Department of Electronics & Communication Engineering

UG Regulation 2017

Course Outcomes

Semester I

Course Name MA8151- ENGINEERING MATHEMATICS -I

CO1	Course Outcome Statements
CO2	Diagonalizing symmetric matrices and analogous matrices involves utilizing eigenvalues and eigenvectors.
CO3	Radients, potential functions, and directional derivatives pertain to the study of functions that involve multiple variables.
CO4	Calculate line, surface, and volume integrals utilizing Gauss's divergence theorem, Green's theorem, and Stokes's theorem.
CO5	Discuss analytic functions in heat and fluid flow.
CO6	Extend the concept of contour integrals in evaluating Real integrals.

Course Name MA3151- MATRICES AND CALCULUS

CO1	Apply matrix algebra techniques to address real-world problems.
CO2	Apply methods from differential calculus to address a variety of practical problems. .
CO3	Able to employ principles from differential calculus in addressing functions involving multiple variables.
CO4	Utilize a variety of integration techniques to effectively tackle real-world problems.
CO5	Apply concepts of multiple integrals to solve problems involving areas, volumes, and various practical situations.

Course name HS8151 COMMUNICATIVE ENGLISH

CO1	Facilitate the growth of communication in sharing information about family and friends.
CO2	Enhance overall comprehension abilities and demonstrate clear proficiency in freeform writing.
CO3	Acquire foundational grammar techniques and implement them to elevate language proficiency and foster development.
CO4	Establish an environment that promotes reading and nurtures the development of robust language skills.
CO5	Refine your capacity to write effectively across different styles by employing a wide-ranging vocabulary and adhering to proper syntax.

Course Name CY8151- ENGINEERING CHEMISTRY

CO1	Make the students conversant with boiler feed water requirements, related problems and water treatment techniques
CO2	Develop an understanding of the basic concepts of phase rule and its applications to single and two component systems and appreciate the purpose and significance of alloys
CO3	Preparation, properties and applications of engineering materials
CO4	Analyse the types of fuels, calorific value calculations, manufacture of solid, liquid and gaseous fuels
CO5	Principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells

Course name - PH 8151- ENGINEERING PHYSICS

CO1	Gain knowledge on the basics of properties of matter and its applications.
CO2	Acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics,
CO3	Understand the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers
CO4	Gain knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes.
CO5	Understand the basics of crystals, their structures and different crystal growth techniques

Course name -BS8161- PHYSICS LABORATORY

CO1	Apply principles of elasticity, optics and thermal properties for engineering applications

Course name PH8201- PHYSICS FOR CIVIL ENGINEERING

CO1	Gain knowledge on the thermal performance of buildings
CO2	Acquire knowledge on the acoustic properties of buildings,
CO3	Gain knowledge on various lighting designs for buildings
CO4	Gain knowledge on the properties and performance of engineering materials
CO5	Understand the hazards of buildings.

Semester II

Course name - PH8252- PHYSICS FOR INFORMATION SCIENCE

CO1	Gain knowledge on classical and quantum electron theories, and energy band structures
CO2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.
CO3	Gain knowledge on magnetic properties of materials
CO4	Understand the functioning of optical materials for optoelectronics
CO5	Understand the basics of quantum structures and their applications and carbon nanotubes

Course name PH 8253 -PHYSICS FOR ELECTRONICS ENGINEERING (EEE, ECE, EIE)

CO1	Gain knowledge on classical and quantum electron theories and energy band structures.
CO2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.
CO3	Knowledge on magnetic and dielectric properties of materials.
CO4	Understand the functioning of optical materials for optoelectronics
CO5	Understand the basics of quantum structures and their applications in spintronics and carbon nanotubes.

Course name PH8251- MATERIALS SCIENCE

CO1	Gain knowledge on the various phase diagrams and their applications
CO2	Acquire knowledge on Fe-Fe3C phase diagram, various microstructures and alloys
CO3	Gain knowledge on mechanical properties of materials and their measurement
CO4	Gain knowledge on magnetic, dielectric and superconducting properties of materials
CO5	Understand the basics of ceramics, composites and nanomaterials

Course name - GE8291 ENVIRONMENTAL SCIENCES AND ENGINEERING

CO1	Study the nature and facts about environment. Finding and implementing scientific, technological, economic and political solutions to environmental problems.
CO2	Study the interrelationship between living organism and environment.
CO3	Appreciate the importance of environment by assessing its impact on the human world; envision the surrounding environment, its functions and its value.
CO4	Study the dynamic processes and understand the features of the earth's interior and surface.
CO5	Study the integrated themes and biodiversity, natural resources, pollution control and waste management.

Course Name HS8251- TECHNICAL ENGLISH

	Course Outcome Statements
CO1	Read technical texts proficiently and compose specialized texts within a given area effortlessly.
CO2	Successfully comprehend and internalize lectures and discussions within their specialized field.
CO3	Communicate appropriately and effectively in a variety of formal and informal situations.
CO4	Enhance the skill to clearly and effectively communicate technical information using both written and verbal methods.
CO5	Compose reports and craft compelling job applications that stand out and increase the likelihood of success.

Course Name MA8251- ENGINEERING MATHEMATICS – II

CO1	Calculate the eigenvalues and eigenvectors of a matrix, diagonalize symmetric matrices, and determine similarity transformations for matrices.
CO2	Explain gradients, potential functions and directional derivatives functions of several variables.
CO3	Calculate line, surface, and volume integrals utilizing Gauss's divergence theorem, Green's theorem, and Stokes's theorem.
CO4	Discuss Analytic functions in heat and fluid flow
CO5	Explore the role of analytic functions in the context of heat and fluid flow phenomena.

Semester III
Course Name HS8381- Interpersonal Skills / Listening and Speaking

CO1	Empower students with the essential English language proficiency required for academic success, with a specific focus on refining their academic speaking and listening abilities.
CO2	Engage actively in group discussions and enhance both general and academic listening abilities.
CO3	Deliver impactful presentations with confidence and effectiveness.
CO4	Participate confidently and appropriately in conversations, adapting to various formal and informal contexts.
CO5	Equip students with the essential English language skills needed to excel in academic endeavors, emphasizing the development of their academic speaking and listening proficiency.

Course Name MA8451 PROBABILITY AND RANDOMPROCESSES

CO1	Course Outcome Statements
CO2	Calculate the likelihood of events occurring, whether they involve one-dimensional or two-dimensional random variables, within discrete or continuous sample spaces. Also, determine the probabilities associated with random variables from discrete and continuous distributions, along with the steady-state probabilities in Markov chains.
CO3	Compute statistical measures such as the mean, variance, moments, and moment generating functions for a random variable. Additionally, determine the autocorrelation, cross-correlation, and power spectral density of random processes and linear systems.
CO4	Utilize Bayes' theorem to derive conditional probabilities, and employ the Central Limit Theorem to approximate the probabilities of a sum involving a large number of independent and identically distributed random variables.
CO5	Describe Markov processes, Poisson processes, and random telegraph processes. Classify a random process as stationary, wide-sense stationary, or jointly wide-sense stationary based on its statistical averages.Utilize a variety of integration techniques to effectively tackle real-world problems.

Course Name MA8352- LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS

CO1	Determine the basis and dimension of a finite dimensional vector space.
CO2	Compute the Matrix, Range space and Null space of a linear transformation
CO3	Constructorthonormalbasesforinnerproductspacesusing GramSchmidtprocess
CO4	Formulate and Solve Linear and non-linear Partial differential equations
CO5	Discuss the Fourier transform, Inverse Fourier Transform and Z transform of simple functions.
CO6	Solve difference equations using Inverse Z Transforms and compute Fourier in and cosine transforms of simple functions

Course Name MA3355- RANDOM PROCESSES AND LINEAR ALGEBRA

CO1	Explain the fundamental principles of advanced algebra and their importance in both modern mathematics and practical applications. .
CO2	Show proficiency in applying advanced algebraic techniques accurately and efficiently.
CO3	Utilize the concept of random processes in engineering fields.
CO4	Acquire a thorough comprehension of fundamental probability principles, encompassing a comprehensive knowledge of standard distributions utilized to model various real-life phenomena.
CO5	Understand the core principles of one and two-dimensional random variables and apply them to engineer problem-solving scenarios.

Semester IV

Course Name MA3251-STATISTICS AND NUMERICAL METHODS

CO1	Utilize the hypothesis testing concept for both small and large samples in real-world scenarios.
CO2	Apply fundamental concepts of experimental design classifications in agricultural practices.
CO3	Understand the numerical interpolation techniques across different intervals and apply numerical methods for differentiation and integration to solve engineering problems.
CO4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
CO5	Utilize specific techniques with engineering applications to solve partial and ordinary differential equations with initial and boundary conditions.

Course Name MA3151- LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS

CO1	Determine the basis and dimension of a finite dimensional vector space.
CO2	Compute the Matrix, Range space and Null space of a linear transformation
CO3	Construct orthonormal bases for inner product spaces using Gram Schmidt process
CO4	Formulate and Solve Linear and nonlinear Partial differential equations.
CO5	Find the Fourier transform, Inverse Fourier Transform and Z transform of simple functions.

Course Name: EC8393 FUNDAMENTALS OF DATASTRUCTURES IN C

CO1	Understand the concept of arrays in C Programming.
CO2	Illustrate the fundamentals of Functions and Pointers.
CO3	Classify the various Storage Classes and Pre-processor directives along with theapplications of Structures and Unions.
CO4	Analyze the applications of linear data structure using Stack and Queue implementation.
CO5	Define the various terms of the Non Linear Data Structure – Trees and Graph

Course Name EC8351 ELECTRONIC CIRCUITS I

CO1	Understand the various biasing methods of a single stage BJTamplifier and its small signal equivalent models.
CO2	Analyze the small signal equivalent model for a multistage BJT amplifier and to determine the high frequency response of BJTamplifiers.
CO3	Apply the biasing methods in various configurations of its small signal model and to determine the high frequency response of JFETamplifiers.
CO4	Apply biasing methods in various configurations of its small signal models and to determine the high frequency response of MOSFET Amplifiers.
CO5	Understand the different stages of power supply modules.

Course Name EC8352 SIGNALS AND SYSTEMS

CO1	Classify the signals and systems.
CO2	Represent signals in the time domain and frequency domain.
CO3	Determine the Fourier/ Laplace / Z Transforms of functions using the fundamental formulae and using their properties for continuous and Discrete functions.
CO4	Compute the response of the LTI system in the time domain and frequency domain.
CO5	Convert Continuous time signals to discrete time signals.

Course Name EC8392 DIGITAL ELECTRONICS

CO1	Apply Boolean algebra and minimization techniques such as K map and tabulationmethod to reduce the no. of. Gates.
CO2	Design various combinational digital circuits using logic gates.
CO3	Design synchronous and asynchronous sequential circuits using state minimizationand state assignment
CO4	Analyze synchronous and asynchronous sequential circuits to realize hazard andrace free circuits.
CO5	Examine the structure of semiconductor memories to implement combinationalcircuits using PLD

Course Name EC8391 CONTROL SYSTEMS ENGINEERING

CO1	Identify the various control system components and their representations
CO2	Analysis the various frequency response plots and its system
CO3	Analysis the various frequency response plots and its system
CO4	Apply the concepts of various system stability criterions.
CO5	Design various transfer functions of digital control system using state variablemodels.

Course Name EC8381 FUNDAMENTALS OF DATASTRUCTURES IN C LABORATORY

CO1	Implement linear and non linear data structure operations using C
CO2	Suggest linear/nonlinear data structures for any given data set
CO3	Applying hashing concepts for a given problem
CO4	Modify or suggest a network data structures for an applications
CO5	Appropriately choose the sorting algorithms for an applications

Course Name EC8361 ANALOG AND DIGITALCIRCUITSLABORATORY

CO1	Understanding the basics of logic gates for implementing logic circuits.
CO2	Applying the knowledge of transistors for implementing analog circuits.
CO3	Analyse and simulate the frequency response of various amplifiers.
CO4	Test the truth table for various combinational and sequential logic circuits.
CO5	Evaluate the design parameters for single stage and multi stage amplifiers.

Course Name HS8381 INTERPERSONAL SKILLS/LISTENING & SPEAKING

CO1	Comprehend information by listening actively and to give appropriate response
CO2	Articulate ideas and converse in formal and informal contexts with accuracy and clarity
CO3	Initiate conversations, compare and contrast information fluently, using lexical chunks
CO4	Participate effectively in group discussions and conversations by employing appropriate verbal and nonverbal feedback
CO5	Speak clearly and fluently with correct pronunciation, stress and intonation

SEMESTER IV

Course Name HS8461- ADVANCED READING AND WRITING

CO1	Enhance the reading abilities of engineering students.
CO2	Excel in creating diverse essay formats and producing compelling job applications that stand out and lead to success.
CO3	Improve writing proficiency, particularly in technical writing.
CO4	Nurture critical thinking skills among students through additional opportunities aimed at refining their project and proposal writing abilities.
CO5	Read and assess texts with a critical eye, demonstrating critical thinking in diverse professional scenarios.

Course Name EC8452 ELECTRONIC CIRCUITS II

CO1	Predict the topology of a feedback amplifier, and determine the Stability characteristics.
CO2	Illustrate the feedback mechanism of circuits, and determine the parameters suchas Frequency, Gain, Input, and Output Impedance
CO3	Analyze the Frequency of Oscillation of LC and RC Oscillators
CO4	Categorize the different wave shaping circuits and examine the Output response
CO5	Classify the tuned amplifier, Power amplifier in improving the gain

Course Name EC8491 COMMUNICATION THEORY

CO1	Apply various signals and its characteristics to design a communication system
CO2	Interpret various amplitude modulation techniques to model a communication system.
CO3	Discuss angle modulation techniques and compare various analog modulation techniques.
CO4	Formulate the properties of random process to generate a mathematical model for a noise in communication system.
CO5	Review and analyze the noise characteristics to evaluate the performance of analog modulation system.

Course Name EC8451 ELECTROMAGNETIC FIELDS

CO1	Apply fundamentals of Vector analysis in 3D coordinate systems.
CO2	Review the basic concepts and laws in Electromagnetics
CO3	Compute the field quantities based on the concepts and laws
CO4	Examine the behavior of materials in Electric and Magnetic fields
CO5	Derive Maxwell's equations and wave equations for static and time varying fields

Course Name EC8453 LINEAR INTEGRATED CIRCUITS

CO1	Understand the basic concepts and characteristics of linear integrated circuits.
CO2	Design and analyze various linear and nonlinear applications of operational amplifiers
CO3	Explain the theory and applications of analog multipliers and PLL for different modulation techniques
CO4	Examine the behavior of different types of ADC and DAC
CO5	Generate a waveform using op amp and IC 555 timer.

Course Name GE8291 ENVIRONMENTAL SCIENCE ANDENGINEERING

CO1	Understand the relationship between the environment and human activities to maintain the ecological balance.
CO2	Identify societal issues and implement suitable scientific, technological solutions to eradicate.
CO3	Acquire skills for scientific problem solving related to environmental pollutionand disaster management.
CO4	Disseminate the need for the natural resources and its application to meet themodern requirements.
CO5	Aware of environmental issues and Protection Acts to achieve the Sustainable Development Goals.

Course Name EC8461 CIRCUITS DESIGN AND SIMULATIONLABORATORY

CO1	Identify the different topologies of feedback amplifiers
CO2	Understand the operation of oscillators
CO3	Understand the operation of Multivibrators
CO4	Understand the fundamental principles of designing amplifier circuits
CO5	To differentiate & analyze wave shaping circuits

Course Name EC8462 LINEAR INTEGRATED CIRCUITS LABORATORY

CO1	Understand the basics of linear integrated circuits and available ICs
CO2	Design the linear and nonlinear operational amplifier circuits
CO3	Design Oscillators and Multivibrators using ICs
CO4	Design DC power supply using ICs
CO5	Analyze the working of PLL, Data converters

SEMESTER 5

Course name HS8581- PROFESSIONAL COMMUNICATION LAB

CO1	Equip students with essential English language skills crucial for navigating academic pursuits effectively, with a key emphasis on enhancing their abilities in academic speaking and listening.
CO2	Provide assistance and practice sessions to support essential daily conversations and classroom interactions, while employing a focused approach to enhance skills in academic speaking tasks.
CO3	Equip individuals with the necessary writing skills essential for thriving in both academic and professional environments.
CO4	Enable learners to acquire language skills at their own pace by leveraging e-materials and resources available in language labs.
CO5	Enhance the employability skills of aspiring engineers and equip them with the expertise needed to effectively address workplace challenges.

Course Name EC8501 DIGITAL COMMUNICATION

CO1	Understanding the basic concepts of Information theory
CO2	Compute the source coding techniques such as Shannon Fano and Huffman coding.
CO3	Illustrate and compare the Encoding schemes such as DPCM, DM, ADPCM,ADM & LPC and different waveform coding schemes.
CO4	Analyze the base band transmission and Reception techniques
CO5	Evaluate the performance of digital modulation schemes such as BPSK, BFSK,QPSK, DPSK & QAM
CO6	Infer various channel coding and error coding techniques in digital communication

Course Name EC8553 DISCRETE TIME SIGNAL PROCESSING

CO1	Analyze the signals in frequency domain using DFT and FFT algorithm.
CO2	Perform Linear filtering to demonstrate the output response of a system andcharacterizefrequency selective filters.
CO3	Design digital IIR and FIR to select specific frequency components present in thesignal.
CO4	Select appropriate realization structure for various filters and characterize theeffects of finiteword length in filters.
CO5	Analyze the errors due to quantization and realize architecture of digital signalprocessors.

Course Name EC8552 COMPUTER ARCHITECTURE AND ORGANIZATION

CO1	Discuss the computer organization, Instruction set and performance of MIPSprocessors.
CO2	Illustrate the algorithms for arithmetic high performance calculations and elementsof modern instruction set.
CO3	Classify the performance of different pipelined processors and interpret parallelprocessing.
CO4	Categorize the memory design, performance improvement techniques and comparethe properties of shared memory and multiprocessor systems.
CO5	Determine the concept of input and output organization and recall the internalcommunication methodologies.

Course Name EC8551 COMMUNICATION NETWORKS

CO1	Identify the different components and protocols required to build data communicationnetworks.
CO2	Understand the required functionality of each layer for the given application.
CO3	Illustrate the data formats of each layer for successful end to end communication.
CO4	Analyze and trace the flow of information from one node to another node inthe network.
CO5	Apply the ideas learnt in developing a computer network.

Course Name OMD551 BASICS OF BIOMEDICAL INSTRUMENTATION

CO1	Outline different biopotential electrodes and its propagation mechanism
CO2	Ilustrate different types of electrodes and its placement for various recording
CO3	Describe the concepts of bio ampifiers for various physiological recording
CO4	Summarize the different measurement techniques for nonphysiological parameters
CO5	Categorize the different types of biochemical measurement

Course Name EC8073 MEDICAL ELECTRONICS

CO1	Identify the amplitude and frequency of ECG, EEG, EMG & PCG.
CO2	Sketch the lead systems and recording setup of ECG, EEG, EMG & PCG fordiagnosis.
CO3	Describe the measurement techniques for biochemical and nonelectrical parametersfor the purpose of screening.
CO4	Illustrate the working of assist devices and application of therapeutic instruments ondifferent diseased conditions.
CO5	Explain the functioning of MRI and Ultrasound imaging for diagnosis.

Course Name EC8562 DIGITAL SIGNAL PROCESSING LABORATORY

CO1	Execute basic signal processing operations
CO2	Demonstrate their abilities towards MATLAB based implementation of variousDSP
CO3	Analyze the architecture of a DSP processor
CO4	Design FIR and IIR filters in DSP processor for performing filtering operationsover real time signals
CO5	Implement the FIR and IIR filters in DSP processor for performing filteringoperations over real time signals

Course Name EC8561 COMMUNICATION SYSTEMS LABORATORY

CO1	Demonstrate the signal sampling and Multiplexing Scheme
CO2	Generate and detect amplitude and frequency modulation
CO3	Implement encoding schemes using PCM and DM techniques
CO4	Demonstrate base band transmission schemes such as ASK, BFSK,BPSK,QPSK,QAM and DPSK
CO5	Apply various channel coding schemes and demonstrate the improvement of noiseperformance

Course Name EC85631 COMMUNICATION NETWORKS LABORATORY

CO1	Understand the communication between desktop computers and also familiarwith IPconfiguration.
CO2	Create a scenario to study the performance of CSMA/CD and CSMA/CAProtocol throughsimulation.
CO3	Implement various flow control and error control protocols.
CO4	Analyze the characteristics of various network topologies through NS2 simulation.
CO5	Develop a client server model for socket programming and also familiar withcommands likeEcho/Ping/talk.

COURSE CODE EC8611 TECHNICAL SEMINAR

CO1	Present their individual Strength, Weakness, Opportunities and Challengesto analyze self.
CO2	Share the significance of learning recent advancement in Electronics andcommunicationEngineering.
CO3	Organize the presentation using the concepts of ordering and determiningthe central, mainand supporting ideas.
CO4	Present any topic in any thrust areas with good communication skill in frontof peers
CO5	Review and prepare the Stateofart technologies in the present technologicaldevelopments.

SEMESTER 6

Course name HS8581- PROFESSIONAL COMMUNICATION LAB

CO1	Equip students with essential English language skills crucial for navigating academic pursuits effectively, with a key emphasis on enhancing their abilities in academic speaking and listening.
CO2	Provide assistance and practice sessions to support essential daily conversations and classroom interactions, while employing a focused approach to enhance skills in academic speaking tasks.
CO3	Equip individuals with the necessary writing skills essential for thriving in both academic and professional environments.
CO4	Enable learners to acquire language skills at their own pace by leveraging e-materials and resources available in language labs.
CO5	Enhance the employability skills of aspiring engineers and equip them with the expertise needed to effectively address workplace challenges.

Course Name . EC8691 MICROPROCESSORS AND MICROCONTROLLERS

CO1	Understand architecture and operations of a microprocessor system in depth.
CO2	Demonstrate programming proficiency using the various addressing modesand data transfer through system bus of the microprocessor
CO3	Analyze, specify, design, write and test assembly language programs ofinterfacing with I/O and memory
CO4	Perform the detailed hardware design of the microcontroller system, andprogram the microcontroller using suitable techniques and software tools.
CO5	Design electrical circuitry to the Microcontroller I/O ports in order to interface it to external devices and comparison the performance of different processors

Course Name EC8095 VLSI DESIGN

CO1	Describe the Electrical characteristics of MOS Transistor and its layout conversion
CO2	Realize various logic gates and functions using different logic families
CO3	Illustrate various sequential circuits using various logic family and classify variousmemory in Synchronous and asynchronous de
CO4	Classify various arithmetic building blocks and its characteristics
CO5	Explain about the implementation strategies for FPGA and Testing Methodologies

Course Name EC8652 WIRELESS COMMUNICATION

CO1	Outline the different path loss models and design the link Budget for wireless channel.
CO2	Analyze the different multiple access Techniques such asTDMA, FDMA, CDMA, OFDMA
CO3	Design the cellular system and analyze the techniques to improve the capacity of thecellular system.
CO4	Design and implement various signaling schemes for Fading channels.
CO5	Compare and contrast the different multipath mitigation techniques and evaluate theirperformance.

Course Name MG8591 PRINCIPLES OF MANAGEMENT

CO1	To understand about management , Roles of managers, environmental Factors for an organization , Strategies for international business
CO2	To get an idea about the planning, MBO, Decision Making and Policies making.
CO3	Gain the knowledge about organization structure, Formal and Informal groups,Line and staff authority, Span of control, Centralization and decentralization, Staffing, Recruitment, Career Development, Training and personal Appraisal
CO4	To understand about the Creativity and Innovation, Motivation and satisfaction,Leadership theories, communication, Elements and types of Culture.
CO5	Gain knowledge about the controlling process, types of control (Budgetary and nonbudgetary control, Cost control, purchase control, Maintenance control, qualitycontrol)

Course Name EC8651 TRANSMISSION LINES AND RFSYSTEMS

CO1	Understanding the fundamentals of transmission line and propagation ofsignals
CO2	Analyze signal propagation at Radio frequencies.
CO3	Evaluate matching networks through smith chart
CO4	Analyze the Characteristics of TE, TM and TEM Waves
CO5	Design RF circuit using active components for communication applications

Course Name EC8681 MICROPROCESSORS AND MICROCONTROLLERS LABORATORY

CO1	Write and execute programs for fixed and floating point arithmetic operations and MASM
CO2	Execute time delay, passwords, Printer Status, Serial & Parallel Interface
CO3	To generate waveforms through software with A/D & D/A interface
CO4	Apply arithmetic, logical operations, square and cube programs through8051 kits and MASM
CO5	To unpack BCD to ASCII using 8051 kit and use MASM software to stimulate and emulate

Course Name EC8661 VLSI DESIGN LABORATORY

CO1	Write HDL code for basic as well as advanced digital integrated circuits.
CO2	Model a Combinational circuit using hardware description language Verilog HDLand validate itsfunctionality
CO3	Model a Sequential circuit using hardware description language Verilog HDL andvalidate itsfunctionality
CO4	Import the logic modules into FPGA Boards.
CO5	Synthesize, Place and Route the digital IPs.

Course Name EC3501 Wireless Communication

CO1	Understand The Concept And Design Of A Cellular System.
CO2	Understand Mobile Radio Propagation And Various Digital Modulation Techniques
CO3	Understand The Concepts Of Multiple Access Techniques And Wireless Networks
CO4	Characterize a wireless channel and evolve the system design specifications
CO5	Design a cellular system based on resource availability and traffic demands

Course Name EC3552 VLSI and Chip Design

CO1	In depth knowledge of MOS technology
CO2	Understand Combinational Logic Circuits and Design Principles
CO3	Understand Sequential Logic Circuits and Clocking Strategies
CO4	Understand Memory architecture and building blocks
CO5	Understand the ASIC Design Process and Testing

Course Name HS8581 PROFESSIONAL COMMUNICATION

CO1	Implement the employability and career skills relevant to engineering as aprofession
CO2	Demonstrate a better understanding of the communication process by applying communication theories
CO3	Adapt the skills towards grooming as a professional
CO4	Execute and develop a planned approach towards building a career
CO5	Identify different types of personal interview skills through mock interviewsand practices

Course Name EC8701 ANTENNAS AND MICROWAVE ENGINEERING

CO1	Understand the basic principles of antennas , microwaves and its parameters
CO2	Evaluate the various parameters of antennas and microwave devices
CO3	Design of various types of antenna and microwave devices
CO4	Analyze and measure the performance of antennas
CO5	Implementation of antenna and microwave devices for real time application

SEMESTER 7

Course Name EC8751 OPTICAL COMMUNICATION

CO1	Recognize and classify the structures of optical fibers and types
CO2	Explain the signal degradation factors associated with optical fiber
CO3	Illustrate the characteristics optical sources & detectors and their use inoptical communication system
CO4	Discuss the fundamental Receiver operation, pre amplifiers andvarious parameter measurements & Coupling Techniques
CO5	Appraise the knowledge gain on fiber optic systems and networks

Course Name EC8791 EMBEDDED AND REAL TIME SYSTEMS

CO1	Outline the concepts of embedded systems. Describe the architecture andprogramming of ARM processor.
CO2	Describe the architecture and programming of ARM processor
CO3	Use the system design techniques to develop software for embedded systems
CO4	Explain the basic concepts of real time Operating system design.
CO5	Model real-time applications using embedded system concepts

Course Name EC8702 AD HOC AND WIRELESS SENSORNETWORKS

CO1	Describe the unique issues in adhoc/sensor networks
CO2	Explain the working principles of sensor nodes and sensor network architecture
CO3	Discuss the challenges in designing MAC and routing protocols for wireless ad hoc /sensor networks
CO4	Examine the challenges and issues in Transport layer protocol
CO5	Investigate security issues in wireless sensor networks and also examine thepossible solutions.

Course Name OBM752 HOSPITAL MANAGEMENT

CO1	Explain the principles of hospital administration.
CO2	Identify the importance of human resource management.
CO3	List various marketing research techniques.
CO4	Identify information management and its uses
CO5	Understand safety procedures followed in hospitals.

Course Name EC8711 EMBEDDED LABORATORY

CO1	Write programs in ARM for a specific Application
CO2	Interface memory and Write programs related to memory operations.
CO3	Interface A/D and D/A convertors with ARM system
CO4	Analyze the performance of interrupt.
CO5	Formulate a mini project using embedded system.

Course Name EC8761 ADVANCED COMMUNICATIONLABORATORY

CO1	Understand the basic operating principles of single mode, multimode fibers, lightsources, detectors
CO2	Design simple optical communication link by measuring the losses
CO3	Analyze the microwave passive devices like directional couplers, Tees, circulatorsand Isolators.
CO4	Analyze the characteristics of microwave vacuum tube source and semiconductorsource
CO5	Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER

SEMESTER 8

Course Name GE8076 PROFESSIONAL ELECTIVE IV (PROFESSIONAL ETHICS IN ENGINEERING)

CO1	To acquire the basic knowledge of human values, morals, ethics, industrial standards, code of ethics and role of professional ethics in theengineering field.
CO2	To have an awareness of professional rights and responsibilities of an engineer, and to have an understanding for safety and risk benefit analysis.
CO3	To imbibe the various ethical theories developed and apply them for a professional and societal advancement.
CO4	To imbibe adequate knowledge about the culture & the value system adopted by MNC's, local business houses and to create an ethical basedwork environment.
CO5	To understand and solve the employees' conflict & grievances in an amicable and ethical way.

Course Name EC8094 PROFESSIONAL ELECTIVE V(SATELLITE COMMUNICATION)

CO1	Recite the basic concepts of satellite orbits and its parameters
CO2	Explain various earth segment and space segment modules in the satellitesystem
CO3	Calculate Orbital parameters, Satellite link budget and its system performance
CO4	Analyze various access techniques and coding schemes in satellite systems
CO5	Compare various launching procedures of satellites and its application

Course Name EC8811 PROJECT WORK

CO1	Able to understand the concepts and design process of various electronicscircuits and communication engineering
CO2	To develop and implement innovative ideas.
CO3	Able to identify and solving the real time problems
CO4	Able to attain leadership quality.
CO5	Able to publish the Research Finding through conference and journals andable to get the patent