



PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)
(Affiliated to J.N.T.U.A, Approved by AICTE and Accredited by NAAC)
KAVALI – 524201, S.P.S.R Nellore Dist., A.P. India. Ph: 08626-243930
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



CODE	COURSE OUTCOMES	K.Level
I - I SEM		
C111	Calculus and Special Functions (21A110101)	K.Level
C111.1	Utilize mean value theorems to real life problems.	K3
C111.2	Familiarize with functions of several variables which is useful in optimization.	K3
C111.3	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2-dimensional coordinate systems.	K5
C111.4	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 3-dimensional coordinate systems.	K5
C111.5	Utilize special functions in evaluating definite integrals.	K3
C112	Mathematical Methods (21A110102)	K.Level
C112.1	Develop the use of matrix algebra techniques that is needed by engineers for practical applications.	K3
C112.2	Understand and solve the roots of equation using Bisection method, Iterative method, RegulaFalsi method, Newton Raphson method and solve the system of algebraic equations.	K3
C112.3	Apply concept of interpolation and derive interpolating polynomial using Newton's forward and backward formulae, Lagrange's formulae, Gauss forward and backward formulae.	K3
C112.4	Solving initial value problems to ordinary differential equations.	K3
C112.5	Determine the process of finding integral equations using Simson's 1/3, Simson's 3/8 Rule and Trapezoidal rule and fitting a best curve using least squares method.	K3
C113	Fundamentals of Electrical Circuits (21A020301)	K.Level
C113.1	Determine the equivalent impedance by using network reduction techniques and determine the current through, voltage across and power through any element	K3
C113.2	Determine the Dual of the network; develop the Cut Set and Tie-set Matrices for a given Circuit. Also understand various basic definitions and concepts	K3
C113.3	Determine the real power, reactive power, power factor of a given excitation	K3
C113.4	Apply the network theorems suitably	K3
C113.5	Analyze the three-phase circuits with star-delta transformation	K4
C114	C Programming & Data Structures (21A050302)	K.Level
C114.1	Solve computational problems, choose appropriate control structure depending on the problem to be solved.	K3
C114.2	Design applications in C using Arrays and Strings.	K3
C114.3	Modularize the problem and also solution.	K3
C114.4	Modularize the problem and also solution.	K3
C114.5	Explore various operations on Stacks, Queues and Linked lists.	K4
C115	Engineering Drawing (21A030301)	K.Level
C115.1	Construction of various conic curves, Cycloid curves	K3
C115.2	Construction of various conic curves, Cycloid curves	K3
C115.3	Construction of projections of Planes.	K3
C115.4	Construction of projection of solids development of surfaces regular Solids.	K3
C115.5	Representation of Ortho and Isometric views of solids.	K3

CODE	COURSE OUTCOMES	K.Level
C116	Fundamentals of Electrical Circuits Lab (21A020302)	K.Level
C116.1	Design and verify the various Kirchhoff's laws	K3
C116.2	Understand the electrical circuits by using mesh and nodal analysis	K2
C116.3	Remember, understand and apply various theorems and verify practically.	K2
C116.4	Understand and analyze active, reactive power measurements in three phase balanced circuits.	K2
C116.5	Determine the active, reactive power measurements in three-phase balanced and unbalanced circuits	K3
C117	C Programming & Data Structures Lab (21A050303)	K.Level
C117.1	Demonstrate the basic concepts of C programming language.	K2
C117.2	Select the right control structure for solving the problem.	K3
C117.3	Develop C programs using functions, arrays, structures and pointers	K3
C117.4	Illustrate the concepts Stacks and Queues.	K2
C117.5	Design operations on Linked lists.	K4
C118	Communicative English Lab (21A110201)	K.Level
C118.1	Use creativity in listening to formal and informal conversations.	K3
C118.2	Analyze the concepts of active listening and barriers to listening.	K4
C118.3	Communicate effectively in everyday life using right oral expressions.	K3
C118.4	Acquire the confidence to present themselves effectively during academic and professional presentations.	K3
C118.5	Acquire basic knowledge of non-verbal communication and its importance.	K3
I - II SEM		
C121	Differential Equations & Vector Calculus (21A110103)	K.Level
C121.1	Solve the differential equations related to various engineering fields.	K3
C121.2	Apply a range of techniques to find solutions of standard PDEs.	K3
C121.3	Identify solution methods for partial differential equations that model physical Processes.	K3
C121.4	Interpret the physical meaning of different operators such as gradient, curl and divergence.	K2
C121.5	Estimate the work done against a field, circulation and flux using vector calculus.	K4
C122	Applied Physics (21A110104)	K.Level
C122.1	Analyze the differences between interference, diffraction & polarization with applications.	K4
C122.2	Identify the importance of lasers and fiber optics in different engineering fields	K3
C122.3	Understand the response of dielectric & magnetic materials to the applied electric & magnetic fields	K2
C122.4	Explain the important properties of crystals & structure determination using X-ray diffraction along with the nano materials.	K3
C122.5	Elaborate the physical properties of semiconductors and superconductors	K2
C123	Applied Chemistry (21A110105)	K.Level
C123.1	Explain the salient features of different theories along with their applications.	K3
C123.2	Discuss about the model engineering materials.	K3
C123.3	Apply the knowledge of various electrodes for the development of new batteries.	K2
C123.4	Identify the different polymers and their uses in various fields of engineering.	K2
C123.5	Analyze the knowledge of different analytical techniques used in engineering and also development of new techniques.	K4

CODE	COURSE OUTCOMES	K.Level
C124	English for Professionals (21A110202)	K.Level
C124.1	Demonstrate word knowledge and its usage in appropriate contexts.	K3
C124.2	Recognize and incorporate basic grammar mechanics and sentence variety in writing.	K3
C124.3	Improve comprehension skills through intensive and extensive reading practice.	K3
C124.4	Learn and apply various writing formats for effective communication.	K3
C124.5	Improve writing skills needed for professional correspondence in various contexts.	K3
C125	Electronic Devices & Circuits (21A040301)	K.Level
C125.1	Describe basic operation and characteristics of various PN junction diodes.	K2
C125.2	Analyze diode circuits for different applications such as rectifiers with and without filters, regulators, and voltage doubler.	K4
C125.3	Explain principle, operation, and applications of BJT, FET & MOSFET.	K3
C125.4	Design various biasing circuits for BJT, FET & MOSFET.	K4
C125.5	Analyze BJT amplifiers using h parameter model.	K4
C126	Applied Physics Lab (21A110108A)	K.Level
C126.1	Operate optical instruments like microscope and spectrometer	K3
C126.2	Determine thickness of a hair/paper with the concept of interference.	K5
C126.3	Plot the intensity of the magnetic field of circular coil carrying current with distance.	K3
C126.4	Evaluate the acceptance angle of an optical fiber and numerical aperture.	K5
C126.5	Determine the resistivity of the given semiconductor using four probe method.	K5
C127	Applied Chemistry Lab (21A110108B)	K.Level
C127.1	Distinguish different types of titrations in the volumetric analysis	K2
C127.2	Determine the cell constant and conductance of solutions	K2
C127.3	Measure the strength of an acid present in secondary batteries	K5
C127.4	Analyze the effect of absorbance of given sample solution on concentration by using colorimetry.	K4
C127.5	Prepare advanced polymer Bakelite materials.	K3
C128	Engineering & IT Workshop Lab (21A050301)	K.Level
C128.1	Apply wood working skills and build different parts with metal sheets in real world applications.	K3
C128.2	Apply fitting operations in various applications and Preparation of moulds and castings.	K3
C128.3	Apply different types of basic electric circuit connections.	K3
C128.4	Prepare documentation, spread sheets for calculations and slides for Presentation.	K3
C128.5	Identify Computer peripherals and its functions, Internet browsing to obtain the required information	K2
C129	Electronic Devices & Circuits Lab (21A040302)	K.Level
C129.1	Compute the parameters of Diodes and Transistors from the characteristics.	K3
C129.2	Demonstrate the rectifier and voltage regulator circuits using diodes	K2
C129.3	Analyze the Characteristics of UJT and SCR	K4
C129.4	Design biasing circuit of BJT and FET.	K4

CODE	COURSE OUTCOMES	K.Level
C1210	Environmental Science (21A000001)	K.Level
C1210.1	Grasp multidisciplinary nature of environmental studies and various renewable and nonrenewable resources.	K3
C1210.2	Understand flow and bio-geo- chemical cycles and ecological pyramids.	K3
C1210.3	Understand various causes of pollution and solid waste management and related preventive measures.	K3
C1210.4	About the rainwater harvesting, watershed management, ozone layer depletion and waste land reclamation.	K3
C1210.5	Casus of population explosion, value education and welfare programmes.	K2
II - I SEM		
C211	Complex Variables and Transforms (21A110112)	K.Level
C211.1	Understand functions of Complex variable and its properties, and find derivatives of complex functions, analyticity of complex functions.	K2
C211.2	Apply Cauchy's integral theorem and Cauchy's integral formula, integration of complex functions using Residue theorem	K3
C211.3	Analyze the concept Laplace and Inverse Laplace Transforms to solve Differential equations	K3
C211.4	Determine the process of finding Fourier series expression of the given function, Fourier coefficients (Euler's) and expansion of Half range series	K4
C211.5	Identify the applications of Fourier integrals, properties of Fourier Transforms. Analyze the concept of Z transforms and its properties.	K3
C212	Signals & Systems (21A040401)	K.Level
C212.1	Apply Fourier series to analyze periodic signals and their spectra.	K3
C212.2	Analyze continuous time signals using Fourier transform and illustrate signal sampling and its reconstruction	K4
C212.3	Analyze discrete time signals using discrete time Fourier transform	K4
C212.4	Examine signal transmission through linear systems	K4
C212.5	Apply Laplace and Z- transform to analyze continuous and discrete time systems	K4
C213	Pulse and Digital Circuits (21A040402)	K.Level
C213.1	Design Low pass and High pass circuit RC networks.	K3
C213.2	Design diode Clipper and Clamper circuits.	K3
C213.3	Analyze various Multivibrators and Sweep circuits.	K4
C213.4	Utilize Boolean algebra, Number systems and Logic gates in the development of logic circuits.	K2
C213.5	Apply K-Map & Tabular methods to minimize logic functions	K3
C214	Probability Theory and Stochastic Process (21A040403)	K.Level
C214.1	Understanding the concepts of Probability, Random Variables, Random Processes and their characteristics learn how to deal with multiple random variables, conditional probability, joint distribution and statistical independence.	K2
C214.2	Formulate and solve the engineering problems involving random variables and random processes.	K3
C214.3	Analyze the concepts and its properties of auto-correlation, cross-correlation functions and power spectral density of Random Process.	K3
C214.4	Analyze various probability density functions of random variables.	K4
C214.5	Derive the response of linear system for Gaussian noise and random signals as inputs.	K4
C215	Electrical Technology (21A020305)	K.Level
C215.1	Calculate the e.m.f. generated on DC Generator and analyzes the types of generators.	K3
C215.2	Analyze the various speed control techniques of DC motors.	K4
C215.3	Conduct open circuit and short circuit tests on single phase transformer for knowing their characteristics.	K4
C215.4	Analyze three phase circuits, three induction motor operating principle and know their torque slip characteristics.	K4
C215.5	Acquire knowledge on synchronous machine with which he/she can able to apply the above conceptual things to real-world problems and applications.	K3

CODE	COURSE OUTCOMES	K.Level
C216	Pulse and Digital Circuits Lab (21A040404)	K.Level
C216.1	Analyze RC circuits with different time constants.	K4
C216.2	Analyze different clipping and clamper circuits	K4
C216.3	Analyze and design of various multivibrator and sweep circuits.	K4
C216.4	Design simple digital circuits using logic gates	K3
C217	Basic Simulation Lab (21A040405)	K.Level
C217.1	Explain the basic concepts of programming in MATLAB and use of built-in functions to perform assigned task.	K2
C217.2	Generate signals and sequences, input signals to the systems to perform various operations	K3
C217.3	Analyze signals using Fourier, Laplace and Z-transforms.	K4
C217.4	Verify Sampling theorem and Determine convolution and Correlation between signals and sequences.	K4
C218	Electrical Technology Lab (21A020306)	K.Level
C218.1	Understand various characteristics of DC generators and DC motors.	K4
C218.2	Predetermine the efficiency and regulation of a 1- ϕ transformer.	K4
C218.3	Determine power measurement in 3- ϕ circuits.	K4
C218.4	Understand various characteristics of Induction motors and Synchronous Machines.	K4
C219	Python Programming (21A050701)	K.Level
C219.1	Student should be able to understand the basic concepts of Python Programming language such as conditional processing, Loops, and other data structures.	K2
C219.2	Ability to explore python especially the built-in objects of Python.	K3
C219.3	Ability to create practical and contemporary applications such as Machine Learning algorithms.	K3
C2110	Constitution of India (21A000002)	K.Level
C2110.1	Understand historical background of the constitution making and its importance for building a democratic India.	K2
C2110.2	Understand the functioning of three wings of the government i.e., executive, legislative and judiciary.	K2
C2110.3	Understand the value of the fundamental rights and duties for becoming good citizen of India.	K2
C2110.4	Analyze the decentralization of power between central, state and local self- government	K4
C2110.5	Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.	K3
II - II SEM		
C221	Control Systems (21A040303)	K.Level
C221.1	Understand the basic principles of systems and their mathematical Representations.	K2
C221.2	Analyse time response analysis, error constants, and stability characteristics of a given mathematical model using different methods.	K4
C221.3	State space formulation for obtaining mathematical and Root locus.	K4
C221.4	Understand the Bode, Nyquist, and Polar plots for stability calculations, Design and develop different compensators, controllers.	K4
C221.5	Analyze the stability concepts, state space models, controllability and observability for demonstrate the use of these techniques.	K4

CODE	COURSE OUTCOMES	K.Level
C222	Managerial Economics and Financial Analysis (21A110203)	K.Level
C222.1	Analyse 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
C222.2	Determine Break Even Point (BEP) of an enterprise Assess the cost behaviour, costs useful for managerial decision making	K3
C222.3	Determine the price of a product or services in given market condition	K3
C222.4	Analyze the financial position by using different types of ratios and Interpret the financial accounting	K4
C222.5	Evaluate the investment proposals under payback period, ARR, IRR, NPV & PI methods	K4
C223	Digital System Design (21A040406)	K.Level
C223.1	Explain the concepts of VHDL language.	K2
C223.2	Design and implement various combinational circuits using VHDL	K5
C223.3	Design and implement various sequential circuits using using VHDL.	K5
C223.4	Explain error detection and correction techniques.	K3
C223.5	Design Digital systems	K5
C224	Electronic Circuit Analysis and Design (21A040407)	K.Level
C224.1	Analyse low frequency BJT & FET amplifiers using hybrid pie model.	K4
C224.2	Analyse the frequency response of single stage amplifiers at high and low frequencies.	K4
C224.3	Analyze and examine few common two stage transistor amplifier circuits viz., Cascade amplifiers, Cascode amplifiers, Darlington pairs.	K4
C224.4	Analyse and examine the characteristics of various types of feedback configurations and Oscillators	K4
C224.5	Analyse different types of power amplifier and Tuned amplifiers.	K4
C225	Analog Communications (21A040408)	K.Level
C225.1	Analyze the Frequency spectra of Modulated signals used in various Amplitude modulation schemes.	K4
C225.2	Analyze the Frequency spectra of Modulated signals used in various Angle modulation schemes	K4
C225.3	Compare the performance of communication systems by evaluating Figure of Merit for different modulation schemes.	K4
C225.4	Compare the performance of different Analog Pulse modulation schemes.	K4
C225.5	Analyze the Channel performance using information theory.	K3
C226	Digital System Design Lab (21A040409)	K.Level
C226.1	Design and simulate combinational circuits using VHDL.	K5
C226.2	Design and simulate sequential circuits using VHDL.	K5
C226.3	Analysis of simulation results and schematic diagram of combinational and sequential logic circuits.	K4
C226.4	Design simple Digital System (ALU) and implement using VHDL.	K5
C227	Electronic Circuit Analysis and Design Lab (21A040410)	K.Level
C227.1	Analyze the single and multistage amplifiers at low, mid and high frequencies using simulation software and Hardware.	K4
C227.2	Analyze the transistor oscillators using simulation software and Hardware.	K4
C227.3	Determine the efficiencies of power amplifiers using simulation software.	K3
C227.4	Analyze Frequency response of tuned amplifiers using hardware and Multisim software.	K4

CODE	COURSE OUTCOMES	K.Level
C228	Analog Communications Lab (21A040411)	K.Level
C228.1	Analyze different analog modulation techniques.	K4
C228.2	Design and implement different modulation and demodulation techniques.	K3
C228.3	Observe the performance of Pre-emphasis and De-emphasis Characteristics by plotting graphs & Measure radio receiver characteristics.	K2
C228.4	Simulate all Analog modulation and demodulation techniques by using MAT Lab	K4
C229	PCB Design (21A040701)	K.Level
C229.1	Demonstrate the basics of PCB designing	K2
C229.2	Make a Schematic of academic and industrial projects	K3
C229.3	Apply advance techniques, skills, and modern tools for designing and fabrication of PCBs.	K3
C229.4	Design the PCB for basic and analog electronic circuits.	K5
III - I SEM		
C311	Electromagnetic Waves and Transmission Lines (21A040412)	K.Level
C311.1	Explain the basics of vector analysis, coordinate systems and electrostatic fields.	K3
C311.2	Solve the problems of magnetostatics.	K3
C311.3	Analyze the boundary conditions of electromagnetic fields at the interface of different media using Maxwell's equations.	K4
C311.4	Analyze electromagnetic wave propagation in different media.	K4
C311.5	Explain the concept of transmission lines and their applications.	K4
C312	Integrated Circuits and Applications (21A040413)	K.Level
C312.1	Explain the construction and characteristics of ideal and practical operational amplifiers	K3
C312.2	Analyze linear applications using Op-Amp.	K3
C312.3	Analyze Op-Amp based non-linear applications and waveform generators.	K4
C312.4	Compare data converter (ADC and DAC) Circuits using Op-Amps.	K5
C312.5	Construct different applications of special purpose IC's such as 555 Timer, 566 VCO, 565 PLL	K3
C313	Digital Communications (21A040414)	K.Level
C313.1	Analyze different pulse modulation techniques & Distortions in communication systems.	K4
C313.2	Analyze the basic principles of baseband modulation schemes.	K4
C313.3	Analyze the different modulation & demodulation for pass band data transmission and their probability of error	K4
C313.4	Compare the power bandwidth, bit error probability for various modulation schemes.	K4
C313.5	Apply different channel encoding techniques for error detection and correction.	K3
C314	Computer Architecture & Organization (21A050502)	K.Level
C3144.1	Develop a detailed understanding of computer systems	K4
C3144.2	Cite different number systems, binary addition and subtraction, standard, floating-point, and micro-operations	K3
C3144.3	Develop a detailed understanding of architecture and functionality of central processing unit	K4
C3144.4	Exemplify in a better way the I/O and memory organization	K3
C3144.5	Illustrate concepts of parallel processing, pipelining and inter processor communication.	K3

CODE	COURSE OUTCOMES	K.Level
C315	Data Communication and Networking (21A040415)	K.Level
C315.1	Explain the layers in ISO/OSI model and switching techniques in networks	K3
C315.2	Analyze the functions of various Data link layer protocols.	K4
C315.3	Compare the various IEEE standards for LANs and WLAN	K4
C315.4	Explain the functions of various routing algorithms and IPvx protocols.	K4
C315.5	Analyze the functions of transport layer protocols and application layer protocols.	K4
C316	Integrated Circuits and Applications Lab (21A040418)	K.Level
C316.1	Design and test the performance of Operational amplifier applications.	K5
C316.2	Construct and study comparator, Schmitt trigger, Signal converters, rectifiers, Logarithmic amplifier and Instrumentation amplifier, R-2R DAC using Op-Amp.	K3
C316.3	Design and test the performance of 2nd and 3rd order active filters.	K5
C316.4	Design and verify the operation of astable and monostable circuits using 555 timer.	K5
C316.5	Test the functionality of different ICs 565, 78XX/79XX and LM723.	K5
C317	Digital Communications Lab (21A040419)	K.Level
C317.1	Explain real time behavior of different digital modulation schemes and technically visualize spectra of different digital modulation schemes.	K3
C317.2	Analyze digital modulation & demodulation techniques.	K4
C317.3	Design and implement different modulation and demodulation techniques.	K4
C317.4	Simulate digital modulation and demodulation techniques in MATLAB	K3
C318	Programming Arduino (21A040702)	K.Level
C318.1	Explain the basics of programming Arduino.	K3
C318.2	Design the prototype circuits and connect them to the Arduino	K6
C318.3	Apply the Programming concept of Arduino microcontroller to develop the circuits.	K3
C318.4	Develop skills to design and implement various smart system application.	K3
C319	Universal Human Values (21A000003)	K.Level
C319.1	Identify the significance and need of values in the society.	K2
C319.2	Understand the meaning of Harmony in the Self the Co-existence of Self and Body	K2
C319.3	Understanding the value of harmonious relationships and explore their role in ensuring a harmonious society	K2
C319.4	Examine the harmony in nature and existence, and work out their mutually fulfilling participation in the nature	K3
C319.5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment	K3
C3110	Internship - I Evaluation (21A040601)	K.Level
C3110.1	Identify skills and capabilities that intersect effectively with the needs of industry.	K2
C3110.2	Apply the theoretical concepts to solve industrial problems with teamwork and multidisciplinary approach.	K3
C3110.3	Demonstrate and apply research skills to complete a project	K3

CODE	COURSE OUTCOMES	K.Level
III - II SEM		
C321	Antennas & Microwave Engineering (21A040420)	K.Level
C321.1	Learn about the basics of antenna parameters & radiation patterns.	K3
C321.2	Design and analyse VHF, UHF and Microwave antennas.	K4
C321.3	Understand the uses of antenna arrays and analyze waveguides and resonators.	K4
C321.4	Analyse various microwave Components and understand the principles of various microwave sources.	K4
C321.5	Understand the working of various microwave solid state devices	K3
C322	Microprocessors and Microcontrollers (21A040421)	K.Level
C322.1	Understand the Architecture of 8086 microprocessor	K2
C322.2	Develop 8086 Assembly language programs	K3
C322.3	Explain interfacing of 8086 with peripheral devices	K3
C322.4	Develop assembly language programs for 8051 Microcontroller	K3
C322.5	Illustrate interfacing of 8051 with peripheral devices	K4
C323	Digital Signal Processing (21A040422)	K.Level
C323.1	Establish difference equations for the discrete time systems.	K3
C323.2	Apply FFT algorithms for determining the DFT of a given signal.	K3
C323.3	Design IIR digital filter from the given specification.	K5
C323.4	Design FIR digital filter from the given specifications	K5
C323.5	Explain the concept of multi-rate DSP and quantization errors	K3
C324	VLSI Design (21A040425)	K.Level
C324.1	Explain about IC fabrication and relation between different parameters of MOSFET showing its characteristics.	K3
C324.2	Estimate sheet resistance, area capacitance, delays in CMOS circuits and develop layouts, stick diagrams of logic circuits	K4
C324.3	Design MOSFET based logic circuits using various logic styles like static and dynamic CMOS.	K5
C324.4	Analyze the various test generation methods for static and dynamic CMOS circuits.	K4
C324.5	Analyze the behaviour of amplifier circuits with various loads.	K4
C325	Basics of Database Management Systems (21A050504)	K.Level
C325.1	Define a Database Management System.	K2
C325.2	Compare the advantages and disadvantages of the different models.	K4
C325.3	Design Database using E-R Diagram (SQL).	K4
C325.4	Analyze the rules guiding transaction ACID properties.	K4
C325.5	Analyze file organization while storing and retrieving the data base	K4
C326	Antennas & Microwave Engineering Lab (21A040426)	K.Level
C326.1	Understand the working of different microwave components and sources in a microwave bench.	K2
C326.2	Compare the characteristics of various microwave components using microwave bench setup.	K4
C326.3	Simulate various antennas.	K3
C326.4	Analyse performance characteristics of Antennas	K4

CODE	COURSE OUTCOMES	K.Level
C327	Microprocessors and Microcontrollers Lab (21A040427)	K.Level
C327.1	Examine problems and implement algorithms using Assembly language.	K4
C327.2	Develop programs for different applications.	K3
C327.3	Connect peripheral devices with 8086.	K4
C327.4	Connect peripheral devices with 8051.	K4
C328	Digital Signal Processing Lab (21A040428)	K.Level
C328.1	Implement various DSP Algorithms using MATLAB / Code Composer Studio (CCS).	K3
C328.2	Analyze and observe magnitude and phase characteristics (Frequency response characteristics) of digital IIR-Butterworth	K4
C328.3	Analyze and observe magnitude and phase characteristics (Frequency response characteristics) of digital FIR filters using	K4
C328.4	Design and Analyze Digital Filters using FDA Tool.	K5
C329	RF System Design (21A040703)	K.Level
C329.1	Design various RF passive and active components and analyze their performance.	K5
C329.2	Design and Evaluate the performance of RF circuits S-parameters, Signal flow graphs and smith charts.	K5
C329.3	Analyze the performance of RF Microstrip antennas.	K4
C329.4	Design and Analyze Microstrip Transmission Line standing wave pattern at various frequencies.	K4
C3210	Research Methodology (21A000004)	K.Level
C3210.1	Know how to define a Research problem, select suitable design and experimental approach.	K1
C3210.2	Formulate sampling design and various techniques implemented on data collection.	K6
C3210.3	Correlate any two variables and find the solution using regression analysis	K4
C3210.4	Examine hypothesis testing procedure, Analyze the significance of variance and covariance.	K4
C3210.5	Write a report on research work for seminars, conferences formats.	K6