



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

R 2013

COURSE OUTCOMES:

SEM –I

GE6162 - ENGINEERING PRACTICE LAB

Course Code	Course Outcomes
C108.1 (CO1)	Understanding Electrical and Electronics components and using different methods find out the numeric value of the components
C108.2 (CO2)	Understanding various measuring instruments
C108.3 (CO3)	To design the rectifier circuit and find the DC content
C108.4 (CO4)	To generate square wave using IC
C108.5 (CO5)	To implement various digital logic circuits and Understand the soldering process
C108.6 (CO6)	Design a simple circuit in PCB

SEM –II

EC6201 – ELECTRONIC DEVICES

Course Code	Course Outcomes
C205.1 (CO1)	Understand the basic idea about semiconductor physics. Study of diode characteristics
C205.2 (CO2)	Understanding the basic operation of bipolar transistor and its various characteristics
C205.3 (CO3)	Understanding the basic operation of Field effect transistor and its various characteristics
C205.4 (CO4)	Design the special semiconductor devices and analysis various characteristics
C205.5 (CO5)	Understanding the operation of semiconductor power devices
C205.6 (CO6)	Explain the theory, construction, and operation of basic electronic devices.



EC6211 – CIRCUITS AND DEVICES LAB

Course Code	Course Outcomes
C205.1 (CO1)	Learn the characteristics of basic electronic devices
C205.2 (CO2)	Design clipper and clamper circuit
C205.3 (CO3)	Verification of various theorem
C205.4 (CO4)	Design RL and RC circuits
C205.5 (CO5)	Analysis semiconductor power devices

SEM -III

MA6351-TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS

Course Code	Course Outcomes
C201.1 (CO1)	Using Dirchlet's conditions, solving Fourier series problems..
C201.2 (CO2)	To know the basic properties of the Fourier transform, describe the Fourier integral theorem and convolution theorem.
C201.3 (CO3)	To describe real time engineering problems using PDEs
C201.4 (CO4)	To apply Fourier series methods to solve boundary value problems.
C201.5 (CO5)	To use the Z- transform as the tool to connect the time domain and frequency domain in signal processing.
C201.6 (CO6)	The course will also serve as a prerequisite for post graduate and specialized studies and research

EE6352 – ELECTRICAL ENGINEERING AND INSTRUMENTATION

Course Code	Course Outcomes
C202.1 (CO1)	To convey knowledge on Constructional details, principle of operation performance of D.C Machines
C202.2 (CO2)	To convey knowledge on Constructional details and working principle of transformers
C202.3 (CO3)	Impart knowledge in Constructional details, principle of operation and performance of induction machines
C202.4 (CO4)	Impart knowledge in Constructional details, principle of operation and performance of synchronous machines
C202.5 (CO5)	To understand about the basic measurement and instrumentation based devices.
C202.6 (CO6)	Impart knowledge in the relevance of digital instruments in measurements.



EC6301 – OBJECT ORIENTED PROGRAMMING AND DATA STRUCTURE

Course Code	Course Outcomes
C203.1 (CO1)	Learn the familiarity with algorithms
C203.2 (CO2)	Learn to analyze the performance of algorithms
C203.3 (CO3)	Learn to implement 2d array operations
C203.4 (CO4)	Implementation of stack and queue using arrays
C203.5 (CO5)	Familiar with programming in C++
C203.6 (CO6)	Implementation of quick sort and binary tree

EC6302 – DIGITAL ELECTRONICS

Course Code	Course Outcomes
C204.1 (CO1)	Analyze different methods used for simplification of Boolean expressions.
C204.2 (CO2)	Design and implement Combinational circuits.
C204.3 (CO3)	Design and implement sequential circuit
C204.4 (CO4)	Write simple HDL codes for the circuits
C204.5 (CO5)	Design and implement synchronous and asynchronous sequential circuits.
C204.6 (CO6)	Able to learn about memory devices

EC6304 – SIGNALS AND SYSTEMS

Course Code	Course Outcomes
C205.1 (CO1)	Able to describe signals mathematically and understand how to perform mathematical operations on signals.
C205.2 (CO2)	Understand the intuitive meaning of frequency domain and the importance of analyzing and processing signals in the frequency domain
C205.3 (CO3)	Understand the process of convolution between signals, & able to solve differential equation using Laplace transform techniques.
C205.4 (CO4)	Able to compute the Fourier series or Fourier transform, Z-transform, and further be able to use the properties and application in analysis to ideal filtering, amplitude modulation and sampling.
C205.5 (CO5)	Understand various signals and Linear Time Invariant systems properties and be able to identify whether a given system exhibits these properties and its implication for practical systems.
C205.6 (CO6)	To characterize LTI systems in the Time domain and various Transform domains



EC6304 – ELECTRONIC CIRCUITS-I

Course Code	Course Outcomes
C206.1 (CO1)	To discuss transistor bias stability and various type of biasing w.t.o BJT,FET, MOSFET and calculate the stability factor,design various types of BJT,FET
C206.2 (CO2)	To describe midband analysis of small signal amplifier-single stage multistage aa
C206.3 (CO3)	To plot the frequency response of amplifiers-BJT,FET and hence calculate $f\beta$. $f\alpha$
C206.4 (CO4)	To know various types of power amplifiers and hence find its efficiency.
C206.5 (CO5)	To represent the features of power supplies and rectifiers, voltage regulator, power control using SCR.
C206.6 (CO6)	Able to understand AGC Using FE1

EC6311-ANALOG AND DIGITAL CIRCUITS LABORATORY

Course Code	Course Outcomes
C207.1 (CO1)	To design differentiate cascade and cascade amplifier
C207.2 (CO2)	To analyze the limitation in bandwidth of single stage and multi stage amplifier
C207.3 (CO3)	To simulate amplifiers using spice
C207.4 (CO4)	Able to measure CMRR in differential amplifier
C207.5 (CO5)	Able to design code converters
C207.6 (CO6)	Able to design and implementation of counters

EC6312-OOPS AND DATA STRUCTURES LABORATORY

Course Code	Course Outcomes
C208.1 (CO1)	Implementation of two dimensional array operations.
C208.2 (CO2)	Implementation of stack and queue using array
C208.3 (CO3)	Demonstrate familiarity with major algorithms and data structures.
C208.4 (CO4)	To apply good programming design methods for program development
C208.5 (CO5)	To apply the different data structures for implementing solutions to practical problems
C208.6 (CO6)	Implementation of quick sort and binary tree



IV SEM

MA6451-PROBABILITY AND RANDOM PROCESSES

Course Code	Course Outcomes
C209.1 (CO1)	To find mean variance and MGF of various distribution
C209.2 (CO2)	To find stationary , WSS,SSS process
C209.3 (CO3)	To find relation between power spectral and spectrum
C209.4 (CO4)	To find cross correlation , Auto correlation
C209.5 (CO5)	To find correlation regression for two dimensional random variable
C209.6 (CO6)	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

EC6401-ELCTRONICS CIRCUITS-II

Course Code	Course Outcomes
C210.1 (CO1)	Able to understand the advantages and method of analysis of feedback amplifiers
C210.2 (CO2)	Able to understand analysis and design of LC and RC Oscillators
C210.3 (CO3)	Able to understand various types of tuned amplifiers
C210.4 (CO4)	To analysis integrator, Differentiator, Clippers , Clampers and multivibrators
C210.5 (CO5)	To learn various types of blocking Oscillators and time base circuits
C210.6 (CO6)	To learn current and voltage time base generator

EC6402- COMMUNICATION THEORY

Course Code	Course Outcomes
C211.1 (CO1)	Able to compute the bandwidth and transmission power by analyzing time and frequency domain spectra of signal required under various modulation schemes.sources, detectors.
C211.2 (CO2)	Able to apply suitable modulation schemes and coding for various applications.
C211.3 (CO3)	Able to analyze the performance of analog communication system in the presence of noise.
C211.4 (CO4)	Able to understand the basics of Random process
C211.5 (CO5)	Able to identify and describe different techniques for source coding.
C211.6 (CO6)	Able to identify and describe different techniques for channel coding.

EC6403– ELECTRO MAGNETIC FIELDS

Course Code	Course Outcomes
C212.1 (CO1)	Study of electric vector field and potential in different charged body. Energy stored in electric field
C212.2 (CO2)	To evaluate the static magnetic field due to different configurations using gauss law and colomb's law
C212.3 (CO3)	To Know about the behaviors of electric and magnetic field in materials and study of boundary condition
C212.4 (CO4)	How to generate time varying field and flow of power, Maxwell's equation in different medium
C212.5 (CO5)	Generation and Flow of electromagnetic wave in different medium, know of reflection and refraction in different medium
C212.6 (CO6)	To understand the concepts of radio waves

EC6404-LINEAR INTEGRATED CIRCUITS

Course Code	Course Outcomes
C213.1 (CO1)	. To design linear and non linear applications of op – amps.
C213.2 (CO2)	To design applications using analog multiplier and PLL.
C213.3 (CO3)	To design ADC and DAC using op – amps.
C213.4 (CO4)	To generate waveforms using op – amp circuits.
C213.5 (CO5)	To Analyze special function ICs.
C213.6 (CO6)	To design oscillators and regulators

EC6405-CONTROL SYSTEM ENGINEERING

Course Code	Course Outcomes
C214.1 (CO1)	To perform Time domain and frequency domain analysis of control systems
C214.2 (CO2)	To design compensation techniques that can be used to stabilize control systems
C214.3 (CO3)	To implement element of control system and their modeling using various techniques
C214.4 (CO4)	To implement state variable analysis method
C214.5 (CO5)	To implement Bode plot ,Polar plot and Nyquist plot
C214.6 (CO6)	To impart knowledge on closed loop systems



EC6411 CIRCUIT AND SIMULATION INTEGRATED LABORATORY

Course Code	Course Outcomes
C215.1 (CO1)	Able to analyze various types of feedback amplifiers.
C215.2 (CO2)	To design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators.
C215.3 (CO3)	To design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits using SPICE model shaping circuits and multivibrators using SPICE Tool.
C215.4 (CO4)	Able to design and simulate multivibrators using SPICE model.
C215.5 (CO5)	Able to differentiate feedback amplifiers and oscillators.
C215.6 (CO6)	Able to simulate voltage and current time base Generator

EC6412 LINEAR INTEGRATED CIRCUITS LABORATORY

Course Code	Course Outcomes
C216.1 (CO1)	To design oscillators and amplifiers using operational amplifiers.
C216.2 (CO2)	To design filters using Opamp and perform experiment on frequency response.
C216.3 (CO3)	To analyse the working of PLL and use PLL as frequency multiplier.
C216.4 (CO4)	To design DC power supply using ICs.
C216.5 (CO5)	Analyse the performance of oscillators and multivibrators using SPICE
C216.6 (CO6)	Analyse the performance of CMOS circuits using SPICE

EE6461 ELECTRICAL ENGINEERING AND CONTROL SYSTEM LABORATORY

Course Code	Course Outcomes
C217.1 (CO1)	To design oscillators and amplifiers using operational amplifiers.
C217.2 (CO2)	To design filters using Opamp and perform experiment on frequency response.
C217.3 (CO3)	To analyse the working of PLL and use PLL as frequency multiplier.
C217.4 (CO4)	To design DC power supply using ICs.
C217.5 (CO5)	Analyse the performance of oscillators and multivibrators using SPICE
C217.6 (CO6)	Analyse the performance of CMOS circuits using SPICE



V SEM

EC6501- DIGITAL COMMUNICATION

Course Code	Course Outcomes
C301.1 (CO1)	Able to understand signal space representation of signals and the process of sampling, quantization and coding that are fundamental to the digital transmission of analog signals
C301.2 (CO2)	To understand baseband encoding techniques and comparison of speech encoding methods
C301.3 (CO3)	To analysis various types of error control codes
C301.4 (CO4)	Able to understand baseband reception techniques
C301.5 (CO5)	Able to understand various types of Digital modulation techniques.
C301.6 (CO6)	CDMA transmitter and receiver

EC6502 – PRINCIPLES OF DIGITAL SIGNAL PROCESSING

Course Code	Course Outcomes
C302.1 (CO1)	Able to apply DFT for the analysis of digital signals & systems
C302.2 (CO2)	Able to design IIR and FIR filters
C302.3 (CO3)	Able to characterize finite Word length effect on filters
C302.4 (CO4)	Able to design the Multirate Filters
C302.5 (CO5)	Able to apply Adaptive Filters to equalization
C302.6 (CO6)	To apply adaptive filters to equalization

EC6503 – TRANSMISSION LINES AND WAVEGUIDES

Course Code	Course Outcomes
C303.1 (CO1)	Discuss the propagation of signals through transmission lines.
C303.2 (CO2)	Able to analyze the signal propagation at radio frequencies
C303.3 (CO3)	Able to analyze impedance matching using smith chart.
C303.4 (CO4)	Able to understand the fundamental of filters
C303.5 (CO5)	Able to understand radio propagation in guided system and utilize cavity resonator
C303.6 (CO6)	Able to learn Maxwell's equation and its boundary conditions



GE6351-ENVIRONMENTAL SCIENCE AND ENGINEERING

Course Code	Course Outcomes
C304.1 (CO1)	finding and implementing scientific, technological, economic and political solutions to environmental problems. study the dynamic processes and understand the features of the earth's interior and surface. study the interrelationship between living organism and environment..
C304.2 (CO2)	What are the types of pollution, what is the role of a human being in maintaining a clean environment and useful environment for the future generations pollution control and waste management.
C304.3 (CO3)	what are precious resources in the environment, how to conserve these resources appreciate the importance of environment by assessing its impact on the human world; envision the surrounding environment, its functions and its value.
C304.4 (CO4)	The role of government and nongovernment organization in environment managements. Water conservation practices.
C304.5 (CO5)	what are the problems of population to environment and how to manage the Problems .
C304.6 (CO6)	Ecosystem balance

EC6504-MICROPROCESSOR AND MICROCONTROLLERS

Course Code	Course Outcomes
C305.1 (CO1)	Able to understand addressing modes of 8086 microprocessor
C305.2 (CO2)	Able to understand multiprocessor configuration of 8086 microprocessor
C305.3 (CO3)	Able to design the peripheral interfacing of microprocessors.
C305.4 (CO4)	Able to design and implement programming and interfacing of 8051 Microcontroller.
C305.5 (CO5)	Able to understand ADC and DAC Interfacing of 8086 microprocessor
C305.6 (CO6)	Able to understand and implement the programming for small embedded systems



EC6511 –DIGITAL SIGNAL PROCESSING LAB

Course Code	Course Outcomes
C306.1 (CO1)	Able to carry out simulation of DSP systems
C306.2 (CO2)	Able to demonstrate their abilities towards DSP processor based implementation of DSP systems
C306.3 (CO3)	Able to demonstrate the FFT
C306.4 (CO4)	Able to design analog filters on paper and implement the design by using MATLAB.
C306.5 (CO5)	Able to design digital filters on paper and implement the design by using MATLAB.
C306.6 (CO6)	Able to implement adaptive filters for various applications of DSP

EC6512 –COMMUNICATION SYSTEM LAB

Course Code	Course Outcomes
C307.1 (CO1)	Able to design amplitude, Frequency modulation and Demodulation Respectively.
C307.2 (CO2)	Able to design and plot the signal representation of PAM/PWM/PPM
C307.3 (CO3)	Able to design and plot the delta and adaptive delta modulation
C307.4 (CO4)	Able to design and simulate various types of Digital modulation Using MATLAB
C307.5 (CO5)	Able to design Emphasis circuits and PLL circuits.
C307.6 (CO6)	Able to design multiplexing circuits

EC6513 –MICROPROCESSOR AND MICROCONTROLLER LAB

Course Code	Course Outcomes
C308.1 (CO1)	To write program for arithmetic operations and execute Using 8086
C308.2 (CO2)	Able to write program for sorting and string manipulation operation
C308.3 (CO3)	Able to design and demonstrate Digital Clock and stop watch
C308.4 (CO4)	Able to understand and demonstrate Serial and parallel communication between two microprocessors kits using 8251 and 8255 respectively.
C308.5 (CO5)	Able to demonstrate interfacing and programming of stepper motor and DC motor speed control



C308.6 (CO6)	Able to use software tools for better programming.
-----------------	--

VI SEM

MG6851 – PRINCIPLES OF MANAGEMENT

Course Code	Course Outcomes
C309.1 (CO1)	To analyze the meaning of management, managers and to analyze the trends and challenges of management globally.
C309.2 (CO2)	To study about planning, its process MBO, various types of strategies policies decision making process
C309.3 (CO3)	To describe the organization structure, types of departmentation, delegation and decentralization and the staffing process.
C309.4 (CO4)	To analyze the motivation factors, leadership types and theories, to know the importance of communication, its methods and barriers and the organization culture.
C309.5 (CO5)	To explain the controlling types and process, the budgetary techniques and non budgetary types.
C309.6 (CO6)	Identify the gap between actual and expected performance in organization.

CS6303-COMPUTER ARCHITECTURE

Course Code	Course Outcomes
C310.1 (CO1)	To have a thorough understanding of the basic structure and operation of a digital computer.
C310.2 (CO2)	To discuss in detail the operation of the arithmetic unit including the algorithms & implementation of fixed-point and floating-point addition, subtraction, multiplication & division
C310.3 (CO3)	To study in detail the different types of control and the concept of pipelining. memory
C310.4 (CO4)	To study the hierarchical memory system including cache memories and virtual Memories
C310.5 (CO5)	To study the different ways of communicating with I/O devices
C310.6 (CO6)	To study the different ways of communicating with standard I/O interfaces.



CS6551 – COMPUTER NETWORKS

Course Code	Course Outcomes
C311.1 (CO1)	Able to understand the concept and importance of data communications and the Internet in supporting business communications and daily activities
C311.2 (CO2)	Able to implement & configure the different internetworking devices like Routers
C311.3 (CO3)	Able to design, calculate, and apply subnet masks and addresses to fulfil networking requirements
C311.4 (CO4)	Able to understand the working principle of various application layer protocols such as HTTP, DNS, and SMTP
C311.5 (CO5)	Able to understand the concept of network security algorithms to impose privacy and authentication
C311.6 (CO6)	Able to understand the concept of full network system to communicate the data without error

EC6601-VLSI DESIGN

Course Code	Course Outcomes
C312.1 (CO1)	To learn the basics of CMOS circuits and CMOS process technology.
C312.2 (CO2)	To learn about application specific integrated circuits
C312.3 (CO3)	To learn the basics of circuit families and design of combinational circuits.
C312.4 (CO4)	To learn the design of sequential circuits.
C312.5 (CO5)	To learn the design of arithmetic building blocks
C312.6 (CO6)	To learn the concepts of modeling a digital system using Hardware Description Language.



EC6602 – ANTENNA AND WAVE PROPAGATION

Course Code	Course Outcomes
C313.1 (CO1)	Able to explain how an antenna radiates and capture radio wave energy from the concepts of radiation by dynamic currents and charges, and retarded potentials. Able to understand the characteristics of antennas and measurement of antenna parameters using Antenna design software
C313.2 (CO2)	Able to understand aperture antenna such as frequency independent
C313.3 (CO3)	Analyze the antenna arrays, aperture antennas and special antennas such as frequency independent and broad band
C313.4 (CO4)	Able to understand various special antennas, design and implementation of special antennas using Antenna design software
C313.5 (CO5)	Able to understand the mechanism of the atmospheric effects on radio wave propagation
C313.6 (CO6)	Able to design and implementation of patch antennas using ADS

EC6001 –MEDICAL ELECTRONICS

Course Code	Course Outcomes
C314.1 (CO1)	Able to study the methods of recording various biopotentials
C314.2 (CO2)	Able to know how to measure biochemical and various physiological information
C314.3 (CO3)	Able to understand the working of units which will help to restore normal functioning of human body
C314.4 (CO4)	Able to understand the use of radiation for diagnosis and therapy.
C314.5 (CO5)	Able to understand the need and technique of electrical safety in Hospitals.
C314.6 (CO6)	Able to understand the applications of electronics in diagnostic and therapeutic area



EC6611 COMPUTER NETWORKS LAB

Course Code	Course Outcomes
C315.1 (CO1)	Able to understand parallel and serial communication using 8 bit parallel cable and RS232 Cable respectively
C315.2 (CO2)	Able to analysis the performance of CSMA/CD Protocol through simulation
C315.3 (CO3)	Able to analysis the performance of token bus and token ring through simulation
C315.4 (CO4)	Able to understand the implementation of distance vector routing algorithm and link state routing algorithm
C315.5 (CO5)	Able to understand the implementation of encryption and decryption
C315.6 (CO6)	Able to understand the implementation of full network system to communicate the data without error

EC6612-VLSI DESIGN LAB

Course Code	Course Outcomes
C316.1 (CO1)	Able to simulate combinational logic circuits.
C316.2 (CO2)	Able to simulate sequential logic circuits.
C316.3 (CO3)	Able to implement combinational and sequential logic circuits in FPGA kit.
C316.4 (CO4)	Able to synthesis, floor planning and routing of logic circuits.
C316.5 (CO5)	Able to draw the schematic of CMOS circuits and SPICE simulation.
C316.6 (CO6)	Able to draw the layout of CMOS circuits.

GE6674-COMMUNICATION SKILLS LAB

Course Code	Course Outcomes
C317.1 (CO1)	To equip students of Engineering & Technology with effective listening skills.
C317.2 (CO2)	Develop creative thinking skills, improve vocabulary & Language style.
C317.3 (CO3)	Aware of the Technical Tarragons an d various skills like Problem solving and Decision making.
C317.4 (CO4)	Develop soft skills, interpersonal skills and evolves self-confidence.
C317.5 (CO5)	Make presentations and participate in GD
C317.6 (CO6)	Make presentations and participate in international exams



VII SEM

EC6701- RF & MICROWAVE ENGINEERING

Course Code	Course Outcomes
C401.1 (CO1)	Apply electromagnetic theory to calculations regarding waveguides and transmission lines.
C401.2 (CO2)	Able to describe, analyze and design simple microwave circuits and devices , matching circuits, couplers, antennas and amplifiers
C401.3 (CO3)	Able to describe and design RF Circuits
C401.4 (CO4)	Able to describe common devices such as microwave vacuum tubes, high-speed transistors and ferrite devices
C401.5 (CO5)	Able to describe common devices such as high-speed transistors and ferrite devices
C401.6 (CO6)	Able to handle microwave equipment and make measurements

EC6702– OPTICAL COMMUNICATION & NETWORKING

Course Code	Course Outcomes
C402.1 (CO1)	To understand the basic operating principles of single mode, multimode fibers, light sources, detectors, amplifiers and passive optical devices.
C402.2 (CO2)	To interpret the optical losses characteristic in optical fiber such as dispersion, scattering, absorption, nonlinear effects, fiber alignment and splicing that affect the performance of transmission systems
C402.3 (CO3)	To understand, describe, analyze, and compare the most important devices: light sources, fibers and detectors from both physical and system point of view.
C402.4 (CO4)	To Learn the fiber optical receiver such as PIN APD diodes, noise performance in photo detector, receiver operation and configuration.
C402.5 (CO5)	To learn digital transmission system , optical communication Network & operation principles WDM
C402.6 (CO6)	To learn the fiber optical receivers, noise performance in photo detector, receiver operation and configuration.

EC6703 – EMBEDDED AND REAL TIME SYSTEMS

Course Code	Course Outcomes
C403.1 (CO1)	Able to understand the basic design process of embedded systems and ARM processors
C403.2 (CO2)	Able to understand the analysis of embedded system programs and devices
C403.3 (CO3)	Able to understand the scheduling policies and operating system
C403.4 (CO4)	Able to understand network design and accelerators design
C403.5 (CO5)	Able to understand FOSS Tool
C403.6 (CO6)	Able to learn Keil software

EC6004-SATELLITE COMMUNICATION

Course Code	Course Outcomes
C404.1 (CO1)	To analyze various satellite orbits
C404.2 (CO2)	To analyze space segment
C404.3 (CO3)	To analyze earth segment
C404.4 (CO4)	To understand various methods of satellite access
C404.5 (CO5)	To understand various applications of satellite
C404.6 (CO6)	Able to design link budget for satellite uplink and downlink model

EC6011-ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY

Course Code	Course Outcomes
C405.1 (CO1)	Able to find the solution to EMI sources
C405.2 (CO2)	Able to understand the coupling mechanisms
C405.3 (CO3)	Able to solve the EMI problems in PCB Level ,subsystem and system level design
C405.4 (CO4)	Able to learn about EMIC standards and Regulation
C405.5 (CO5)	Able to understand and measure various test methods
C405.6 (CO6)	Able to measure emission immunity level from different system



EC6014-COGNITIVE RADIO

Course Code	Course Outcomes
C406.1 (CO1)	Able to understand the evolution of software Defined Radio
C406.2 (CO2)	Able to understand the basics and architecture of Software Defined Radio.
C406.3 (CO3)	Able to understand the basics Cognitive networks .
C406.4 (CO4)	Able to understand the building of Cognitive architecture on SDR architecture
C406.5 (CO5)	Able to understand the concept of wireless networks and next generation networks .
C406.6 (CO6)	Able to design the wireless networks based on cognitive radio

EC6711 EMBEDDED LAB

Course Code	Course Outcomes
C407.1 (CO1)	Able to write programs in ARM for a specific Application
C407.2 (CO2)	Able to understand Interface memory and Write programs related to memory operations
C407.3 (CO3)	Able to understand Interface A/D and D/A convertors with ARM system
C407.4 (CO4)	Able to Analyse the performance of interrupt
C407.5 (CO5)	Able to write programmes for interfacing keyboard, display, motor and sensor.
C407.6 (CO6)	Able to Formulate a mini project using embedded system

EC6712-OPTICAL & MICROWAVE LAB

Course Code	Course Outcomes
C408.1 (CO1)	Able to understand the basic operating principles of single mode, multimode fibers, light sources, detectors.
C408.2 (CO2)	Able to design a simple optical communication link
C408.3 (CO3)	Able to understand, describe, analyze, compare the microwave passive devices like waveguide tees, directional couplers.
C408.4 (CO4)	Able to compare the characteristics of microwave vacuum tube source and semiconductor source.
C408.5 (CO5)	Able to measure the microwave power and frequency.
C408.6 (CO6)	Able to understand, describe, analyze, compare the microwave passive devices like directional couplers, circulators and Isolators

VIII SEM

EC6801 – WIRELESS COMMUNICATION

Course Code	Course Outcomes
C409.1 (CO1)	Able to Characterize wireless channels .
C409.2 (CO2)	Able to design and implement various signaling schemes for fading channels .
C409.3 (CO3)	Able to design a cellular system .
C409.4 (CO4)	Able to Compare multipath mitigation techniques and analyze their performance .
C409.5 (CO5)	Able to design and implement systems with transmit/receive diversity .
C409.6 (CO6)	Able to design and implement MIMO systems and analyze their performance.

EC6802 – WIRELESS NETWORKS

Course Code	Course Outcomes
C410.1 (CO1)	To understand wireless MAC layer alternative techniques
C410.2 (CO2)	To understand the various generations of cellular networks and the operation of wireless networks
C410.3 (CO3)	To learn various protocols involved in wireless networks
C410.4 (CO4)	To learn various wireless LAN and WAN concepts
C410.5 (CO5)	To understand WMAN and PAN
C410.6 (CO6)	To understand the concepts of cognitive radio

CS6003– ADHOC AND SENSOR NETWORKS

Course Code	Course Outcomes
C411.1 (CO1)	Able to explain the concepts, network architectures and applications of ad hoc and wireless sensor networks
C411.2 (CO2)	Able to Analyze the protocol design issues of ad hoc and sensor networks
C411.3 (CO3)	Able to Design routing protocols for ad hoc with respect to some protocol design issues
C411.4 (CO4)	Able to Design wireless sensor networks with respect to some protocol design issues
C411.5 (CO5)	Able to Evaluate the QoS related performance measurements of ad hoc and sensor networks
C411.6 (CO6)	Able to expose to the TCP issues in adhoc networks.



GE6757-TOTAL QUALITY MANAGEMENT

Course Code	Course Outcomes
C412.1 (CO1)	To analyze the meaning of total quality, its functions, the concept of quality and the contributions of quality guru's.
C412.2 (CO2)	To focus on customers, their satisfaction, complaints, continuous process improvement in detail.
C412.3 (CO3)	To describe the various traditional and new tools for management to analyze the quality, the six sigma concept, FMEA and benchmarking techniques.
C412.4 (CO4)	To explain the quality circles importance, TPM, Taguchi's quality loss function, the cost of quality.
C412.5 (CO5)	To describe the procedure of documentation for ISO standards for ISO 9000- 2000, 14000. Quality auditing and case studies regarding implementation of TQM
C412.6 (CO6)	Able to gain basic knowledge in total quality management relevant to both manufacturing and service industry including IT sector

EC6811 – PROJECT WORK

Course Code	Course Outcomes
C413.1 (CO1)	Able to understand the concepts and design process of various electronics circuits and communication engineering
C413.2 (CO2)	To develop and implement the innovative ideas.
C413.3 (CO3)	Able to identify and solving the real time problems
C413.4 (CO4)	Able to attain the leadership quality.
C413.5 (CO5)	Able to publish the Research Finding through conference and journals.
C413.6 (CO6)	Able to get the patent



COURSE OUTCOMES:

SEMESTER –II

EC 8252 – ELECTRONIC DEVICES

Course Code	Course Outcomes
C206.1 (CO1)	Understand the basic idea about semiconductor physics. Study of diode characteristics
C206.2 (CO2)	Understanding the basic operation of bipolar transistor and its various characteristics
C206.3 (CO3)	Understanding the basic operation of Field effect transistor and its various characteristics
C206.4 (CO4)	Design the special semiconductor devices and analysis various characteristics
C206.5 (CO5)	Understanding the operation of semiconductor power devices

EC8261 – CIRCUITS AND DEVICES LAB

Course Code	Course Outcomes
C207.1 (CO1)	Learn the characteristics of basic electronic devices
C207.2 (CO2)	Design clipper and clamper circuit
C207.3 (CO3)	Verification of various theorem
C207.4 (CO4)	Design RL and RC circuits for various response
C207.5 (CO5)	Analysis semiconductor power devices

GE 8261 – ENGINEERING PRACTICES LAB

Course Code	Course Outcomes
C208.1 (CO1)	Understanding Electrical and Electronics components and using different methods find out the numeric value of the components
C208.2 (CO2)	Understanding various measuring instruments
C208.3 (CO3)	To design the rectifier circuit and find the DC content
C208.4 (CO4)	To generate square wave using IC
C208.5 (CO5)	To implement various digital logic circuits and Understand the soldering process using PCB



MA8352-LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS

Course Code	Course Outcomes
C201.1 (CO1)	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
C201.2 (CO2)	Demonstrate accurate and efficient use of advanced algebra techniques.
C201.3 (CO3)	Demonstrate their mastery by solving non-trivial problems related to the concepts and by Proving simple theorems about the statements proven by the text.
C201.4 (CO4)	Able to solve various types of partial differential equations.
C201.5 (CO5)	Able to solve engineering problems using Fourier series.

EC8393 -FUNDAMENTALS OF DATA STRUCTURES IN C

Course Code	Course Outcomes
C202.1 (CO1)	Develop simple C programs using controls statements and arrays.
C202.2 (CO2)	Implement functions, string functions and recursive functions in C
C202.3 (CO3)	Construct a C program to implement the concept of structure and pointer
C202.4 (CO4)	Illustrate the Linear Data Structures using C and Non Linear Data Structures using C
C202.5 (CO5)	Develop an application using data structures in C

EC8351-ELECTRONIC CIRCUITS- I

Course Code	Course Outcomes
C203.1 (CO1)	Acquire knowledge of working principles, characteristics and applications of BJT,FET .
C203.2 (CO2)	Analyze the performance of small signal BJT amplifiers-single stage and multistage amplifiers.
C203.3 (CO3)	Analyze the performance of small signal FET and MOSFET amplifiers-single stag
C203.4 (CO4)	Frequency response characteristics of BJT, FET and MOSFET amplifier.
C203.5 (CO5)	Apply the knowledge gained in the design of Electronic circuits and SMPS.



EC8352-SIGNALS AND SYSTEMS

Course Code	Course Outcomes
C204.1 (CO1)	Define Basic Continuous time and discrete time Signals-classification, continuous time and discrete time systems- classification
C204.2 (CO2)	Apply Fourier series, Fourier and Laplace transforms to continuous time signals and interpret the results
C204.3 (CO3)	Analyze Continuous Time -Linear Time Invariant systems using Continuous Fourier transform and Laplace transform, model the system using realization structures and find the convolution of continuous time signals
C204.4 (CO4)	Determine Discrete Time Fourier transform and Z-transform and interpret the results and explain sampling theorem in conversion of continuous time signals to discrete time signals
C204.5 (CO5)	Discuss Discrete Time- Linear Time Invariant systems using Discrete Time Fourier Transform and z transform ,model the system using realization structures and find the convolution of discrete time signals

EC8392-DIGITAL ELECTRONICS

Course Code	Course Outcomes
C205.1 (CO1)	Define the fundamental concepts of digital logic circuits and correlate between Boolean Expression, simplification methods to optimize it for desired characteristics.
C205.2 (CO2)	Apply the concept of digital logic circuits and design various combinational building blocks in multiple forms
C205.3 (CO3)	Apply the concept of digital logic circuits and design various synchronous sequential circuits
C205.4 (CO4)	Apply the concept of digital logic circuits and design various Asynchronous sequential circuits
C205.5 (CO5)	Analyze memory cells, understand semiconductor memories and Programmable logic devices.

EC8391-CONTROL SYSTEMS ENGINEERING

Course Code	Course Outcomes
C206.1 (CO1)	Identify the various control system components and their representations
C206.2 (CO2)	Analysis the various frequency response plots and its system
C206.3 (CO3)	Analysis the various frequency response plots and its system
C206.4 (CO4)	Apply the concepts of various system stability criterions.
C206.5 (CO5)	Design various transfer functions of digital control system using state variable models.



EC8381 -FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY

Course Code	Course Outcomes
C207.1 (CO1)	Develop simple C programs using controls statements and arrays.
C207.2 (CO2)	Implement functions, string functions and recursive functions in C
C207.3 (CO3)	Construct a C program to implement the concept of structure and pointer
C207.4 (CO4)	Illustrate the Linear Data Structures using C and Non Linear Data Structures using C
C207.5 (CO5)	Develop an application using data structures in C

EC8361-ANALOG AND DIGITAL CIRCUITS LABORATORY

Course Code	Course Outcomes
C208.1 (CO1)	Able to Study the Frequency response of CE, CB ,CC & CS Amplifier
C208.2 (CO2)	Able to Study the Transfer characteristics of differential amplifier
C208.3 (CO3)	Able to Perform experiment to obtain the bandwidth of single stage and multistage amplifiers
C208.4 (CO4)	Able to Perform SPICE simulation of Electronic Circuits
C208.5 (CO5)	Able to Design and implement the Combinational and sequential logic circuits

HS8381 - INTERPERSONAL SKILLS/LISTENING &SPEAKING

Course Code	Course Outcomes
C209.1 (CO1)	Listen and respond appropriately
C209.2 (CO2)	Participate in Group Discussions
C209.3 (CO3)	Make effective Presentations
C209.4 (CO4)	Participate confidently and appropriately in conversations both formal and informal
C209.5 (CO5)	Improve general and academic listening skills



IV SEM

MA8451- PROBABILITY AND RANDOM PROCESSES

Course Code	Course Outcomes
C210.1 (CO1)	Define the concept of Probability & random variable and its properties. Construct probabilistic models for observed phenomena through distributions which play an important role in many engineering applications
C210.2 (CO2)	Identify random variables by designing joint distributions and correlate the random variables.
C210.3 (CO3)	Define the concept of random processes and its classification, in particular about Markov chains, which plays an important role in finding solution of many engineering problems.
C210.4 (CO4)	Explain auto correlation and its properties which is used to extract radar signals to improve sensitivity
C210.5 (CO5)	Introduce the concept of Linear time-invariant theory and apply in NMR spectroscopy, seismology, circuits, signal processing, control theory, and other technical area and also investigates the response of a linear and time-invariant system to an arbitrary input signal.

EC8452- ELECTRONIC CIRCUITS II

Course Code	Course Outcomes
C211.1 (CO1)	To Design and analyze feedback amplifiers.
C211.2 (CO2)	To design BJT amplifier and oscillator circuits.
C211.3 (CO3)	To Analyze transistorized amplifier and oscillator circuits.
C211.4 (CO4)	To analyze different types of amplifier, oscillator and multi vibrator circuits.
C211.5 (CO5)	To design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multi vibrators, power amplifier and DC convertors.

EC8491 - COMMUNICATION THEORY

Course Code	Course Outcomes
C212.1 (CO1)	To Design and analyze feedback amplifiers.
C212.2 (CO2)	To design BJT amplifier and oscillator circuits.
C212.3 (CO3)	To Analyze transistorized amplifier and oscillator circuits.
C212.4 (CO4)	To analyze different types of amplifier, oscillator and multi vibrator circuits.
C212.5 (CO5)	To design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multi vibrators, power amplifier and DC convertors.



EC8451– ELECTROMAGNETIC FIELDS

Course Code	Course Outcomes
C213.1 (CO1)	Study of various vector fields and understanding the fundamental of electromagnetic laws and concepts.
C213.2 (CO2)	Solve simple problems requiring estimation of electric field quantities based on these concepts and laws.
C213.3 (CO3)	Solve simple problems requiring estimation of magnetic field quantities based on these concepts and laws.
C213.4 (CO4)	Study of Maxwell's equations in different forms and explain their physical meaning .
C213.5 (CO5)	Explain electromagnetic wave propagation in different medium, Study of reflection and refraction in different medium.

EC8453 -LINEAR INTEGRATED CIRCUITS

Course Code	Course Outcomes
C214.1 (CO1)	Understand the basic building blocks of linear integrated circuits
C214.2 (CO2)	Analysis the linear and non-linear applications of operational amplifiers
C214.3 (CO3)	Understand the theory and applications of Analog multipliers and PLL
C214.4 (CO4)	Understand the operating principle of ADC and DAC
C214.5 (CO5)	Understand the concepts of waveform generation and special function ICs

GE8291- ENVIRONMENTAL SCIENCE AND ENGINEERING

Course Code	Course Outcomes
C215.1 (CO1)	Interpret the relationship between living organisms and the environment and to identify the threats to global Bio-diversity
C215.2 (CO2)	Identify and prevent the problems related to the pollution of air, water, soil ,marine etc
C215.3 (CO3)	Understand the importance of natural resources and conserve it for future generation.
C215.4 (CO4)	Analyze the social issues of the environment to be a part of sustainable development.
C215.5 (CO5)	Create awareness and sustainable population growth and know the contribution of information technology un environmental management.



EC8461 -CIRCUITS DESIGN AND SIMULATION LABORATORY

Course Code	Course Outcomes
C216.1 (CO1)	To gain hands on experience in designing electronic circuits like feedback amplifiers.
C216.2 (CO2)	To differentiate the operation of various multivibrators & Oscillators
C216.3 (CO3)	To learn fundamental principles and design amplifier circuits.
C216.4 (CO4)	To differentiate & analyze wave shaping circuits.
C216.5 (CO5)	. To learn simulation software and design various circuits like feedback amplifiers and oscillators

EC8462- LINEAR INTEGRATED CIRCUITS LABORATORY

Course Code	Course Outcomes
C217.1 (CO1)	To design oscillators and amplifiers using operational amplifiers.
C217.2 (CO2)	To design filters using Op amp and perform experiment on frequency response.
C217.3 (CO3)	To analyse the working of PLL and use PLL as frequency multiplier.
C217.4 (CO4)	To design DC power supply using ICs.
C217.5 (CO5)	Analyse the performance of oscillator, multivibrators and CMOS using SPICE



V SEM

EC8501- DIGITAL COMMUNICATION

Course Code	Course Outcomes
C301.1 (CO1)	Understand the basics of information theory and source coding techniques to meet the primary objective of digital communication system.
C301.2 (CO2)	Analyze the performance of DCS using different baseband formatting techniques and line coding techniques.
C301.3 (CO3)	Design a Digital communication system without Inter Symbol Interference
C301.4 (CO4)	Analyze the performance of DCS using different modulation techniques.
C301.5 (CO5)	Implement various error detection schemes to improve the QOS

EC8553- DISCRETE-TIME SIGNAL PROCESSING

Course Code	Course Outcomes
C302.1 (CO1)	Define basics of signals and systems, explain sampling theorem, compare Discrete Fourier Transform and Fast Fourier Transform .
C302.2 (CO2)	Applyz transform and Fourier transform to digital IIR filters and model them using realization structures.
C302.3 (CO3)	Analyse FIR digital filters using z transform and Fourier transform and model them using realization structures.
C302.4 (CO4)	Prove that the behavior of digital filters changes due to effects of finite word length .
C302.5 (CO5)	Discuss about the architecture of Digital signal processor with its programming and develop application examples.

EC8552- COMPUTER ARCHITECTURE AND ORGANIZATION

Course Code	Course Outcomes
C303.1 (CO1)	Understand the basics structure of computers, operations and instructions.
C303.2 (CO2)	Design arithmetic and logic unit.
C303.3 (CO3)	Understand pipelined execution and design control unit.
C303.4 (CO4)	Understand the various memory systems and I/O communication.
C303.5 (CO5)	Understand parallel processing architectures.



EC8551- COMMUNICATION NETWORKS

Course Code	Course Outcomes
C304.1 (CO1)	Able to understand the concept and components required to build different types of networks of data communications.
C304.2 (CO2)	Able to understand various data link and network layer protocols.
C304.3 (CO3)	Able to design, calculate, and apply subnet masks and addresses to fulfill networking requirements and routing algorithms
C304.4 (CO4)	Able to understand the working principle of transport layer protocols and congestion control algorithms.
C304.5 (CO5)	Able to understand various application layer protocols and also the concept of network security algorithms to impose privacy and authentication

EC8073- MEDICAL ELECTRONICS

Course Code	Course Outcomes
C305.1 (CO1)	To know the human body electro- physiological parameters and recording of bio-potential
C305.2 (CO2)	To Comprehend the non-electrical physiological parameters and their measurement – body temperature, blood pressure, pulse, blood cell count, blood flow meter etc.
C305.3 (CO3)	To Interpret the various assist devices used in the hospitals viz. pacemakers, defibrillators, dialyzers and ventilators
C305.4 (CO4)	To Comprehend physical medicine methods eg. ultrasonic, shortwave, microwave surgical diathermies , and bio-telemetry principles and methods
C305.5 (CO5)	To know about recent trends in medical instrumentation

OIT552-CLOUD COMPUTING

Course Code	Course Outcomes
C306.1 (CO1)	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
C306.2 (CO2)	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
C306.3 (CO3)	Explain the core issues of cloud computing such as resource management and security.
C306.4 (CO4)	Be able to install and use current cloud technologies.
C306.5 (CO5)	Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of clouds.



EC8562 -DIGITAL SIGNAL PROCESSING LABORATORY

Course Code	Course Outcomes
C307.1 (CO1)	Show the difference between basic signals and noise, find the convolution and correlation of different signals and illustrate the spectral content of signals using FFT.
C307.2 (CO2)	Build all the frequency selective IIR filters using z transform and Fourier transform.
C307.3 (CO3)	Test for the suitability of windows in the design of FIR filters using z transform and Fourier transform.
C307.4 (CO4)	Compare up sampling and down sampling process .
C307.5 (CO5)	Discuss the architecture and addressing modes of TMS 320C5416 processor and design IIR and FIR filters using TMS 320C5416 processor

EC8561- COMMUNICATION SYSTEMS LABORATORY

Course Code	Course Outcomes
C308.1 (CO1)	Able to design amplitude, Frequency modulation and Demodulation Respectively.
C308.2 (CO2)	Able to design and plot the signal representation of PAM/PWM/PPM
C308.3 (CO3)	Able to design and plot the delta and adaptive delta modulation
C308.4 (CO4)	Able to design and simulate various types of Digital modulation Using MATLAB
C308.5 (CO5)	Able to design multiplexing circuits

EC8563- COMMUNICATION NETWORKS LABORATORY

Course Code	Course Outcomes
C309.1 (CO1)	Able to implement various flow control and error control protocols
C309.2 (CO2)	Able to analyze the performance of CSMA/CD and CSMA/CA Protocol through simulation
C309.3 (CO3)	Able to analyze the performance of token bus and token ring through NS-2 simulation
C309.4 (CO4)	Able to understand the implementation of distance vector routing and link state routing algorithm
C309.5 (CO5)	Able to understand the implementation of encryption and IP address configuration