GOKULA KRISHNA COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONS ENGINEERING

COURSE OUTCOMES

FIRST YEAR : 1ST SEMESTER		
Course Name (Code)	**Course Outcomes (COs)**	
LINEAR ALGEBRA & CALCULUS (20A54101)	CO1	Develop the use of matrix algebra techniques that is needed by engineers for practical applications (L6)
	CO2	Utilize mean value theorems to real life problems (L3)
	CO3	Familiarize with functions of several variables which is useful in optimization (L3)
	CO4	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2-dimensional coordinate systems (L5)
	CO5	Students will become familiar with 3- dimensional coordinate systems and learn the utilization of special functions
APPLIED PHYSICS (20A52101T)	CO1	Identify the wave properties of light and the interaction of energy with the matter (L3)
	CO2	Apply electromagnetic wave propagation in different guided media (L2)
	CO3	Asses the electromagnetic wave propagation and its power in different media (L5)
	CO4	Calculate conductivity of semiconductors (L3)
COMMUINICATIVE ENGLISH (20A52101T)	CO1	Understand the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English.
	CO2	Apply grammatical structures to formulate sentences and correct word forms
	CO3	Analyze discourse markers to speak clearly on a specific topic in informal discussions
	CO4	Evaluate reading/listening texts and to write summaries based on global comprehension of these texts
	CO5	Create a coherent paragraph interpreting a figure/graph/chart/table

FUNDAMENTALS OF ELECTRICAL CIRCUITS (20AO2101T)	CO1	Given a network, find the equivalent impedance by using network reduction techniques and determine the current through any element and voltage across and power through any element.
	CO2	Given a circuit and the excitation ,determine the real power reactive power factor etc…..
	CO3	Apply the network theorems suitably
	CO4	Determine the dual of the network develop the cut set and tie-set matrices for a given circuit.
	CO5	Also understand various basic definition and concepts
ENGINEERING DRAWING (20A03101T)	CO1	Draw various curves applied in engineering . (12)
	CO2	Show projections of solids of sections graphically (12)
	C03	Draw the development of surfaces of solids. (13)
ENGINEERING GRAPHICS LAB (20A03101P)	CO1	Draw various curves applied in engineering. (L2)
	CO2	Show projections of solids and sections graphically. (L2)
	CO3	Draw the development of surfaces of solids. (L3)
	CO4	Use computers as a drafting tool. (L2)
APPLIED PHYSICS LAB (20A56201P)	CO1	Operate optical instruments like microscope and spectrometer (L2)
	CO2	Determine thickness of a hair/paper with the concept of interference (L2)
	CO3	Estimate the wavelength of different colors using diffraction grating and resolving power (L2)
	CO4	Plot the intensity of the magnetic field of circular coil carrying current with distance (L3
	CO5	Evaluate the acceptance angle of an optical fiber and numerical aperture (L3)
COMMUNICATIVE ENGLISH I LAB (20A52101P)	CO1	To remember and understand the different aspects of the English language proficiency with emphasis on LSRW skills
	CO2	To apply communication skills through various language learning activities.
	CO3	To analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.
	CO4	To evaluate and exhibit acceptable etiquette essential in social and professional settings
	CO5	To create awareness on mother tongue influence and neutralize it in order to improve fluency in spoken English
FUNDAMENTALS OF ELECTRICAL CIRCUTS LAB (20A02101P)	CO1	Remember, understand and apply various theorems and verify practically.
	CO2	Understand and analyze active, reactive power measurements in Three phase balanced & unbalanced circuits.

FIRST YEAR : II SEMESTER		
Course Name (Code)	**Course Outcomes (COs)**	
DIFFERENTIAL EQUATIONS AND VECTOR CALCULS (20A54201)	CO1	Solve the differential equations related to various engineering fields (L6)
	CO2	Identify solution methods for partial differential equations that model physical process (L3)
	CO3	Interpret the physical meaning of different operators such as gradient, curl and divergence (L5)
	CO4	Estimate the work done against a field, circulation and flux using vector calculus (L6)
CHEMISTRY (20A51101T)	CO1	Compare the materials of construction for battery and electrochemical sensors (L2)
	CO2	Explain the preparation, properties, and applications of thermoplastics &thermos settings, elastomers & conducting polymers. (L2)
	CO3	Explain the principles of spectrometry, GC and HPLC in separation of gaseous and liquid mixtures (L2)
	CO4	Apply the principle of supramolecular chemistry in application of molecular machines and switches (L3)
	CO5	Demonstrate the application of fullerenes, carbon tubes and graphite nano particles (L3)
C PROGRAMMING & DATA STRUCTURES (20A05201T)	CO1	Develop the representation of trees (L3)
	CO2	Identify the Various binary tree travels (L3)
	CO3	Illustrate different graph traversals like BFS and DFS (L2)
	CO4	Design the different sorting techniques (L6)
	CO5	Apply programming to solve searching and sorting problems (L3)
ELECTRONIC DEVICES AND CIRCUITS (20A04101T)	CO1	Understand principles of operations, characteristics and applications of semiconductor diodes, Bipolar junction transistor and MOSFETs
	CO2	Applying the basic principles solving the problems related to semiconductor diodes, BJTs and MOSFETs
	CO3	Analyze diode circuits for different applications such as rectifiers, clippers and clampers and also analyze biasing circuits. Of BJTs And MOSFETs
	CO4	Design of diode circuits and Amplifiers using BJTs and MOSFETs
	CO5	Compare the performance of various semiconductor devices

ENGINEERING WORK SHOP (20A03202)	CO1	Apply wood working skills in real world applications (L3)
	CO2	Build different objects with metal sheets in real world applications (L3)
	CO3	Apply fitting operations in various Applications (L3)
	CO4	Apply different types of Basic electric circuit connections (L3)
	CO5	Use soldering and brazing techniques (L2)
IT WORKL SHOP (20105202)	CO1	Dis assemble and assemble a personal computer and prepare the computer ready to use
	CO2	The prepare the documents using word processors and prepare spread sheets for calculations using Excel and Also The Documents using LAteX
	CO3	Prepare slide Presentations using the presentation tool
	CO4	Inter connect two or More computers for information sharing
	CO5	Access the internet and browse it to obtain The required information
C PROGRAMMING AND DATA STRUCTURE LAB (20A05201P)	CO1	Demonstrate basic concepts of C programing language (L2)
	CO2	Develop C programs using Functions, Arrays, Structures and pointers (L6)
	CO3	Illustrate the concepts stacks and queues (L2)
	CO4	Design Operations on linked lists (L6)
	CO5	Apply Various binary Tree Traversal Techniques (L3)
CHEMISTRY LAB (20A51101P)	CO1	determine the cell constant and conductance of solutions
	CO2	prepare advanced polymer materials (L2)
	CO3	measure the strength of an acid present in secondary batteries (L3)
ECTRONIC DEVICES AND CIRCUITS LAB (20A04101P)	CO1	Understand The basic Characteristics and Applications of basic electronic devices. (L1)
	CO2	Observe The Characteristics Of electronic Devices by plotting Graphs (L2)
ENVIRONMENTAL SCIENCE (20A99201)	CO1	Graph multi-disciplinary nature of environmental Studies and various renewable and non renewable resources
	CO2	Understand flow and bio-geo-chemical cycles and ecological pyramids

	CO3	Understand various causes of pollution and solid waste Management and related preventive measures
	CO4	About the rainwater harvesting, water shed management, ozone layer depletion and waste land reclamation
	CO5	Casus of pollution explosion, value education and welfare programmers

SECOND YEAR: I SEMESTER		
COURSE NAME (Code)	**COURSE OUTCOMES**	
COMPLEX VARIABLES AND TRANSFORMS (20A54302)	CO1	Understand the analyticity of complex functions and conformal mappings
	CO2	Apply Cauchy's integral formula and Cauchy's integral theorem to evaluate improper integrals along contours
	CO3	Understand the usage of Laplace transforms, Fourier transforms and z transforms.
	CO4	Evaluate the Fourier series expansion of periodic functions.
	CO5	Understand the use of Fourier transforms and apply z transforms to solve difference equations
SIGNALS AND SYSTEMS (20A04301T)	CO1	Understand the mathematical description and representation of continuous-time and Discrete time signals and systems. Also understand the concepts of various transform techniques.
	CO2	Apply sampling theorem to convert continuous-time signals to discrete-time signals and reconstruct back, different transform techniques to solve signals and system related problems.
	CO3	Analyze the frequency spectra of various continuous-time and discrete-time signals using different transform methods.
	CO4	Classify the systems based on their properties and determine the response of them.
ELECTRICAL ENGINEERING (20A02303T)	CO1	Able to acquire knowledge about how to determine the transient response of R-L, R-C, R-L-C series circuits for D.C and A.C excitations.
	CO2	Able to solve the problems on R L C circuits for different excitations using different approaches.
	CO3	Analyze the complex circuits of R L C circuits.

	CO4	Able to solve the problems the EMF generated on DC Generator
ANALOG CIRCUITS (20A04302T)	CO1	Understand the characteristics of differential amplifiers, feedback and power amplifiers. (L2)
	CO2	Examine the frequency response of multistage and differential amplifier circuits using BJT & MOSFETs at low and high frequencies. (L3)
	CO3	Investigate different feedback and power amplifier circuits based on the application. (L4)
	CO4	: Derive the expressions for frequency of oscillation and condition for oscillation of RC and LC oscillator circuits. (L4)
	CO5	Evaluate the performance of different tuned amplifiers and multivibrators (L5)
MANAGERIAL ECONOMIS AND FINANCIAL ANALYSIS (20A52301)	CO1	Define the concepts related to Managerial Economics, financial accounting and management.
	CO2	Understand the fundamentals of Economics viz., Demand, Production, cost, revenue and markets
	CO3	Apply the Concept of Production cost and revenues for effective Business decision
	CO4	Analyze how to invest their capital and maximize returns
	CO5	Evaluate the capital budgeting techniques
	CO6	Develop the accounting statements and evaluate the financial performance of business entity
ORGANISATIONAL BEHAVIOUR (20A52302)	CO1	Define the Organizational Behaviour, its nature and scope.
	CO2	Understand the nature and concept of Organizational Behaviour
	CO3	Apply theories of motivation to analyze the performance problems
	CO4	Develop as powerful leader
BUSSINESS ENVIRONMENT (20A52303)	CO1	Define Business Environment and its Importance.
	CO2	Understand various types of business environment.
	CO3	Apply the knowledge of Money markets in future investment
	CO4	Develop a personal synthesis and approach for identifying business opportunities
SIMULATION LAB	CO1	Learn how to use the MATLAB software and know syntax of

(20A04301P)		MATLAB programming.
	CO2	Understand how to simulate different types of signals and system response.
	CO3	Find the Fourier Transform of a given signal and plot amplitude and phase characteristics.
	CO4	Analyze the response of different systems when they are excited by different signals and plot power spectral density of signals.
	CO5	Generate/Simulate different random signals for the given specifications
ELECTRICAL ENGINEERING LAB (20A02303P)	CO1	To determine the various parameters experimentally
	CO2	To understand various characteristics of DC generators and DC motors
	CO3	To predetermine the efficiency and regulation of a 1-ϕ transformer
ANALOG CIRCUITS LAB (20A04302P)	CO1	Know about the usage of equipment/components/software tools used to conduct the experiments in analog circuits.
	CO2	Conduct the experiment based on the knowledge acquired in the theory about various analog circuits using BJT/MOSFETs to find the important parameters of the circuit (viz. Voltage gain, Current gain, bandwidth, input and output impedances etc.. experimentally.
	CO3	Analyze the given analog circuit to find required important metrics of it theoretically.
	CO4	Draw the relevant graphs between important metrics of the system from the observed measurements.
	CO5	Compare the experimental results with that of theoretical ones and infer the conclusions.
APPLICATION DEVELOPMENT WITH PYTHON (20A05305)	CO1	Identify the issues in software requirements specification and enable to write SRS documents for software development problems
	CO2	Explore the use of Object-oriented concepts to solve Real-life problems
	CO3	Design database for any real-world problem.
	CO4	Solve mathematical problems using Python programming language
	CO1	Students are expected to become more aware of themselves, and their surroundings (family, society, nature)

UNIVERSAL HUMAN VALUES (20A52201)	CO2	They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
	CO3	They would have better critical ability.
	CO4	They would also become sensitive to their commitment towards what they have understood (human values, human relationship, and human society).
	CO5	It is hoped that they would be able to apply what they have learnt to their own self in different Day to-day settings in real life, at least a beginning would be made in this direction

SECOND YEAR :II SEMESTER		
COURSE NAME (Code)	**CORSE OUTCOMES**	
PROBABILITY THEORY AND STOCHOSTIC PROCESSES (20A54403)	CO1	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. (L1)
	CO2	Formulate and solve the engineering problems involving random variables and random processes. (L2)
	CO3	Analyze various probability density functions of random variables. (L3)
	CO4	Derive the response of linear system for Gaussian noise and random signals as inputs. (L3)
DIGITAL LOGIC DESIGN (20A04303T)	CO1	Understand the properties of Boolean algebra, other logic operations, and minimization of Boolean functions using Karnaugh map
	CO2	Make use of the concepts to solve the problems related to the logic circuits..
	CO3	Analyze the combinational and sequential logic circuits.
	CO4	Develop digital circuits using HDL, and Compare various Programmable logic devices

	CO5	Design various logic circuits using Boolean algebra, combinational and sequential logic circuits.
ELECTRO MAGNETIC WAVES AND TRANSIMISSION LINES (20A04401)	CO1	Explain basic laws of electromagnetic fields and know the wave concept. (L2)
	CO2	Solve problems related to electromagnetic fields. (L3)
	CO3	Analyze electric and magnetic fields at the interface of different media. (L3)
	CO4	Derive Maxwell's equations for static and time varying fields. (L3)
	CO5	Analogy between electric and magnetic fields. (L5)
	CO6	Describes the transmission lines with equivalent circuit and explain their characteristic with various lengths. (L2)
COMMUNICATION SYSTEMS (20A04402T)	CO1	Recognize/List the basic terminology used in analog and digital communication techniques for transmission of information/data.
	CO2	Explain/Discuss the basic operation of different analog and digital communication systems at baseband and passband level.
	CO3	Compute various parameters of baseband and passband transmission schemes by applying basic engineering knowledge.
	CO4	Analyze/Investigate the performance of different modulation & demodulation techniques to solve complex problems in the presence of noise.
	CO5	Evaluate/Assess the performance of all analog and digital modulation techniques to know the merits and demerits of each one of them in terms of bandwidth and power efficiency.
LINEAR AND DIGITAL IC APPLICATIONS (20A04403T)	CO1	List out the characteristics of Linear and Digital ICs.
	CO2	Discuss the various applications of linear & Digital ICs.
	CO3	Solve the application-based problems related to linear and digital ICs
	CO4	Analyze various applications-based circuits of linear and digital ICs.
	CO5	Design the circuits using either linear ICs or Digital ICs from the given specifications
DIGITAL LOGIC DESIGN LAB	CO1	Understand the pin configuration of various digital ICs used in the lab

(20A04303P)	CO2	Conduct the experiment and verify the properties of various logic circuits.
	CO3	Analyze the sequential and combinational circuits.
	CO4	Design of any sequential/combinational circuit using Hardware/ HDL
COMMUNICATION SYSTEM LAB (20A044022)	CO1	Know about the usage of equipment/components/software tools used to conduct the experiments in analog and digital modulation techniques.
	CO2	Conduct the experiment based on the knowledge acquired in the theory about modulation and demodulation schemes to find the important metrics of the communication system experimentally
	CO3	Analyze the performance of a given modulation scheme to find the important metrics of the system theoretically.
	CO4	Draw the relevant graphs between important metrics of the system from the observed measurements
	CO5	Compare the experimental results with that of theoretical ones and infer the conclusions.
LINEAR AND DIGITAL IC APPLICATIONS LAB (20A04403P)	CO1	Understand the pin configuration of each linear/ digital IC and its functional diagram
	CO2	Conduct the experiment and obtain the expected results.
	CO3	Analyze the given circuit/designed circuit and verify the practical observations with the analyzed results
	CO4	Design the circuits for the given specifications using linear and digital ICs
	CO5	Acquaintance with lab equipment about the operation and its use.
SOFT SKILLS (20A052401)	CO1	Memorize various elements of effective communicative skills
	CO2	Interpret people at the emotional level through emotional intelligence
	CO3	apply critical thinking skills in problem solving
	CO4	analyze the needs of an organization for team building

DESIGN THINKING FOR INNOVATION (20A99401)	CO1	Define the concepts related to design thinking.
	CO2	Explain the fundamentals of Design Thinking and innovation
	CO3	Apply the design thinking techniques for solving problems in various sectors.
	CO4	Analyze to work in a multidisciplinary Environment
	CO5	Evaluate the value of creativity
	CO6	Formulate specific problem statements of real time issues

THIRD YEAR : I SEMESTER		
COURSE NAME (Code)	**COURSE OUTCOMES**	
CONTROL SYSTEMS ENGINEERING (20A04501)	CO1	Identify open and closed loop control system
	CO2	Formulate mathematical model for physical systems system
	CO3	Use standard test signals to identify performance characteristics of first and second-order systems
	CO4	Analyze stability of the closed and open loop systems
	CO5	Design closed-loop control system to satisfy dynamic performance specifications using frequency response, root-locus, and state-space techniques
DIGITAL SIGNAL PROCESSING (20A04502T)	CO1	Formulate difference equations for the given discrete time systems
	CO2	Apply FFT algorithms for determining the DFT of a given signals
	CO3	Compare FIR and IIR filter structures.
	CO4	Design digital filter (FIR & IIR) from the given specifications
	CO5	Outline the concept of Multirate DSP and applications of DSP.
MICRO PROCESSORS AND MICRO CONTROLERS (20A04503T)	CO1	Distinguish between microprocessors & microcontrollers
	CO2	Develop assembly language programming
	CO3	Describe interfacing of 8086 with peripheral devices
	CO4	Design applications using microcontrollers
	CO1	Distinguish between microprocessors & microcontrollers

MACHINE LEARNING (20A0602T)	CO2	Develop assembly language programming
	CO3	Describe interfacing of 8086 with peripheral devices
	CO4	Design applications using microcontrollers
COMPUTER ARCHITECTURE AND ORGANIZATION (20A04504a)	CO1	Understand the basics of instructions sets and their impact on processor design
	CO2	Demonstrate an understanding of the design of the functional units of a digital computer system
	CO3	Evaluate cost performance and design trade-offs in designing and constructing a computer processor including memory
	CO4	Design a pipeline for consistent execution of instructions with minimum hazards.
	CO5	Recognize and manipulate representations of numbers stored in digital computers.
INFORMATION THEORY AND CODING (20A04504b)	CO1	Describe basic parameters of Information, the concepts of source coding techniques, and Error Control coding techniques
	CO2	Apply knowledge of Information theory and error control coding techniques to solve problems
	CO3	Analyze various source coding and channel coding techniques for error detection and error correction in the information bearing signals
	CO4	Compare various block to variable length coding and variable to block length coding techniques for merits and demerits
	CO5	Design various systems for linear block codes and convolutional codes
DIGITAL SIGNAL PROCESSING LAB (20A04502P)	CO1	Implement various DSP Algorithms using software packages
	CO2	Implement DSP algorithms with Digital Signal Processor
	CO3	Analyze and observe magnitude and phase characteristics (Frequency response Characteristics) of digital IIR-Butterworth, Chebyshev filters.
	CO4	Analyze and observe magnitude and phase characteristics (Frequency response Characteristics) of digital FIR filters using window techniques.

	CO5	Analyze digital filters using Software Tools.
MICRO PROCESSORS AND MICRO CONTROLLERS LAB (20A04503P)	CO1	Formulate problems and implement algorithms using Assembly language
	CO2	Develop programs for different applications.
	CO3	Interface peripheral devices with 8086 and 8051 real world problems
	CO4	Use Assembly/Embedded C programming approach for solving real world problems
PCB DESIGN AND PROTOTYPE DEVELOPMENT (20A04509)	CO1	Understand a single layer and multilayer PCB
	CO2	Create and fabricate a PCB
	CO3	Evaluate and test a PCB
EVALUATION OF COMMUNITY SERVICE PROJECT (20A04510)	CO1	Understand historical background of the constitution making and its importance for building a democratic India.
	CO2	Understand the functioning of three wings of the government i.e., executive, legislative and judiciary
	CO3	Analyze the decentralization of power between central, state and local self-government
	CO4	Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy
	CO5	Understand the value of the fundamental rights and duties for becoming good citizen of India. Understand the value of the fundamental rights and duties for becoming good citizen of India. Understand the value of the fundamental rights and duties for becoming good citizen of India.

THIRD YEAR: II SEMESTER		
COURSE NAME (CODE)	**COURSE OUTCOMES**	
ANTENNAS AND MICROWAVE ENGINEERING	CO1	Learn about the antenna's basics and wire antennas.
	CO2	Gain knowledge on few types of antennas, their operation and applications.

(20A04601T)	CO3	Understand the uses of antenna arrays and analyze waveguides and resonators.
	CO4	Analyze various microwave components and understand the principles of different microwave sources.
VLSI DESIGN (20A04602T)	CO1	Acquire qualitative knowledge about the fabrication process of integrated circuit using MOS transistors
	CO2	Draw the layout of any logic circuit which helps to understand and estimate parasitic of any logic circuit
	CO3	Design building blocks of data path using gates
	CO4	Design simple memories using MOS transistors and can understand design of large memories
	CO5	Understand the concept of testing and adding extra hardware to improve testability of system
COMMUNICATION NETWORKS (20A04603T)	CO1	Understand the basics of data communication, networking, internet and their importance.
	CO2	Analyze the services and features of various protocol layers in data networks.
	CO3	Differentiate wired and wireless computer networks
	CO4	Differentiate wired and wireless computer networks
	CO5	Recognize the different internet devices and their functions.
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION (20A04604a)	CO1	Explain operation of various instruments required in measurements
	CO2	Apply measurement techniques for different types of tests
	CO3	Select specific instruments for specific measurement function
	CO4	Use oscilloscope to determine frequency and phase of a sinusoidal signal
	CO5	Analyze various measuring techniques for both electrical and nonelectrical quantities
EMBEDDED SYSTEM DESIGN (20A04604b)	CO1	Identify hardware and software components of an embedded system
	CO2	Learn the basics of OS and RTOS

	CO3	Illustrate different Inter Process Communication (IPC) mechanisms used by tasks/process/tasks to communicate in multitasking environment
	CO4	Design simple embedded system-based applications
OPTICAL COMMUNICATIONS (20A04604c)	CO1	Understand and analyze the constructional parameters of optical Fibers.
	CO2	Estimate the losses due to attenuation, absorption, scattering and bending.
	CO3	Compare various optical detectors and choose suitable one for different applications.
ANTENNAS AND MICROWAVE ENGINEERING LAB (20A04601P)	CO1	Understand the working, different microwave components and sources in a microwave bench
	CO2	Verify the characteristics of various microwave components using microwave bench Setup
	CO3	Design and study of various antennas
	CO4	Analyze performance characteristics of Antennas
VLSI DESIGN LAB (20A04602P)	CO1	Design any logic circuit using CMOS transistor.
	CO2	Use different software tools for analysis of circuits.
	CO3	Design layouts to the CMOS circuits.
	CO4	Use different software tools for analog layout
COMMUNICATION NETWORKS LAB (20A04603P)	CO1	Familiarize with the network simulation tools .
	CO2	Usage of the network simulators to study the various aspects that effect network performance
RF SYSTEM DESIGN (20A04607)	CO1	Verify the basic principles and design aspects involved in high frequency communication systems components
	CO2	Conduct the experiments on different high frequency components to analyze and interpret data to produce meaningful conclusion and match with theoretical concepts.
	CO3	Design and develop RF components using microstrip technology.
	CO4	Apply knowledge of basic RF Electronics for realizing any RF system

INTELLECTUAL PROPERTY RIGHTS AND PATENTS (20A99601)	CO1	Understand IPR law& Cyber law
	CO2	Discuss registration process, maintenance and litigations associated with trademarks
	CO3	Illustrate the copy right law
	CO4	Enumerate the trade secret law

FOURTH YEAR : I SEMESTER		
Course Name (Code)	**Course Outcomes**	
DSP PROCESSORS & ARCHITECTURES (20A04701a)	CO1	Summarize features of Digital Signal Processing
	CO2	Evaluate dynamic ranges and precision for the given DSP system
	CO3	Explain architectural features of DSP processors
	CO4	Analyze performance of DSP algorithms on programmable DSP platform for given application
	CO5	Select DSP processors for building real time applications
INTRODUCTION TO INTERNET OF THINGS (20A04701b)	CO1	Understand the concepts of Internet of Things
	CO2	Identify hardware and software components of Internet of Things
	CO3	Analyze basic communication protocols
	CO4	Design IoT applications in different domain and be able to analyze their performance
SATELLITE COMMUNICATIONS (20A04701c)	CO1	Learn the dynamics of the satellite
	CO2	Understand the communication satellite design.
	CO3	Learn the design of satellite links.
	CO4	Study the design of Earth station and tracking of the satellites.
REAL TIME OPERATING SYSTEMS (20A04702a)	CO1	Describe real-time operating system requirements and design issues applications in multitasking
	CO2	Apply concepts of inter-task communication and synchronization via shared memory, message queues, signals, semaphores
	CO3	Illustrate role of operating systems in memory and I/O devices management
	CO4	Examine challenges arising in design problems when developing

		embedded applications in multitasking systems
	CO5	Develop programs using system proved timers, signals, mutual exclusion, semaphores, message queues and exception handlers
DIGITAL IMAGE PROCESSING (20A04702b)	CO1	Perform image manipulations and different digital image processing techniques
	CO2	Illustrate basic operations like – Enhancement, segmentation, compression, Image transforms and restoration techniques on image.
	CO3	Analyze pseudo and full color image processing techniques. Apply various morphological operators on images
	CO4	Apply various morphological operators on images
RADAR ENGINEERING (20A04702c)	CO1	Learn the basic working principle of Radar and target detection procedure
	CO2	Know the working and applications of CW and Frequency modulated Radar
	CO3	Gain the knowledge of about MTI and Pulse Doppler Rader
	CO4	Understand different methods of tracking a target and analyze the effect of noise at the Receiver
SMART SENSORS (20A04703a)	CO1	Understand measuring parameters, measuring systems, effects of environment, characteristics and parameters to be considered for designing an instrument
	CO2	Understand different types of sensors/transducers, working principles, selection procedure, applications of sensing systems
	CO3	Select a sensor/sensing system for a requirement
	CO4	Derive sensor-based solution for different applications.
NANO ELECTRONICS (20A04703b)	CO1	Describe the fabrication process and limitations in the CMOS design
	CO2	Choose different models of MOS devices according to the requirement.
	CO3	Integrate and model the device with basic quantum structures.
	CO4	Compare MOSFET, CNFET and Spin FET devices
	CO1	Know about cell coverage for signal and traffic, diversity

CELLUAR & MOBILE COMMUNICATIONS (20A04703c)		techniques and mobile antennas by the use of Engineering Mathematics
	CO2	Explain impairments due to multipath fading channel, fundamental techniques to overcome different fading effects, frequency management, Channel assignment and types of handoff
	CO3	Apply concepts to solve problems on mobile antennas and cellular systems.
	CO4	Analyze Co-channel and Non Co-channel interferences, different Hand-offs and dropped call rates
	CO5	Evaluate performance of dropped call rate and false alarm rate
ENTREPRENEURSHIP & INCUBATION (20A52701a)	CO1	Understand the concept of Entrepreneurship and challenges in the world of competition.
	CO2	Apply the Knowledge in generating ideas for New Ventures.
	CO3	Analyze various sources of finance and subsidies to entrepreneur/women Entrepreneurs.
	CO4	Evaluate the role of central government and state government in promoting Entrepreneurship
	CO5	Create and design business plan structure through incubations.
MANAGEMENT SCIENCE (20A52701b)	CO1	Understand the concepts & principles of management and designs of organization in a practical world
	CO2	Apply the knowledge of Work-study principles & Quality Control techniques in industry
	CO3	Analyze the concepts of HRM in Recruitment, Selection and Training & Development.
	CO4	Evaluate PERT/CPM Techniques for projects of an enterprise and estimate time & cost of project & to analyze the business through SWOT.
	CO5	Create Modern technology in management science
ENTERPRISE RESOURCE PLANNING (20A52701c)	CO1	Understand the basic use of ERP Package and its role in integrating business functions.
	CO2	Explain the challenges of ERP system in the organization
	CO3	Apply the knowledge in implementing ERP system for business

	CO4	Evaluate the role of IT in taking decisions with MIS
INDUSTRIAL IOT AND AUTOMATION (20A04707)	CO1	Discover key IIoT concepts including identification, sensors, localization, wireless protocols, data storage and security
	CO2	Explore IoT technologies, architectures, standards, and regulation
	CO3	Realize the value created by collecting, communicating, coordinating, and leveraging the data from connected devices
	CO4	Examine technological developments that will likely shape the industrial landscape in the future.
BUILDING TECHNOLOGY (20A01505)	CO1	Understand the principles in planning and design the buildings
	CO2	To get different types of buildings, principles and planning of the buildings
	CO3	To know the different methods of termite proofing in building.
	CO4	Know the implementation of prefabricated units in buildings and effect of earthquake on buildings.
	C05	Know the importance of acoustics in planning and designing of buildings

FOURTH YEAR:II SEMESTER		
Course Name (Code)	**Course Outcomes**	
-	CO1	FULL INTORNSHIP AND PROJECT WORK