course Outcome
C214.1	Explain the basics of continuous time and discrete time signals and systems. [BL:2]
C214.2	Analyze the spectral characteristics of continuous-time periodic and aperiodic signals using Fourier Transform and Comprehend the effects of sampling on a continuous time signal. [BL:3]
C214.3	Analyze the characteristics of LTI and LTV system using Fourier transform [BL:3]
C214.4	Apply Fourier transform for various discrete time signals. [BL:3]
C214.5	Apply the Laplace transform and Z- transform for analyze of continuous-time and discrete-time signals and systems.[BL:3]

Course Name: Probability Theory and Stochastic Processes (15A04304)

Course Code	Course Outcome
C215.1	Explain the axiomatic formulation of probability theory to characterize the probability functions based on single random variables.[BL:2]
C215.2	Explain the concepts of Multiple Random Variables and operations on Multiple Random variables.[BL:2]
C215.3	Explain the concept of stationary random processes to determine the temporal characteristics.[BL:2]
C215.4	Explain the concept of random processes to determine the spectral characteristics[BL:2]
C215.5	Apply the concepts of random processes to study the linear system under random phenomena.[BL:3]

Course Name: Electrical Technology (15A02306)

Course Code	Course Outcome
C216.1	Explain the construction, operation, types and characteristics of DC Generators[BL:2]
C216.2	Illustrate the operation, characteristics, speed control, losses & efficiency of DC motors[BL:2]
C216.3	Explain the construction, operation, load conditions, regulation & efficiency of Transformers[BL:2]
C216.4	Explain the constructional details and torque – slip characteristics of Three phase induction motors.[BL:2]
C216.5	Summarize the constructional features and operation of synchronous machines[BL:2]

Course Name: Electronic Devices and Circuits Lab (15A04305)

Course Code	Course Outcome
C217.1	Explain the characteristics and Applications of Diodes.[BL:2]
C217.2	Distinguish the characteristics of BJT and FET under different configurations. [BL:3]
C217.3	Analyze the performance of various rectifiers with filters.[BL:3]
C217.4	Analyze the performance of various amplifiers with BJT and FET.[BL:3]

Course Name: Electrical Technology & Basic Simulation Lab (15A02307)

Course Code	Course Outcome
C218.1	Apply the principles of DC motors and DC generators and demonstrate through laboratory work.[BL:3]
C218.2	Analyze the single-phase transformers under different testing conditions.[BL:3]
C218.3	Determine the autocorrelation and cross correlation of various signals.[BL:2]
C218.4	Analyze the frequency response of LTI systems using Fourier and Laplace Transforms..[BL:3]

Course Name: Mathematics-IV (15A54402)

Course Code	Course Outcome
C221.1	Analyze the engineering problems through the methods of special functions. (BL-4)
C221.2	Make use of the concepts of Bessel's functions and Legendre polynomials to solve various engineering problems. (BL-3)
C221.3	Apply the concepts of complex differentiation methods to solve various engineering problems (BL-3)
C221.4	Evaluate the various engineering problems through the knowledge of complex integration (BL-5)
C221.5	Evaluate the improper real integrals of various engineering applications through the concepts of residue theorem.(BL-5)

Course Name: Electronic Circuit Analysis (15A04401)

Course Code	Course Outcome
C222.1	Analyze the performance of multi stage transistor amplifier circuits (BL-4)
C222.2	Analyze the performance characteristics of Power amplifiers (BL-4)
C222.3	Explain the operation and characteristics of tuned amplifiers. (BL-2)
C222.4	Analyze the performance of multi stage transistor amplifier circuits (BL-4)
C222.5	Analyze the performance characteristics of Power amplifiers (BL-4)

Course Name: Analog Communication Systems (15A04402)

Course Code	Course Outcome
C223.1	Analyze Amplitude modulation & demodulation systems in time & frequency domains.(BL:3)
C223.2	Analyze Angle modulation & demodulation systems in time & frequency domains.(BL:2)
C223.3	Analyze the effect of noise on performance of amplitude & Angle modulation systems.(BL:3)
C223.4	Explain different discrete modulation & demodulation techniques.(BL:2)
C223.5	Apply the concept of information theory to analyze the channel capacity.(BL:3)

Course Name: Electromagnetic Waves and Transmission Lines (15A04403)

Course Code	Course Outcome
C224.1	Apply the Coulomb's law and Gauss law to different charge distributions. [BL:3]
C224.2	Apply Biot-Savart Law, Ampere's Circuit law to static current distributions. [BL:3]
C224.3	Apply Maxwell's equations for time varying fields. [BL:3]
C224.4	Explain the Characteristics of EM Waves. [BL:2]
C224.5	Explain various parameters of transmission lines. [BL:2]

Course Name: Data Structures (15A05201)

Course Code	Course Outcome
C225.1	Explain the concepts of linked list in linear data structures.[BL-3]
C225.2	Explain the concepts of stacks and queues for organizing data.[BL-3]
C225.3	Interpret different ways of handling trees and graphs as non-linear data structures.[BL-3]
C225.4	Analyze different sorting techniques for organizing data.[BL-4]
C225.5	Analyze different searching techniques for organizing data.[BL-4]

Course Name: Control Systems Engineering (15A02303)

Course Code	Course Outcome
C226.1	Analyze the transfer functions for Mechanical and Electrical systems (BL-4)
C226.2	Develop the Time-domain responses for first and second-order systems(BL-3)
C226.3	Determine the stability analysis by using RH Criterion and Root Locus in a closed-loop control systems (BL-2)
C226.4	Explain the frequency response methods for stability in a closed or open loop control system(BL-2)
C226.5	Explain the concepts of state, state variables and state model in a control system (BL-2)

Course Name: Electronic Circuit Analysis Lab (15A04404)

Course Code	Course Outcome
C227.1	Design the transistor amplifier at low and high frequencies.[BL:4]
C227.2	Analyze the positive and negative feedback amplifier circuits using hardware and software simulation tools.[BL:4]
C227.3	Determine the efficiencies of various power amplifiers.[BL:2]
C227.4	Determine the frequency response of tuned amplifiers.[BL:2]

Course Name: Analog Communication Systems Lab (15A04405)

Course Code	Course Outcome
C228.1	Experiment with various analog modulation and demodulation techniques.[BL:3]
C228.2	Analyze different Pulse modulation techniques.[BL:3]
C228.3	Estimate the characteristics of Radio receiver and antenna.[BL:3]
C228.4	Determine the radiation pattern of various antenna.[BL:2]

Course Name: Comprehensive Online Exam -I (15A04406)

Course Code	Course Outcome
C229.1	Explain fundamental engineering knowledge.[BL:2]
C229.2	Develop the ability to navigate skills and online learning.[BL:3]
C229.3	Analyze the concept of problem solving ability in competitive exams.[BL:4]

Course Name: Computer Organization (15A04511)

Course Code	Course Outcome
C311.1	Explain the concepts of Functional Architecture and Basic Operations of Computing System. (BL-2)
C311.2	Explain the basic processing unit and how they are connected and how it generates control signals (BL-2)
C311.3	Interpret the representation of Fixed and Floating point numbers stored in digital computer. (BL-3)
C311.4	Analyze the Memory System and their impact on Computer cost & performance basic knowledge of I/O devices and Interfacing of I/O devices with computer. (BL - 4).
C311.5	Explain the pipelined execution and instruction scheduling.(BL-2).

Course Name: Antennas and Wave Propagation (15A04501)

Course Code	Course Outcome
C312.1	Explain the construction & radiation pattern of antenna(BL:2)
C312.2	Analyze the radiation resistance & patterns of Loop, Yagi-uda array, Folded Dipole, Helical & Horn antennas (BL:3)
C312.3	Analyze the radiation resistance & patterns of Micro strip and reflector antennas.(BL:3)
C312.4	Analyze the antenna arrays and discuss the techniques to measure the radiation pattern, directivity and gain of antenna.(BL:3)
C312.5	Explain the mechanism of the atmospheric effects on radio wave propagation.(BL:2)

Course Name: Digital Communication Systems (15A04502)

Course Code	Course Outcome
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C313.1	Explain the sampling process and different types of digital modulation techniques for different sources. (BL-2)
C313.2	Analyze the error rate, error probability, Inter symbol Interference for base band pulse transmission system. (BL-3)
C313.3	Apply the knowledge of signals and system to know the performance of digital communication system in the presence of noise. (BL-3)
C313.4	Analyze the performances of different modulation schemes for pass-band data transmission. (BL-3)
C313.5	Analyze the different error control codes to detect and correct the error for digital transmission.(BL-3)

Course Name: Linear Integrated Circuits & Applications (15A04503)

Course Code	Course Outcome
C314.1	Explain the basic building blocks of Linear integrated circuits and its characteristics [BL:2]
C314.2	Design the linear applications of an op-amp [BL:4]
C314.3	Analyze the non-linear applications of an op-amp [BL:4]
C314.4	Analyze the special purpose integrated circuits using IC 555, IC 565 &566. [BL:4]
C314.5	Compare different types of A/D and D/A Converter circuits [BL:2]

Course Name: Digital System Design (15A04504)

Course Code	Course Outcome
C315.1	Explain different Logic families.(BL-2)
C315.2	Develop digital logic circuits using hardware description languages. (BL -3)
C315.3	Design Combinational Digital Systems using Programmable Logic Devices. (BL 3)
C315.4	Develop sequential circuits using VHDL programming concepts. (BL- 3)
C315.5	Design complex digital systems using VHDL. (BL-3)

Course Name: MEMS & Microsystems (15A04506)

Course Code	Course Outcome
C316.1	Explain the basic concepts of MEMS & Microsystems (BL-2)
C316.2	Explain the basic fabrication techniques for making micro sensors (BL-2)
C316.3	Explain the basic principle of operation of micro sensors (BL-2)
C316.4	Analyze the performance of various accelerometer (BL-4)
C316.5	Distinguish polymer MEMS, carbon nano tubes and BioMEMS (BL-4)

Course Name: IC Applications Lab (15A04507)

Course Code	Course Outcome
C317.1	Apply the linear and nonlinear applications of op amps in real time applications.[BL:3]
C317.2	Analyze various analog filters using Op-amp for the given specifications.[BL:4]
C317.3	Analyze various oscillators using Op-amp.[BL:4]
C317.4	Design the PLL and VCO for the given specifications.[BL:3]

Course Name: Digital Communication Systems Lab (15A04508)

Course Code	Course Outcome
C318.1	Analyze different modulation techniques in digital communications.[BL:3]
C318.2	Analyze spectra of different digital modulation schemes.[BL:4]
C318.3	Analyze digital modulation techniques using MATLAB.[BL:4]

Course Name: Social Values and Ethics (15A99501)

Course Code	Course Outcome
C318.1	Explain fundamental engineering knowledge.[BL:2]
C318.2	Develop the ability to navigate skills and online learning.[BL:3]
C318.3	Analyze the concept of problem solving ability in competitive exams.[BL:4]

Course Name: Managerial Economics and Financial Analysis (15A52301)

Course Code	Course Outcome
C321.1	Explain the scope of Managerial Economics prediction of demand of products and services by using different methods. [BL-2]
C321.2	Explain production functions and Break Even Point. [BL-2]
C321.3	Summarize the business organizations, market structure, behavior of consumer and producer under competitive market situations.[BL-2]
C321.4	Explain the sources of raising capital by business undertaking, process & principles of accounting.(BL-2]
C321.5	Analyze the financial statements of a business enterprise by using liquidity leverage, coverage and turnover & profitability ratios.[BL-3]

Course Name: Microprocessors & Microcontrollers (15A04601)

Course Code	Course Outcome
C322.1	Interpret the features and architecture of 8086 Microprocessor.(BL-2)
C322.2	Analyze the Instruction formats and addressing modes 8086 processor.(BL-4)
C322.3	Explain the features, architecture & addressing modes and instruction set of MSP 430.(BL-2)
C322.4	Analyze the various peripherals and Low power modes of MSP 430. (BL-4)
C322.5	Illustrate the principles of serial communication interfaces used with MSP 430. (BL-2)

Course Name: Electronic Measurements and Instrumentation (15A04602)

Course Code	Course Outcome
C323.1	Explain the static and dynamic characteristics of electronic instruments (BL-2)
C323.2	Illustrate the operation and basic features of Oscilloscopes.(BL-2)
C323.3	Explain the working of waveform generators and signal analyzers.(BL-2)
C323.4	Analyze the measurement principles using AC & DC bridges.(BL-3)
C323.5	Explain the working and applications of transducers.(BL-3)

Course Name: Digital Signal Processing (15A04603)

Course Code	Course Outcome
C324.1	Illustrate time domain and frequency domain analysis of discrete time signals and systems to separate extraneous signals in time from the desired signal(BL-2)
C324.2	Apply the concept of FFT algorithms to find DFT of signal which makes calculations easier (BL-3)
C324.3	Develop different structures for realization of discrete time systems. (BL-3)
C324.4	Design FIR and IIR filters using different methods to sort of frequency response digitally. (BL-3)
C324.5	Apply the concepts of multirate processing on digital signals reduced computational work load (BL-3)

Course Name: VLSI Design (15A04604)

Course Code	Course Outcome
C325.1	Explain the basic theory of MOS and CMOS transistors and steps of IC fabrication [BL:2]
C325.2	Explain the Lambda based design rules and layout of MOS transistors [BL:2]
C325.3	Design the logic gate circuits using gate level design and understand physical design [BL:3]
C325.4	Design of basic arithmetic building blocks and sensitization of ASICs[BL:3]
C325.5	Explain VHDL Synthesis and simulation and methods of VLSI Testing [BL:2]

Course Name: MATLAB programming (15A04605)

Course Code	Course Outcome
C326.1	Make use of Matlab for interactive computations.[BL:1]
C326.2	Apply basic knowledge to define, represent and process arrays and vectors.[BL:3]
C326.3	Create, test, and execute user-defined functions and sub-functions for data handling with files[BL:6]
C326.4	Explain various programming constructs and variables along with data plotting commands.[BL:2]
C326.5	Solve the linear system of equations using Matlab Programming concepts

Course Name: Microprocessors and Microcontrollers Lab (15A04607)

Course Code	Course Outcome
C327.1	Execute assembly language programs using 8086 microprocessor.[BL:4]
C327.2	Analyze the concepts related to I/O and memory interfacing .[BL:3]
C327.3	Examine interfacing and programming GPIO ports in C using MSP430.[BL:4]
C327.4	Design and implement MSP430 microcontroller based systems.[BL:4]

Course Name: Digital Signal Processing Lab (15A04608)

Course Code	Course Outcome
C328.1	Analyze discrete time signals & systems using MATLAB.[BL:4]
C328.2	Design & implement IIR & FIR filters for different specifications.[BL:4]
C328.3	Design DSP based real time processing systems to meet desired needs of the society.[BL:4]
C328.4	Develop DSP algorithms using digital signal processors.[BL:3]

Course Name: Advanced English Language Communication Skills Lab (15A52602)

Course Code	Course Outcome
C329.1	Apply sound vocabulary and its proper use contextually.[BL:3]
C329.2	Build Writing skills and felicity in written expression.[BL:3]
C329.3	Build presentation skills through poster and oral .[BL:3]
C329.4	Improve the Communication Skills.[BL:2]

Course Name: Comprehensive Online Exam-II (15A04609)

Course Code	Course Outcome
C3210.1	Explain fundamental engineering knowledge.[BL:2]
C3210.2	Develop the ability to navigate skills and online learning.[BL:3]
C3210.3	Analyze the concept of problem solving ability in competitive exams.[BL:4]

Course Name: Optical Fiber Communications (15A04701)

Course Code	Course Outcome
C411.1	Explain the optical fiber communication link, structure, propagation and transmission properties of an optical fiber (BL-2)
C411.2	Interpret the Signal Degradation in Optical Fibers due to various losses (BL-2)
C411.3	Explain the characteristics of fiber sources and coupling (BL-2)
C411.4	Determine the characteristics of Fiber Optical Receivers (BL-3)
C411.5	Design of digital and analog optical fiber link based on budgets(BL-4)

Course Name: Embedded Systems (15A04702)

Course Code	Course Outcome
C412.1	Illustrate the concepts of Embedded systems and its design process(BL-3)
C412.2	Interpret the architecture of ARM and TM4C (BL-3)
C412.3	Examine the Embedded hardware, design issues and metrics of Embedded Systems. (BL-4)
C412.4	Apply the concepts of microcontroller fundamentals for basic programming.(BL-3)
C412.5	Analyze the concepts of serial communication interfacing for Embedded networking and IOT.(BL-3)

Course Name: Microwave Engineering (15A04703)

Course Code	Course Outcome
C413.1	Analyze the different types of wave guides and their respective modes of propagation.(BL-4)
C413.2	Compare various operation and performance Characteristics of microwave components. (BL-4)
C413.3	Apply software design and development techniques by understanding software architecture.(BL-4)
C413.4	Explain the operating principles and characteristics of basic passive and active microwave devices.(BL-2)
C413.5	Develop S-matrix for passive microwave components. (BL-3)

Course Name: Data Communication and Networks (15A04704)

Course Code	Course Outcome
C414.1	Analyze the layered concept in communication networks (BL-3)
C414.2	Determine the concept of error control in data link layer (BL-2)
C414.3	Explain the IEEE standards of LAN & WAN (BL-2)
C414.4	Analyze the various network parameters in routing algorithms (BL-4)
C414.5	Analyze the concept of network security and cryptography for transport layer (BL-4)

Course Name: Radar Systems (15A04705)

Course Code	Course Outcome
C415.1	Analyze the concepts of different Radar constants, frequencies and simple range equation. (BL-4)
C415.2	Explain the basic principles of CW radar and Frequency modulated Radar. (BL-2)
C415.3	Interpret the different types of MTI Radars and their performance.(BL-2)
C415.4	Analyze the operation of various tracking radars. (BL-4)
C415.5	Analyze the detection of radar signals in noise and radar receiver concepts. (BL-4)

Course Name: Digital Image Processing (15A04708)

Course Code	Course Outcome
C416.1	Explain image processing applications in various fields of engineering. [BL:2]
C416.2	Analyze images in the frequency domain using various transforms.[BL:4]
C416.3	Apply the image processing techniques for image enhancement. [BL-3]
C416.4	Explain image restoration, image segmentation techniques. [BL:2]
C416.5	Analyze various image compression techniques and standards. [BL:4]

Course Name: VLSI& Embedded Systems Lab (15A04711)

Course Code	Course Outcome
C417.1	Design and draw the internal structure of the various digital integrated circuits.[BL:4]
C417.2	Analyze VHDL/Verilog HDL source code, perform simulation using relevant simulator.[BL:4]
C417.3	Analyze the simulation results using necessary synthesizer.[BL:4]
C417.4	Illustrate the logical operations of the GPIO ports using TM4C123.[BL:2]

Course Name: Microwave and Optical Communications Lab (15A04712)

Course Code	Course Outcome
C418.1	Analyze the various parameters and characteristics of the microwave components.[BL:4]
C418.2	Estimate the power measurements of microwave Components such as directional Couplers.[BL:2]
C418.3	Distinguish the characteristics of various optical sources.[BL:4]
C418.4	Design an optical fiber communications link.[B L:4]

Course Name: Low Power VLSI Circuits & Systems (15A04802)

Course Code	Course Outcome
C421.1	Explain the structure, characteristics of MOS transistors and sources of power dissipation in MOS (BL-2)
C421.2	Explain the switching characteristics of MOS inverters and MOS combinational circuits (BL-2)
C421.3	Analyze the sources of power dissipation and proposed approaches and techniques for low power design (BL-3)
C421.4	Explain the techniques to mitigate the power consumption by minimizing switched capacitances (BL-2)
C421.5	Identify the techniques to minimize leakage power. (BL-3)

Course Name: RF Integrated Circuits (15A04804)

Course Code	Course Outcome
C422.1	Explain the architecture of RF system. (BL-2)
C422.2	Analyze MOSFET amplifier for RF IC Design.(BL-4)
C422.3	Explain RF receiver front end system for wireless communication.(BL-2)
C422.4	Illustrate RF power amplifiers, VCO and PLL.(BL-2)
C422.5	Explain modern RF transceiver architecture.(BL-2)

Course Name: Comprehensive Viva Voce (15A04805)

Course Code	Course Outcome
C423.1	Illustrate the fundamental knowledge of mathematics and Engineering.[BL:2]
C423.2	Apply comprehensive understanding of techniques applicable to their own area of professional practice.[BL:3]
C423.3	Develop their Communication skills and Build confidence to face the interviews.[BL:2]

Course Name: Technical Seminar (15A04806)

Course Code	Course Outcome
C424.1	Develop interest towards research oriented field with ability to search the literature and brief report preparation.[BL:2]
C424.2	Develop Discussion and critical thinking about topics of current intellectual importance. [BL:2]
C424.3	Develop presentation skills and technical writing skills. [BL:2]
C424.4	Develop the latest technology and research in engineering. [BL:2]

Course Name: Project Work (15A04807)

Course Code	Course Outcome
C425.1	Identify problems, formulate literature survey and analyze engineering problems.[BL:3]
C425.2	Explain concepts of Project and Production Management.[BL:2]
C425.3	Explain the basic concepts & broad principles of Industrial projects.[BL:2]
C425.4	Apply the theoretical concepts to solve industrial problems with teamwork and multidisciplinary approach.[BL:3]