REGULATION: R19		
CODE	**COURSE OUTCOME**	**K.LEVEL**
I - I SEM		
C111	**Algebra & Calculus (19A54101)**	**K.Level**
C111.1	Solve systems of linear equations, using technology to facilitate row reduction determine the rank, eigenvalues and eigenvectors, diagonal form and different factorizations of a matrix.	K3
C111.2	Analyze mean value theorems to the given function.	K4
C111.3	Utilize the technique of partial differentiation to find the Jacobian and the extreme values of functions of several variables.	K3
C111.4	Apply the techniques of multiple integrals to find the areas and volumes.	K3
C111.5	Calculate the values of improper integrals using Beta and Gamma functions.	K3
C112	**Applied Physics (19A56101T)**	**K.Level**
C112.1	Analyze the differences between the interference and diffraction with applications and also illustrate the polarization of light	**K4**
C112.2	Classify the various types of polarization of dieletrics and apply the concepts of magnetism to magnetic devices	**K3**
C112.3	Apply the Gauss theorem for electric and magnetic fields also Evaluate the Maxwells equations. Apply the fiber optic concepts in various fields	**K3**
C112.4	Classify the energy bands of semiconductors and identify the applications of semiconductors in electronic device	**K3**
C112.5	Explain how electrical reistivity of solids changes with temperatures and apply the basic properties of nano materials in various engineering fields	**K4**
C113	**Problem Solving & Programming (19A05101T)**	**K.Level**
C113.1	Illustrate the working of computer , Solve complex problems using language independent notations.	K3
C113.2	Analyse the algorithms and apply algorithmic approach to solve the problem.	K4
C113.3	Select the control structure for solving the problems and also apply modular programmig concept.	K4
C113.4	Solve mathematical problems using C-Programming concepts.	K3
C113.5	Select and construct sorting algorithms based on type of data.	K4
C114	**Communicative English 1 (19A52101T)**	**K.Level**
C114.1	Practise the basic listening, speaking, reading and writing skills in both academic and social contexts.	**K3**
C114.2	Apply effective strategies in structuring short talks, writing well-structured paragraphs, identifying basic grammatical errors and using cohesive devices for better reading comprehension	**K3**
C114.3	Develop summarizing and reporting skills with correct tense forms, appropriate structures, vocabulary and also report on informal discussions	**K3**
C114.4	Interpret graphic elements in academic contexts and use language appropriately for description of reading texts and construct dialogues for effective conversation.	**K3**
C114.5	Produce a well-organised essay without any grammatical errors and make formal oral presentations using effective strategies	**K3**
C115	**Electronics & Communication Engineering Workshop (19A04101)**	**K.Level**
C115.1	Explain electronic components, measuring instruments and tools used in electronic workshop.	K3
C115.2	Practice on soldering the electronic components on a PCB	K3
C115.3	Summarize about different EDA tools	K5
C115.4	Practice on Productivity tools like word processors, spreadsheets, presentations	K3
C115.5	Explain the working of various communication systems	K3

CODE	COURSE OUTCOME	K.LEVEL
C116	**Applied Physics Lab (19A56101P)**	**K.Level**
C116.1	Analyze the importance of Interference & Diffraction of light	K4
C116.2	Determine the numerical aperture of optical fiber to find its acceptance angle	K3
C116.3	Calculate the Energy gap of Semiconductor laser diode	K4
C116.4	Develop the magnetic field & study its properties.	K3
C116.5	Determine the self inductance of the coil using Anderson's bridge	K3
C117	**Problem Solving & Programming Lab (19A05101P)**	**K.Level**
C117.1	Illustrate Assemble and deassemble a Personal Computer and prepare the computer ready to use.	K4
C117.2	Illustrate the syntax and semantics of C language for simple problem statements.	K4
C117.3	Develop programs with arrays.	K3
C117.4	Develop programs that perform operations using linked list.	K3
C117.5	Construct programs by making use of command line arguments and storage classes.	K3
C118	**Communicative English 1 Lab (19A52101P)**	**K.Level**
C118.1	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension and neutralize mother tongue influence.	K4
C118.2	Make use of suitable strategies for reading comprehension and edit short texts by correcting common errors.	K3
C118.3	Build specific vocabulary for description and use them appropriately in different contexts / situations.	K3
C118.4	Construct short structured talks on general and specific topics using suitable discourse markers.	K3
C118.5	Develop a summary with clarity and precision.	K3
I - II SEM	
C121	**Network Theory (19A04201T)**	**K.Level**
C121.1	Solve network problems using mesh and nodal analysis techniques	K3
C121.2	Analyze the networks by using various network theorem	K4
C121.3	Compute the transient responses of DC and AC RL, RC,and RLC circuits using time & frequency domain analysis	K5
C121.4	Design & Analyse the series and parallel resonant circuits for given bandwidth	K6
C121.5	determine the Z, Y, ABCD and H-parameters for two port networks	K3
C122	**Differential Equations and Vector Calculus (19A54201)**	**K.Level**
C122.1	Solve the differential equations related to various engineering fields	K3
C122.2	Apply the linear D.E's in Mechanical and Electrical Oscillatory circuits	K3
C122.3	Identify solution methods for partial differential equations that model physical processes	K3
C122.4	Interpret the physical meaning of different operators such as gradient, curl and divergence	K5
C122.5	Estimate the work done against a field, circulation and flux using vector calculus	K6
C123	**Chemistry (19A51102T)**	**K.Level**
C123.1	Explain the sailentfeatures of different theories along with their applications	K4
C123.2	Apply the knowledge of various electrodes and electrochemical cells and the development of new batteries	K3
C123.3	Identifythe different polymers and their better ussage in various fields of engineering	K3
C123.4	Analyze the knowledge of different analytical techniques used in engineering and also development of new techniques	K4
C123.5	Express the principle of supramolecular chemistry in applications of Molecular machines and Switches	K3

CODE	COURSE OUTCOME	K.LEVEL
C124	**Data Structures (19A05201T)**	
C124.1	Analyse the given algorithm to find the time and space complexities and select appropriate sorting algorithms	K4
C124.2	Develop the applications using Stack,Queue and Linked list.	K3
C124.3	Explain the concept of trees and compare different tree structures.	K3
C124.4	Apply various graph traversal methods to applications and select appropriate hashing techniques	K3
C124.5	Apply the concepts and need of files in programming and implement file operations.	K3
C125	**Engineering Workshop (19A03101)**	
C125.1	Apply wood working skills in real world applications	K3
C125.2	Build different parts with metal sheets in real world applications	K3
C125.3	Apply fitting operations in various applications	K3
C125.4	Apply different types of basic electric circuit connections	K3
C125.5	Demonstrate soldering and brazing	K2
C126	**Engineering Graphics Lab (19A03102)**	**K.Level**
C126.1	Draw various curves applied in engineering.	K2
C126.2	Show projections of solids and sections graphically	K2
C126.3	Draw the development of surfaces of solids	K3
C126.4	Use computers as a drafting tool	K2
C126.5	Draw isometric and orthographic drawings using CAD packages	K3
C127	**Network Theory Lab (19A04201P)**	**K.Level**
C127.1	Verify the kirchoff's laws and network theorems	K4
C127.2	Measure time constants of RL & RC circuits	K3
C127.3	Analyze the behaviour of RLC circuit for different cases	K4
C127.4	Design resonant circuit for given specifications	K6
C127.5	Characterize and model the network in terms of all network parameters	K3
C128	**Chemistry Lab (19A51102P)**	**K.Level**
C128.1	Distinguish different types of titrations in the volumetric analysis	K4
C128.2	Determine the cell constant and conductance of solutions	K4
C128.3	Use conductometry instrumental method in volumetric analysis to determine the consentration of a given HCl Solution by titration against a standared NaOH Solution.	K3
C128.4	Apply pontentiometry instrumental method in volumetric analysis to determine the strength of a given sample Solution by titration against a standared Solution.	K3
C128.5	Analyze the affect of Absorbence of given sample solution on consentration by using colorometry.	K4
C129	**Data Structures Lab (19A05201P)**	**K.Level**
C129.1	Develop Searching and Sorting algorithms using arrays	K3
C129.2	Illustrate different operations that can be peformed on different data structures	K3
C129.3	Develop programs to model the working of Stack and Queue	K3
C129.4	Choose Single, Double and Circualr linked list for solving the problem.	K5
C129.5	Organize data in the form of files	K4

CODE	COURSE OUTCOME	K.LEVEL
C1210	**Technical Seminar (19A99201)**	**K.Level**
C1210.1	Develop interest towards research oriented field with ability to search the literature and brief report preparation.	K6
C1210.2	Develop the skills, competencies and points of view needed by professionals in the field most closely related to the course	K6
C1210.3	Develop the discussion and critical thinking about topics of current intellectual importance.	K6
C1210.4	Develop the interpersonal & communication skills and awareness.	K3
C1210.5	Develop presentation skills.	K3
	II-I SEM	
C211	**Complex Variables and Transforms (19A54302)**	**K.Level**
C211.1	Understand functions of complex variables and its properties and analyticity of complex functions	K2
C211.2	Apply Cauchy's Integral theorem and Cauchy's integral formula.Evaluate improper integrals of complex functions using Residue theorem	K3
C211.3	Apply Laplace Transforms to Solve Differential Equations & Solve the Laplace Transforms of General functions using its properties .	K3
C211.4	Calculate Fourier Coefficients and identify the existance of Fourier Series of the given function.	K4
C211.5	Apply the properties of Fourier Transforms and also apply Z-Transforms to solve differential equations.	K3
C212	**Signals & Systems (19A04301)**	**K.Level**
C212.1	Apply Fourier series to analyze periodic signals and their spectra.	**K3**
C212.2	Apply sampling theorem to convert continuous-time signals to discrete-time signals and reconstruct back, different continous time Fourirer transform techniques to solve signals and system related problems.	**K3**
C212.3	Analyze spectral characteristics of discrete time signals using discrete time Fourier transforms.	**K4**
C212.4	Classify the systems based on their properties and determine the response of them.	**K4**
C212.5	Analyze the continous-time and discrete-time signals using Laplace and Z-transformations respectively.	**K4**
C213	**Electronic Devices and Circuits (19A04302T)**	**K.Level**
C213.1	Describe basic operation and characteristics of PN junction Diode.	**K2**
C213.2	Compare the performance of various special diodes.	**K4**
C213.3	Analyze diode circuits for different applications such as rectifiers,filters, regulators, clippers, clampers, voltage doublers,detectors.	**K4**
C213.4	Analyze different configurations and biasing circuits of BJT.	**K4**
C213.5	Analyze different configurations and biasing circuits of FET.	**K4**
C214	**Probability Theory and Stochastic Processes (19A04303)**	**K.Level**
C214.1	Analyze various probability density functions of random variables.	**K4**
C214.2	Apply the knowledge to the sum of random variables, central limit theorm in communication systems and evaluate single and multiple random variable concepts to expectation,variance and moments.	**K3**
C214.3	Apply the different operations to multiple random variables.	**K3**
C214.4	Analyze the time domain and spectral characteristics of random process	**K4**
C214.5	Analyze the response of Linear system with random inputs and also compare different spectral band random process	**K4**
C215	**Digital Electronics and Logic Design (19A04304)**	**K.Level**
C215.1	Apply Boolean algebra, Number systems and codes, logic gates, K-Map & Tabular Methods to realize minimized logic functions and circuits.	**K3**
C215.2	Design various combinational Logic circuits.	**K4**
C215.3	Design different Sequential Logic Circuits and their Applications.	**K4**
C215.4	Apply PLD structures to realize simple digital circuits.	**K3**
C215.5	Compare bipolar and MOS Logic families.	**K5**

CODE	COURSE OUTCOME	K.LEVEL
C216	**Electrical Technology (19A02304T)**	**K.Level**
C216.1	Explain the operating principle, construction and various characteristics of DC Generator and also calculate its e.m.f. generated.	**K3**
C216.2	Explain the operating principle, various characteristics and speed control of DC Motor and also calculate its losses and efficiency.	**K3**
C216.3	Apply OC and SC tests on single phase transformer for knowing their characteristics and also analyze the three phase circuits.	**K3**
C216.4	Analyze the three phase induction motor operating principle and know their torque slip characteristics	**K4**
C216.5	Apply the concepts of synchronous machines to solve real world problems and applications.	**K3**
C217	**Electronic Devices and Circuits Lab (19A04302P)**	**K.Level**
C217.1	Understand the basic characteristics and applications of basic electronic devices.	**K3**
C217.2	Observe the characteristics of electronic devices by plotting graphs.	**K3**
C217.3	Analyze the Characteristics of UJT, BJT, FET, and SCR.	**K4**
C217.4	Design FET based amplifier circuits/BJT based amplifiers for the given specifications.	**K3**
C217.5	Simulate all circuits in PSPICE /Multisim.	**K3**
C218	**Basic Simulation Lab (19A04305)**	**K.Level**
C218.1	Understand the basic concepts of programming in MATLAB and explain use of built-in functions to perform assigned task.	**K2**
C218.2	Apply the various operations on Continuous and Discrete time signals	**K3**
C218.3	Analyze signals using Fourier, Laplace and Z-transforms.	**K4**
C218.4	Analyze the LTI systems using transforms	**K4**
C218.5	Illustrate Convolution & Correlation between signals/sequences and sampling theorem.	**K4**
C219	**Electrical Technology Lab (19A02304P)**	**K.Level**
C219.1	Analyse the various characteristics of DC generator & motor.	**K4**
C219.2	Determine the efficiency and regulation of OC & SC test of single phase transformer.	**K3**
C219.3	Determine the power in 3-phase balnced and unbalanced circuits	**K3**
C219.4	Analyse the various characteristics of Induction motors, Synchronous machines	**K4**
C2110	**Biology For Engineers (19A99302)**	**K.Level**
C2110.1	Explain about structure, function of cells and classification of living Organisms.	**K2**
C2110.2	Explain about biomolecules, their structure, function and role in living organisms.	**K3**
C2110.3	Explain about mechanism and process of important human functions.	**K3**
C2110.4	Explain about genetic material, DNA, genes and RNA how they replicate, pass and preserve vital information in living Organisms.	**K3**
C2110.5	Apply biological Principles in different technologies for the production of medicines and Pharmaceutical molecules through transgenic microbes, plants & animals	**K3**
	II-II SEM	
C221	**Electromagnetic Waves and Transmission lines(19A04401)**	**K.Level**
C221.1	Explain the basics of vector analysis, coordinate systems, electrostatic fields, magentostatic fields.	**K4**
C221.2	Apply Maxwell's equations in solving electromagnetic field equations.	**K3**
C221.3	Analyze electric and magnetic fields at the interface of diffrent media	**K4**
C221.4	Explain Brewster angle, power flow and surface impedance.	**K2**
C221.5	Describe the applications of different lengths of transmission lines.	**K4**

CODE	COURSE OUTCOME	K.LEVEL
C222	**Electronic Circuits – Analysis and Design(19A04402T)**	**K.Level**
C222.1	Analyze the Small Signal High Freqency Parameters of BJT & FET amplifiers	**K4**
C222.2	Design & Analyze the Frequency response of single stage amplifiers using BJT & FET	**K4**
C222.3	Analyze the Multi stage amplifiers and differential amplifiers.	**K4**
C222.4	Analyze the various feedback Amplifiers & Oscillators.	**K4**
C222.5	Evaluate efficiency of power amplifiers and analyze the characteristcs of Tuned amplifiers	**K4**
C223	**Control Systems(19A02404)**	**K.Level**
C223.1	Analyse mathematical models , signalflow graph & Block diagram representation to determine transfer function of control systems	**K4**
C223.2	Analyse the time domain responses of first and second-order systems.	**K4**
C223.3	Analyse control systems by applying Routh-Hurwitz and root-locus techniques.	**K4**
C223.4	Apply Bode plot, Polar & Nyquist plot concepts to analyze the control systems in frequency domain	**K3**
C223.5	Analyse state space model for a given physical system and solve the state equations	**K4**
C224	**Analog Communications(19A04403T)**	**K.Level**
C224.1	Analyse the Amplitude modulation & demodulation systems in time & frequency domains	K4
C224.2	Analyse the Angle modulation & demodulation systems in time & frequency domains	K4
C224.3	Analyse the performance of anaolg communication system in the presence of noise.	K4
C224.4	Analyse different Analog Pulse modulation & demodulation techniques and also understand the Radio Receiver Characteristics.	K4
C224.5	Solve basic communication problems & calculate information rate and channel capacity of discrete communication channel.	K3
C225	**Python Programming(19A05304T)**	**K.Level**
C225.1	List the basic constructs of Python and Solve the problems by applying modularity principle.	K3
C225.2	Apply the conditional execution and the principle of recursion to solve the problems.	K3
C225.3	Use the data structure list and design programs for manipulating strings.	K4
C225.4	Apply object orientation concepts, Use data structure dictionaries and Organize data in the form of files.	K3
C225.5	Plan programs using object orientation approach and illustrate the principle of inheritance.	K3
C226	**Computer Architecture and Organization(19A04404)**	**K.Level**
C226.1	Explain how to use RTL to represent memory and Arithmetic/ Logic/ Shift operations	K3
C226.2	Analyze basic organization and design of a digital computer	K4
C226.3	Analyze organization of central processing unit	K4
C226.4	Implement arithmetic algorithms for addition, subtraction,multiplication and division with digital hardware	K4
C226.5	Explain how input-output devices communicate with the other components and methods of data transfer	K3
C227	**Universal Human Values(19A52301)**	**K.Level**
C227.1	Identify the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society	K3
C227.2	Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body.	K4
C227.3	Analyze the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society	K4
C227.4	Examine the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.	K4
C227.5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.	K4

CODE	COURSE OUTCOME	K.LEVEL
C228	**Electronic Circuits – Analysis and Design Lab(19A04402P)**	**K.Level**
C228.1	Determine the characteristics and frequency response of various amplifiers	**K3**
C228.2	Analyze negative Feedback Amplifier circuits, Oscillators, Power Amplifiers, Tuned Amplifiers	**K4**
C228.3	Determine the efficiency of power amplifiers	**K3**
C228.4	Design RC and LC Oscillators, Feedback Amplifiers for specified gain and Multistage Amplifiers for low, Mid and high frequencies	**K4**
C228.5	Simulate all the circuits and compare the performance	**K5**
C229	**Analog Communications Lab(19A04403P)**	**K.Level**
C229.1	Understand different analog modulation techniques &Radio receiver characteristics.	**K2**
C229.2	Analyze different analog modulation techniques.	**K3**
C229.3	Design and implement different modulation and demodulation techniques.	**K4**
C229.4	Observe the performance of system by plotting graphs & Measure radio receiver characteristics.	**K2**
C229.5	Simulate all digital modulation and demodulation techniques.	**K5**
C2210	**Environmental Science(19A99301)**	**K.Level**
C2210.1	Comprehend the concepts of environment and its importance in our daily life and develop and apply various water conservation methods and conservation of other natural resources also.	**K2**
C2210.2	Categorize an ability to reflect on their personal impacts on biodiversity in global perspective.	**K2**
C2210.3	Develop new innovative methods for controlling of environmental pollution which may affect the human health.	**K3**
C2210.4	Analyze environmental issues related to society and find solutions for environmental problems.	**K4**
C2210.5	Determine the effects of increasing human population as well as health associated problems and develops measures to be taken to protect human health.	**K4**
	III-I SEM	
C311	**Integrated circuits and applications(19A04501T)**	**K.Level**
C311.1	Explain the construction and characteristics of ideal and practical operational amplifiers	**K3**
C311.2	Develop knowledge on some linear applications of Op-amp and on the design of active filters using Op-amps	**K3**
C311.3	Develop knowledge on some Non- linear applications of op-amp	**K3**
C311.4	Analyze data converter (ADC and DAC) Circuits using Op amps.	**K4**
C311.5	Design various waveform generators using op-amp, 555 Timer and PLL, VCO	**K3**
C312	**Antennas and wave propagation(19A04502)**	**K.Level**
C312.1	Explain the basics of antenna parameters & radiation pattern .	**K3**
C312.2	Design and analyze Wire and Antenna Arrays	**K4**
C312.3	Design and analyze, Aperture Antennas and Lens Antennas.	**K4**
C312.4	Analyze the construction of micro strip antennas& Make use of antenna measurements to assess antenna's performance.	**K4**
C312.5	Explain different modes of wave propagation in free space & mechanism of the atmospheric effects on radio wave propagation.	**K3**
C313	**English Language Skills(19A52601T)**	**K.Level**
C313.1	Practise the basic listening, speaking,reading and writing skills in both academic and social contexts	**K3**
C313.2	Use effective strategies in structuring short talk, writing well structuired paragraphs	**K3**
C313.3	Summarizing and reporting skills with correct tense forms, appropriate structures, vocabulary and also report on informal discussions.	**K2**
C313.4	Intrepret graphic element in academic contexts and use language appropriately for description of reading texts and construct dialogues for effective conversation	**K2**
C313.5	Produce a well-organised essay without any grammatical errors and make formal oral presentations using effective strategies	**K3**

CODE	COURSE OUTCOME	K.LEVEL
C314	**Digital Communications(19A04503T)**	**K.Level**
C314.1	Apply the fundamentals concepts of sampling theorem along with different coding and modulation techniques in communication systems.	K3
C314.2	Differentiate the basic principles of baseband and passband digital modulation schemes.	K4
C314.3	Employ the Geometric Representation of Signals in Signal Space.	K3
C314.4	Analyze the different modulation & demodulation for band pass data transmission and their probability of error.	K4
C314.5	Apply different channel encoding techniques for error detection and correction.	K3
C315	**Data Communications and Networking(19A04504a)**	**K.Level**
C315.1	Explain about network hardware, software and reference models	K3
C315.2	Explain various transmission medium , switchings used in data communication networks	K3
C315.3	Analyze various Multiple Access Techniques & Wired , wireless LANs	K4
C315.4	Apply routing algorithms in network layer & explain Transport layer protocols	K3
C315.5	Explain the various Application layer protocols	K4
C316	**Computer Graphics and Multimedia Animations(19A05506b)**	**K.Level**
C316.1	Discuss objective Interactive Computer Graphics and various Display Devices, Distinguish Raster Scan and Random Scan Systems	**K2**
C316.2	Analyze the various Algorithms to implements different Mathematical images using Graphics	**K4**
C316.3	Illustrate the Two Dimensional Computer Graphics , Examine the Polygon Clipping by various Algorithms	**K3**
C316.4	Estimate Different Geometric and Transformation Concepts using Three Dimensional Graphics	**K4**
C316.5	Evaluate Various Concepts to cover all Geometrical Primitives and Multimedia Animations	**K4**
C317	**Integrated circuits and Applications Lab(19A04501P)**	**K.Level**
C317.1	Understand the working of Op amp ICs & Application specific analog ICs.	**K2**
C317.2	Analyze operational amplifier based circuits for linear and non-linear applications.	**K4**
C317.3	Design Operational amplifiers for linear and nonlinear application, Multivibrator circuits using 555 & application specific ICs.	**K5**
C317.4	Simulate all linear and nonlinear application based Op amp Circuits and circuits based on application specific ICs.	**K6**
C317.5	Compare theoretical, practical & simulated results in integrated circuits.	**K4**
C318	**English Language Skills Lab(19A52601P)**	**K.Level**
C318.1	Analyse the english speech sounds, stress,rhythm, intonation and syllabic division for better speaking and listening comprehension and neutralize mother tongue influence	**K4**
C318.2	Make use of suitable strategies for reading comprehension and edit short texts by correcting common errors	**K3**
C318.3	Build specific vocabulary for description and use them appropriately in different contexts /situations	**K3**
C318.4	Construct short structured talks on general and specific situations/topics using suitable discourse markers	**K3**
C318.5	Summarize with clarity and precision	**K2**
C319	**Digital Communications Lab(19A04503P)**	**K.Level**
C319.1	Explain real time behaviour of different digital modulation schemes and technically visualize spectra of different digital modulation schemes.	**K2**
C319.2	Analyze and implement different modulation and demodulation techniques.	**K4**
C319.3	Analyze digital modulation & demodulation techniques.	**K4**
C319.4	Simulate all digital modulation and demodulation techniques in MATLAB.	**K6**
C3110	**Socially Relevant Project (19A04507)**	**K.Level**
C3110.1	Identify problems, formulate literature survey and analyze social problems.	**K6**
C3110.2	Describe the types and causes that makes social problems difficult to identify	**K3**
C3110.3	Identifies the needs for public health,safety,cultural, societal, and environmental considerations.	**K6**
C3110.4	Form a team for carrying the project and perform documentation effectively.	**K4**

CODE	COURSE OUTCOME	K.LEVEL
C3111	**Research Methodology (19A99601)**	**K.Level**
C3111.1	Understand basic concepts of research and its process	**K2**
C3111.2	Learn various methods of data collection	**K2**
C3111.3	Compare and contrast correlation and regression	**K3**
C3111.4	Analyze various types of testing tools used in research	**K4**
C3111.5	Design a research paper without any ethical issues	**K6**
	III-II SEM	
C321	**Microprocessors and Microcontrollers (19A04601T)**	**K.Level**
C321.1	Distinguish between Intel 8085 and 8086 micrprocessors	**K4**
C321.2	Develop Assembly Lalguage Programs for various problems using different addressing modes of 8086	**K4**
C321.3	Describe the interfacing of memory and peripherals with 8086 microprocessor	**K3**
C321.4	Describe the concepts of 8051 Microcontroller	**K3**
C321.5	Explain the architecture, Instruction Set and addressing modes of ARM Cortex M0+	**K3**
C322	**Digital Signal Processing(19A04602T)**	**K.Level**
C322.1	Calculate Fourier transform for discrete time signals by using various transformation techniques	K3
C322.2	Develop structures for realization of discrete time FIR and IIR systems	K4
C322.3	Design of linear phase FIR and IIR filters by various techniques	K3
C322.4	Illustrate the control instructions, interrupts, pipeline operations	K3
C322.5	Analyze and implement the signal processing algorithms in Digital signal processors	K4
C323	**Digital System Design through VHDL(19A04603)**	**K.Level**
C323.1	Understand the architecture of FPGAs, tools used in modelling of digital design and modelling styles in VHDL	K2
C323.2	Learn the IEEE Standard 1076 HDL	K2
C323.3	Analyze and design basic digital circuits with combinational and sequential logic circuits using VHDL	K4
C323.4	Model complex digital systems at several levels of abstractions , behavioral, structural.	K4
C323.5	Design complex digital CPU, vending machine and washing machine etc and analyze the case studies	K5
C324	**Principles and Techniques of Modern Radar Systems (19A04605e)**	**K.Level**
C324.1	Analyze radars & its varients using radar range equation	K4
C324.2	Analyze the recived data from the tragets using various radars (CW, FMCW & Pulse radars) to find distance , range for clutter analysis	K4
C324.3	Apply the fundamental knowledge of various radars & Matched filters to find the range between targate & radars , frequency and phase of the recived signals	K3
C324.4	Understand the basic concepts of radar based microwave imaging	K2
C324.5	Explain the emerging and modern applications of radar principles	K2
C325	**Wavelet Transforms & its applications(19A54604a)**	**K.Level**
C325.1	Understand wavelet transforms in continuous as well as discrete domains.	K2
C325.2	Illustrate the multi -resolutionanalysis, scalingfunction and Implement parseval theorem.	K3
C325.3	Form fine scale to coarse scale analysis Perform decimating synthesis and find the lattices and lifting.	K4
C325.4	Performn umerical complexity of discrete wavelet transforms.	K4
C325.5	Find the frames and tight frames using fourier series.	K4

CODE	COURSE OUTCOME	K.LEVEL
C326	**Managerial Economics and Financial Analysis (19A52602b)**	**K.Level**
C326.1	Analyze the consumer behaviour with regard to their product or services and measure demand of a particular product or services by applying various methods in given situation.	K4
C326.2	Compare concept of production & cost analysis	K3
C326.3	Determine the price of a product or services in given market condition.	K3
C326.4	Interpret the financial accounting and the financial ratios	K4
C326.5	Summarize Capital and its types and budget techniques.	K4
C327	**Digital Signal Processing Lab(19A04602P)**	**K.Level**
C327.1	Analyze discrete time signals & systems using MATLAB	K4
C327.2	Design & implement IIR & FIR filters for different specifications using MATLAB	K6
C327.3	Analyze discrete time signals & systems using floating point DSP processor kit with code composer studio (CCS)	K4
C327.4	Design & implement IIR & FIR filters using DSP processor kit with code composer studio (CCS)	K6
C328	**Microprocessors and Microcontrollers Lab(19A04601P)**	**K.Level**
C328.1	Write 8086 assembly language programs	K3
C328.2	Make use of programmable peripheral devices and their interfacing in assembly programming	K3
C328.3	Make use of MSP 430 and their Interfacing devices in CC Studio and simulate programs using embedded C for MSP 430	K3
C329	**Socially Relevant Project (19A04606)**	**K.Level**
C329.1	Identify problems, formulate literature survey and analyze social problems.	K6
C329.2	Describe the types and causes that makes social problems difficult to identify	K3
C329.3	Identifies the needs for public health,safety,cultural, societal, and environmental considerations.	K6
C329.4	Form a team for carrying the project and perform documentation effectively.	K4
C3210	**Constitution of India (19A99501)**	**K.Level**
C3210.1	Understand historical background of the constitution making and its importance for building a democratic India.	K2
C3210.2	Understand the functioning of three wings of the government ie., executive, legislative and judiciary.	K2
C3210.3	Understand the value of the fundamental rights and duties for becoming good citizen of India.	K2
C3210.4	Analyze the decentralization of power between central, state and local self- government	K4
C3210.5	Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.	K3
C3211	**Comprehensive Online Exam (19A04607)**	**K.Level**
C3211.1	Acquire fundamental engineering knowledge	K2
C3211.2	Demonstrate the ability to navigate skills and online learning	K2
C3211.3	Apply the concept of problem solving ability in competitive exams	K3
	IV-I SEM	
C411	**Microwave Engineering and Optical Communications (19A04701T)**	**K.Level**
C411.1	Derive field expressions for different modes of propagation in wave guides	K3
C411.2	Illustrate the characteristics of microwave devices through S- Parameters.	K4
C411.3	Analyse various Microwave Oscillators and Amplifiers	K4
C411.4	Analyse Signal Degradation in Optical fibers	K4
C411.5	Compare performance of Optical fibers	K4

CODE	COURSE OUTCOME	K.LEVEL
C412	**VLSI Design (19A04702T)**	**K.Level**
C412.1	Understand CMOS fabrication flow, technology scaling, sheet resistance, square capacitance and propagation delays in CMOS circuits	K2
C412.2	Apply the design Rules and draw layout of a given logic circuit and basic circuit concepts to MOS circuits.	K3
C412.3	Analyze the behavior of amplifier circuits with various loads.-	K4
C412.4	Design and analyze different MOSFET based logic circuits using various logic styles	K5
C412.5	Analyze various test generation methods for CMOS logic circuits	K4
C413	**Embedded Systems (19A040703c)**	**K.Level**
C413.1	Differentiate embedded system and general computing system and classify embedded systems	K4
C413.2	Discuss system components, quality attributes and characteristics of an embedded system	K3
C413.3	Discuss I/O types and Interrrupt service mecahnism	K3
C413.4	Illustrate IPC mechanisms used by tasks/processes,/tasks to communicate in multitasking environment.	K3
C413.5	Design an RTOS based Embedded System	K5
C414	**Renewable Energy Systems (19A02704a)**	**K.Level**
C414.1	Explains about measurement of solar radiation	K2
C414.2	Explains about grid connected PV systems	K3
C414.3	Analyze the concept of VAWT and HAWT systems	K4
C414.4	Analyze the concept of producing Geothermal energies	K4
C414.5	Analyze the operation of tidal,wave,bio mass energy	K4
C415	**Management Science (19A52701b)**	**K.Level**
C415.1	Apply the concepts and principles of management in real life industry. And students can be able to design and develop organizarion chart and structure for an enterprise.	K3
C415.2	Apply operations management techniques in real life industry	K3
C415.3	Apply the concepts of HRM in Recruitment ,Selection ,Training & Development.	K3
C415.4	Develop PERT/CPM charts for projects of an enterprise and estimate time & cost of a project and to develope Mission ,Objectives, Gooals & Strategies for an enterprise	K3
C415.5	Understand & apply modern management techniques wherever possible.	K3
C416	**Microwave Engineering and Optical Communications Lab (19A04701P)**	**K.Level**
C416.1	Analyze the various parameters and characteristics of the various waveguide components.	K4
C416.2	Analyze working of the various tubes or sources for the transmission of the microwave.	K4
C416.3	Measure signal parameters at microwave frequencies	K5
C416.4	Analyze an optical fiber analog and digital communication link.	K4
C416.5	Illustrate the characteristics of LED, LASER.	K3
C417	**VLSI Design Lab (19A04702P)**	**K.Level**
C417.1	Understand and Develop HDL Source code for the given experiment	K2
C417.2	Analyze the obtained results of the given experiment	K4
C417.3	Simulate the given circuit with suitable simulator and verify the results	K6
C417.4	Understand how to use FPGA/CPLD hardware tools in the lab	K3
C417.5	Design and implement the experiments using FPGA/CPLD hardware tools	K4

CODE	COURSE OUTCOME	K.LEVEL
C418	**Industrial Training / Skill Development / Research Project (19A04705)**	K.Level
C418.1	Apply the use of advanced tools and techniques encountered during industrial training and visit.	K3
C418.2	Take part in the projects in industries during his or her industrial training.	K4
C418.3	Interact with industrial personnel and follow engineering practices and discipline prescribed in industry.	K3
C418.4	Develop awareness about general workplace behavior and build interpersonal and team skills.	K3
C418.5	Prepare professional work reports and presentations.	K3
	IV-II SEM	
C421	**Analog IC Design (19A04801e)**	K.Level
C421.1	Explain small signal and large signal modelling of MOS Transistor	K3
C421.2	Design and compare different current mirror circuits sing MOSFETs	K4
C421.3	Design analog circuits like differential amplifiers, current amplifiers and inverters using MOSFETs	K4
C421.4	Design single stage & two stage CMOS op-amps	K4
C421.5	Explain different open loop comparators using MOSFETs	K3
C422	**Disaster Management (19A01802a)**	K.Level
C422.1	Understand the 'relief system' and the 'disaster victim.'	K2
C422.2	Describe the three planning strategies useful in mitigation	K2
C422.3	Identify the regulatory controls used in hazard management	K1
C422.4	Describe public awareness and economic incentive possibilities	K2
C422.5	Understand the tools of post-disaster management.	K2
C423	**Project (19A04803)**	K.Level
C423.1	Identify problems, formulate literature survey and analyze engineering problems.	K4
C423.2	Apply the theoretical concepts to solve industrial and societal problems with teamwork and multidisciplinary approach	K3
C423.3	Design system component that acquire the needs for public health and safety, and cultural, societal, and environmental considerations.	K6
C423.4	Form a team for carrying the project and perform documentation effectively.	K4