



SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, Affiliated to Anna University, Chennai, India)

Kaikkurichi, Pudukkottai – 622 303

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

REGULATION 2017

COURSE OUTCOMES (CO)

I SEMESTER

HS8151 COMMUNICATIVE ENGLISH

Students will be able to

CO1	Develop vocabulary of a general kind by developing their reading skills
CO2	Explain their opinions in English and Participate effectively in informal conversations; introduce themselves and their friends
CO3	Comprehend conversations and short talks delivered in English
CO4	Write short essays of a general kind and personal letters and emails in English
CO5	Develop their speaking skills and speak fluently in real contexts
CO6	Discuss about the general kind in magazines and newspapers

MA8151- ENGINEERING MATHEMATICS - I

Students will be able to

CO1	Apply the limit definition and rules of differentiation to differentiate functions
CO2	Apply differentiation to solve maxima and minima Problems.
CO3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus
CO4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables
CO5	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts
CO6	Apply various techniques in solving differential Equations.

PH8151 ENGINEERING PHYSICS

Students will be able to

CO1	Explain the basics of properties of matter and its Applications.
CO2	Describe the characteristics of laser light and their application in semiconductor laser
CO3	Discuss the principle behind the propagation of light through an optical fiber and its application in sensors
CO4	Summarize the different modes of heat transfer.
CO5	Relate the quantum concepts in electron microscopes
CO6	Describe the unit cell characteristics and the growth of Crystals.



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COURSE OUTCOMES (CO)

CY8151 ENGINEERING CHEMISTRY

Students will be able to

CO1	Summarize the water related problems in boilers and their treatment techniques
CO2	Discuss the applications of adsorption in the field of water and air pollution abatement
CO3	Discuss the types of catalysis and the mechanism of enzyme catalysis
CO4	Apply phase rule in the alloying and the behavior of one component and two component systems using phase diagram
CO5	Explain various types of fuels, their manufacturing processes and calculation of calorific theoretically
CO6	Summarize the principles and generation of energy in batteries ,nuclear reactors, solar cells, wind mills and fuelcells

GE8151- PROBLEM SOLVING AND PYTHON PROGRAMMING

Students will be able to

CO1	Explain the basics of fundamentals of computing
CO2	Describe the basics of algorithmic problem solving
CO3	Solve problems using Python conditionals and loops
CO4	Define Python functions and use function calls to solve problems
CO5	Apply Python data structures - lists, tuples, dictionaries to represent complex data
CO6	Explain the importance of Read and write data from to files in Python programs

GE8152- ENGINEERING GRAPHICS

Students will be able to

CO1	Explain the fundamentals and standards of Engineering graphics
CO2	Draw freehand sketching of basic geometrical constructions and multiple views of objects.
CO3	Design orthographic projections of lines and plane surfaces.
CO4	Draw projections and solids and development of surfaces.
CO5	Visualize and to project isometric sections of Simple solids.
CO6	Relate existing national standards to technical drawings.



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COURSE OUTCOMES (CO)

GE8161 PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY

Students will be able to

CO1	Develop algorithmic solutions to simple computational problems
CO2	Design and execute simple Python programs
CO3	Solve programs in Python using conditionals and loops for solving problems.
CO4	Apply functions to decompose a Python program.
CO5	Analyze compound data using Python data structures
CO6	Utilize Python packages in developing software Applications.

BS8161 PHYSICS AND CHEMISTRY LABORATORY

Students will be able to

CO1	Determine the Modulus of elasticity of materials and Coefficient of Viscosity of liquids
CO2	Determine the Thermal Conductivity of bad conductor using Lee's disc method
CO3	Determination of wavelength, and particle size using Laser and Determination of acceptance angle in an optical fiber
CO4	Calculate water quality parameters such as hardness, alkalinity of the given water sample.
CO5	Estimate the amount of the given acids using pH titrations.
CO6	Determine the amount of iron content in the given substance using potentiometric titration and Determine the amount of chloride content in the given water sample

II SEMESTER

HS32 HS8251- TECHNICAL ENGLISH

Students will be able to

CO1	Apply strategies in reading and comprehending engineering and technology text.
CO2	Use convincing job applications
CO3	Apply speaking skill to make technical presentations
CO4	Use the formats for effective report writing
CO5	Apply speaking skill to participate in group discussions.
CO6	Apply the active listening skills to comprehend lectures and technical talks.



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COURSE OUTCOMES (CO)

MA8251- ENGINEERING MATHEMATICS-II

Students will be able to

CO1	Explain about the Eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices
CO2	Apply Gradient, divergence and curl of a vector point function and related identities
CO3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification
CO4	Evaluate the problems based on Analytic functions, conformal mapping and complex integration
CO5	Explain about the Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients
CO6	Evaluate the linear second order differential equations with constant coefficients

PH8253- PHYSICS FOR ELECTRONICS ENGINEERING

Students will be able to

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	Get knowledge on magnetic properties
CO4	Establish knowledge on dielectric properties of materials
CO5	Explain the necessary understanding on the functioning of optical materials for optoelectronics
CO6	Comprehend the basics of quantum structures and their applications in Spintronics and carbon electronics



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COURSE OUTCOMES (CO)

BE8254-BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING

Students will be able to

CO1	Explain the concept of three phase power circuits and measurement
CO2	Comprehend the concepts in electrical generators, motors and transformers
CO3	Explain the principles of DC electrical machines
CO4	Explain the operation of AC electrical machines
CO5	Summarize the characteristics of the measuring instruments and its errors
CO6	Explain the working of different types of transducers, storage and display devices

EC8251- CIRCUIT ANALYSIS

Students will be able to

CO1	Explain the basic circuit elements, fundamental laws applied for circuits
CO2	Solve complex circuits using Mesh & Nodal Method
CO3	Deduce the complicated circuits into simple circuits using Theorems
CO4	Explain the concept of resonant theory and coupled circuits
CO5	Solve the RLC Transient circuits with DC and AC inputs
CO6	Compute the different types of two port parameters.

EC8252- ELECTRONIC DEVICES

Students will be able to

CO1	Describe the principle and characteristics of semiconductor diode
CO2	Analyze various transistor configurations
CO3	Construct large signal modeling and small signal modeling of a transistor
CO4	Describe the principle of operation and characteristics of special Semiconductor diodes
CO5	Discuss the operation of various semiconductor photo devices and power electronic devices Like LED, LCD & Opto electronic devices
CO6	Implement real time applications using electronic devices



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COURSE OUTCOMES (CO)

EC8261- CIRCUITS AND DEVICES LABORATORY

Students will be able to

CO1	Analyze the characteristics of basic electronic devices
CO2	Design RL and RC circuits
CO3	Verify KVL & KCL
CO4	Verify Thevinin & Norton theorems
CO5	Verify the Super Position Theorems
CO6	Explain the response of RLC circuit with different inputs

GE8261- ENGINEERING PRACTICES LABORATORY

Students will be able to

CO1	Fabricate carpentry components and pipe connections Including plumbing works.
CO2	Use welding equipments to join the structures
CO3	Carry out the basic machining operations
CO4	Make the models using sheet metal works
CO5	Carry out basic home electrical works and appliances
CO6	Measure the electrical quantities and elaborate and the components, gates ,soldering practices.

III SEMESTER

MA8352- LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS

Students will be able to

CO1	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
CO2	Demonstrate accurate and efficient use of advanced algebraic techniques.
CO3	Describe matrix representation of a linear Transformation.
CO4	Demonstrate their mastery by solving non - trivial problems related to the concepts and by proving simple theorems about the statements proven by the text.
CO5	Able to solve various types of partial differential equations.
CO6	Able to solve engineering problems using Fourier Series.



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COURSE OUTCOMES (CO)

EC8393- FUNDAMENTALS OF DATA STRUCTURES IN C

Students will be able to

CO1	Explain the features of C.
CO2	Explain the basic concepts of functions, structures of C.
CO3	Demonstrate linear and non-linear data structure operations using C
CO4	Choose appropriate linear structure for any given data set non-linear data
CO5	Choose appropriate non-linear data structure for any given data set
CO6	Relate hashing concept and sorting algorithm for a given problem.

EC8351- ELECTRONICS CIRCUITS-I

Students will be able to

CO1	Recall a structure of BJT & Describe the need for biasing
CO2	Summarize selection and working principle and characteristics of BJT and FET amplifiers.
CO3	Summarize selection and frequency response characteristics of BJT and FET amplifiers.
CO4	Demonstrate various biasing circuits for BJT, FET and MOSFET
CO5	Analyze the performance of small signal BJT and FET amplifiers.
CO6	Analyze the performance of single stage and multi stage amplifiers.

EC8352- SIGNALS AND SYSTEMS

Students will be able to

CO1	Represent basic continuous time and discrete time signals and systems.
CO2	Explain signal properties such as periodicity, even or odd, energy or power and system properties such as causality, linearity and time invariance
CO3	Find the response of an LTI System for a given continuous time or discrete time input signal
CO4	Determine the frequency response of periodic and aperiodic continuous time signals and discrete time signals
CO5	Convert a continuous time signal into discrete time signal and reconstruct the continuous time signal.
CO6	Summarize the LTI system using z-Transforms



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COURSE OUTCOMES (CO)

EC8392- DIGITAL ELECTRONICS

Students will be able to

CO1	Understand the number system representations, base conversions, Boolean algebra, Canonical forms
CO2	Apply the minimization technique for digital systems in many applications
CO3	Apply and implement combinational using logic functions
CO4	Explain and implement sequential circuits using logic functions
CO5	Summarize the characteristics of memory and implement digital functions using PLDs
CO6	Explain the logic families and their characteristics used in integrated circuits

EC8391- CONTROL SYSTEMS ENGINEERING

Students will be able to

CO1	Illustrate closed loop control systems for stability and study state performance.
CO2	Develop PD, PI and PID controllers for giving control System model using mat lab.
CO3	Compute gain and phase margins from bode diagrams and Nyquist plots in terms of stability.
CO4	Compute stability of linear systems using the routh array test and use this to generate control design constraints.
CO5	Illustrate the state space model of a physical system and discuss the concepts of sampled data control system.
CO6	Identify various transfer functions of digital control system using state variable models.



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COURSE OUTCOMES (CO)

EC8381- FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY

Students will be able to

CO1	Develop C programs for simple applications making use of basic construct
CO2	Illustrate the appropriate linear and nonlinear data structures in problem solving
CO3	Solve the problems using trees and Binary Search trees
CO4	Choose appropriate searching and sorting algorithm for an application and implement it in a modularized way
CO5	Capable to identify the appropriate data structure for given problem
CO6	Implement functions and recursive functions in using C Programming

EC8361- ANALOG AND DIGITAL CIRCUITS LABORATORY

Students will be able to

CO1	Design and test rectifiers filters and regulated power supplies.
CO2	Design and test BJT, FET amplifiers.
CO3	Analyze the limitation in bandwidth of single stage and multi stage amplifier
CO4	Simulate and analyze amplifier circuits using PSpice.
CO5	Design and Test the digital logic circuits.
CO6	Measure CMRR in differential amplifier

HS8381-INTERPERSONAL SKILLS/LISTENING & SPEAKING

Students will be able to

CO1	Listen and respond appropriately
CO2	Participate in group discussions
CO3	Develop communication skills.
CO4	Participate confidently and appropriately in conversations both formal and informal
CO5	Improve general and academic listening skills
CO6	Prepare effective presentations



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COURSE OUTCOMES (CO)

IV SEMESTER

MA8451- PROBABILITY AND RANDOM PROCESSES

Students will be able to

CO1	Explain the fundamental knowledge of the concepts of probability and have knowledge of Standard distributions which can describe real life phenomenon.
CO2	Explain the basic concepts of one and two dimensional random variables and apply in engineering applications.
CO3	Apply the concept random processes in engineering disciplines.
CO4	Explain and apply the concept of correlation and Spectral densities.
CO5	Explain the various distribution functions and acquiring skills in handling situations involving more than one variable
CO6	Analyze the response of random inputs to linear time invariant systems

EC8452- ELECTRONIC CIRCUITS II

Students will be able to

CO1	Analyze different types of feedback amplifier.
CO2	Design & Analyze of transistorized amplifier and Oscillator circuits.
CO3	Analyze transistorized tuned amplifier.
CO4	Analyze of wave shaping circuits.
CO5	Design & Analyze of Multivibrators.
CO6	Design & Analyze the operation of power amplifier and DC convertors.

EC8491- COMMUNICATION THEORY

Students will be able to

CO1	Describe the concepts of amplitude modulation system.
CO2	Summarize the concept of angle modulation System.
CO3	Solve communication engineering problems by applying the concepts of random process
CO4	Compare the noise performance of AM and FM Systems.
CO5	Analyze the principles of Sampling and quantization.
CO6	Design the PCM system.



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EC8451- ELECTRO MAGNETIC FIELDS

Students will be able to

CO1	Explain the basic mathematical concepts related to electromagnetic fields & Electrostatic fields
CO2	Interpret the concepts of electrical potential, energy density and their applications
CO3	Summarize the concepts of magneto statics, magnetic flux density, scalar and vector potential and its applications
CO4	Describe the concepts of Faradays law , Induced emf and Maxwell's equations to analyze the electrodynamics fields
CO5	Explain the basic concepts of electromagnetic waves, parameters and its propagation in lossy and in lossless medias.
CO6	Demonstrate the estimation of electric and magnetic field quantities.

EC8453-LINEAR INTEGRATED CIRCUITS

Students will be able to

CO1	Design linear applications of OP – AMPS
CO2	Design non linear applications of OP – AMPS
CO3	Design applications using analog multiplier and PLL
CO4	Design ADC and DAC using OP – AMPS
CO5	Generate waveforms using OP – AMP Circuits
CO6	To analyze special function ICs

GE291- ENVIRONMENTAL SCIENCE AND ENGINEERING

Students will be able to

CO1	Discover the public participation is an important aspect which serves the environmental protection
CO2	Describe the population explosion and family welfare programme and the value of education and human rights.
CO3	Recall public awareness of environmental is at infant stage
CO4	List the ignorance and incomplete knowledge has lead to misconceptions.
CO5	Development and improvement in standard. of living has lead to serious environmental disasters
CO6	Explain the various resources such as forest, mineralwater and case studies of land and energy resources



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COURSE OUTCOMES (CO)

EC8461- CIRCUITS DESIGN AND SIMULATION LABORATORY

Students will be able to

CO1	Define the various types of feedback amplifier
CO2	Analyze the design of oscillators, tuned amplifiers, wave-shaping circuits and multivibrators
CO3	Compare the design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits and multivibrators using SPICE Tool.
CO4	Interpret the basic procedure for all the semiconductor devices and circuits.
CO5	Design the RC phase shift and LC oscillators.
CO6	Design and implement of design of passive filters

EC8462- LINEAR INTEGRATED CIRCUITS LABORATORY

Students will be able to

CO1	Design amplifiers, oscillators, D-A converters using operational amplifiers.
CO2	Apply the concept of design filters using op-amp and performs an experiment on frequency response.
CO3	Analyze the working of PLL and describe its application as a frequency multiplier.
CO4	Design DC power supply using ICs.
CO5	Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE.
CO6	Acquire the basic knowledge of special function IC.



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COURSE OUTCOMES (CO)

V SEMESTER

EC8501- DIGITAL COMMUNICATION

Students will be able to

CO1	Discuss the concept of PCM systems
CO2	Describe the various waveform coding schemes and their performance
CO3	Match and implement base band transmission schemes
CO4	Select and implement band pass signaling schemes
CO5	Demonstrate the spectral characteristics of band pass signaling schemes and their noise performance
CO6	Design error control coding schemes

EC8553 DISCRETE-TIME SIGNAL PROCESSING

Students will be able to

CO1	To learn discrete Fourier transforms, properties of DFT and its application to linear filtering
CO2	To analyze the characteristics of digital filters, design digital IIR and FIR filters and apply these filters to filter undesirable signals in various frequency bands.
CO3	To describe the effects of finite precision representation on digital filters
CO4	To evaluate the fundamental concepts of finite word length effects and its applications
CO5	Explain the functionalities and architecture of DSP processors
CO6	To introduce the concepts of adaptive filters and its application to communication Engineering

EC8552 COMPUTER ARCHITECTURE AND ORGANIZATION

Students will be able to

CO1	Describe data representation, instruction formats and the operation of a digital computer
CO2	Illustrate the fixed point and floating-point arithmetic for ALU operation
CO3	Discuss about implementation schemes of control unit and pipeline performance
CO4	Explain the concept of various memories, interfacing and organization of multiple processors
CO5	Describe parallel processing unconventional architectures
CO6	Discuss about multiprocessor network topologies



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COURSE OUTCOMES (CO)

EC8551 COMMUNICATION NETWORKS

Students will be able to

CO1	Describe the division of network functionalities into layers.
CO2	Identify the components required to build different types of networks
CO3	Choose the required functionality at each layer for given application
CO4	Identify solution for each functionality at each layer
CO5	Trace the flow of information from one node to another node in the network
CO6	Summarize about routing and multicast routing

OMD551 BASICS OF BIOMEDICAL INSTRUMENTATION

Students will be able to

CO1	Describe the different bio potential and its propagation.
CO2	Compare the different types of electrodes and its placement for various recording
CO3	Design of bio amplifier for various physiological recording
CO4	Analyze different measurement techniques for non-physiological parameters
CO5	Explain the different biochemical measurements.
CO6	Describe the bio amplifiers and bio chemical instruments.

GE8073 MEDICAL ELECTRONICS

Students will be able to

CO1	Discuss the physiological parameters and recording methods of bioelectric signals
CO2	Explain the various bio chemical information
CO3	Explain the various physiological information
CO4	Illustrate the working of human assist devices used in hospitals and to know about telemetry principles
CO5	Describe the recent trends in diagnosis & Therapy
CO6	Analyze the physiological and chemical information



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EC8562 DIGITAL SIGNAL PROCESSING LABORATORY

Students will be able to

CO1	Carryout basic signal processing operations
CO2	Demonstrate their abilities towards MATLAB based implementation of various DSP systems
CO3	Explain the architecture of a DSP Processor
CO4	Illustrate and Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals
CO5	Summarize a DSP system for various applications of DSP
CO6	Demonstrate the architecture and addressing modes of TMS 320C5416 processor and design IIR and FIR filters using TMS 320C5416 processor

EC8561 COMMUNICATION SYSTEMS LABORATORY

Students will be able to

CO1	Develop & validate the various functional modules of a communication system
CO2	Demonstrate their knowledge in base band signaling Schemes through implementation of digital modulation schemes
CO3	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system
CO4	Develop end-to-end communication Link
CO5	Compute the line coding and channel coding schemes to improve the noise performance of communication systems through simulations.
CO6	Design and simulate various types of Digital modulation Using MATLAB

EC8563 COMMUNICATION NETWORKS LABORATORY

Students will be able to

CO1	Establishing communicate between two desktop computers
CO2	Implement the different protocols
CO3	Implement the Program using sockets.
CO4	Implement and compare the various routing algorithms
CO5	Utilize the simulation tool.
CO6	Analyze various types of topologies and understanding the differences between them.



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VI SEMESTER

EC8691 MICROPROCESSORS AND MICROCONTROLLERS

Students will be able to

CO1	Describe the architecture and different modes of operations of a typical microprocessor
CO2	Describe the architecture and different modes of operations of a typical microprocessor
CO3	Design Memory Interfacing circuits.
CO4	Design and interface I/O circuits.
CO5	Summarize and implement 8051 microcontroller based systems
CO6	Describe and compare the features of Microprocessor's and Microcontrollers.

EC8095 VLSI DESIGN

Students will be able to

CO1	Know the characteristic of CMOS circuits
CO2	Illustrate the concepts of digital building blocks using MOS transistor.
CO3	Design combinational MOS circuits and power strategies.
CO4	Design and construct Sequential Circuits and Timing systems.
CO5	Design arithmetic building blocks and memory subsystems.
CO6	Apply and implement FPGA design flow and testing.

EC8652 WIRELESS COMMUNICATION

Students will be able to

CO1	Characterize a wireless channel and evolve the system design specifications
CO2	Discuss the cellular system availability and traffic based resource demands
CO3	Design suitable signaling and multipath mitigation techniques for the wireless channel and system under consideration.
CO4	Analyze the characteristics of various wireless channels
CO5	Explain the concepts behind various digital signaling schemes for fading channels
CO6	Compare and implement systems with transmit/receive diversity



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MG8591 PRINCIPLES OF MANAGEMENT	
Students will be able to	
CO1	Explain the management evolution
CO2	Recall the functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management
CO3	Learn the various types of business organizations.
CO4	Explain the concept of different motivation theories.
CO5	Classify the various MNCs in the current global trends.
CO6	Explain the concept of strategic planning and tactical planning.

EC8651 TRANSMISSION LINES AND RF SYSTEMS	
Students will be able to	
CO1	Explain the characteristics of transmission lines and its losses.
CO2	Write about the standing wave ratio and impedance in high frequency transmission lines
CO3	Analyze about impedance matching by stubs using smith charts
CO4	Illustrate the characteristics of TE and TM waves
CO5	Design a RF transceiver system for wireless communication
CO6	Illustrate about the general wave behavior along uniform guiding structures transverse electromagnetic Waves.

EC8004 WIRELESS NETWORK	
Students will be able to	
CO1	Discuss with the latest 3G/4G networks and its architecture
CO2	Explain and implement wireless network environment for any application using latest wireless protocols and standards
CO3	Discuss about suitable network depending on the availability and requirement
CO4	Explain the different type of applications for smartphones and mobile devices with latest network strategies
CO5	Design and demonstrate wireless networks for various applications.
CO6	Compare the advantages of various networks



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EC8681 MICROPROCESSORS AND MICROCONTROLLERS LABORATORY

Students will be able to

CO1	Write ALP Programmes for fixed and Floating Point and Arithmetic operations
CO2	Interface different I/Os with processor
CO3	Simulate and Generate waveforms using Microprocessors using MASM
CO4	Execute Programs in 8051
CO5	Explain the difference between simulator and Emulator
CO6	Analyze the programming with control instructions in 8085

EC8661 VLSI DESIGN LABORATORY

Students will be able to

CO1	Write HDL code for basic as well as advanced digital integrated circuit
CO2	Apply the logic modules into FPGA Boards
CO3	Synthesize Place and Route the digital IPs
CO4	Design combinational and sequential circuits using VHDL.
CO5	Design, Simulate and Extract the layouts of Digital IC Blocks using EDA tools
CO6	Design, Simulate and Extract the layouts of Analog ICBlocks using EDA tools

EC8611 TECHNICAL SEMINAR

Students will be able to

CO1	Enrich the communication skills of the student technical topics of interest
CO2	Identify promising new directions of cutting edges technologies
CO3	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
CO4	Discuss and impart skills in preparing detailed report describing the project and results.
CO5	Discuss about effectively communicate by making an oral presentation before an evaluation committee
CO6	Discuss the technical quiz and Group Discussions programs



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

REGULATION 2017

COURSE OUTCOMES (CO)

HS8581 PROFESSIONAL COMMUNICATION

Students will be able to

CO1	Make effective presentations
CO2	Participate confidently in Group Discussions
CO3	Attend Job interviews and be successful in them
CO4	Develop adequate Soft Skills required for the workplace
CO5	Make them Employable Graduates
CO6	Develop their confidence and help them attend interviews successfully.

VII SEMESTER

EC8701 ANTENNA AND MICROWAVE ENGINEERING

Students will be able to

CO1	Apply the basic principles antenna parameters and link power budgets
CO2	Demonstrate and assess the performance of various antennas
CO3	Analyze the importance of the antenna array, uniform and non-uniform amplitude excitation and smart antenna.
CO4	Describe the concept of microwave semiconductor devices and tubes.
CO5	Illustrate a microwave system given the application specifications.
CO6	Design of microwave filter and microwave amplifier

EC8751 OPTICAL COMMUNICATION

Students will be able to

CO1	Realize the basic elements in optical fibers, different modes and configurations
CO2	Analyze the transmission characteristics associated with dispersion and polarization techniques
CO3	Explain optical sources and detectors with their use in optical communication system
CO4	Construct fiber optic receiver systems. Measurement and coupling techniques
CO5	Demonstrate optical communication systems and its networks
CO6	Describe various optical components and measuring instruments.



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COURSE OUTCOMES (CO)

EC8791 EMBEDDED AND REAL TIME SYSTEMS	
Students will be able to	
CO1	Describe the architecture and programming of ARM processor
CO2	Explain the concepts of embedded systems
CO3	Explain the basic concepts of real time operating system design
CO4	Apply the Model real-time applications using embedded-system concepts
CO5	Compare the MPSOCs and Shared memory multiprocessors.
CO6	Illustrate the multiple task and multi rate systems. Justify the inter process communication.

EC8702 ADHOC AND WIRELESS SENSOR NETWORKS	
Students will be able to	
CO1	Explain the basics of Adhoc networks and wireless sensor networks
CO2	Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement
CO3	Apply the knowledge to identify appropriate physical and MAC layer protocols
CO4	Describe the transport layer and security issues possible in Ad hoc and sensor networks
CO5	Illustrate the basic modules and OS used in wireless sensor networks
CO6	Analyse the programming challenges

GE 8071 DISASTER MANAGEMENT	
Students will be able to	
CO1	Explain and exposure to disasters, their significance and types.
CO2	Ensure that students begin to understand the relationship between vulnerability, disasters, disaster prevention and risk reduction
CO3	Explain the preliminary understanding of approaches of Disaster Risk Reduction (DRR)
CO4	Enhance awareness of institutional processes in the country
CO5	Develop rudimentary ability to respond to their surroundings with potential disaster response in areas where they live, with due sensitivity
CO6	Describe the Roles and Responsibilities of Panchayat, Urban and Legal bodies in Disaster Management



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COURSE OUTCOMES (CO)

OCS752 INTRODUCTION TO C PROGRAMMING

Students will be able to

CO1	Develop simple application using basic Constructs
CO2	Design and Implement applications using arrays
CO3	Develop application using functions and structures.
CO4	Design and Implement applications using strings
CO5	Decompose a C program into functions and pointers
CO6	Represent and write program using structure and union

EC8711 EMBEDDED LABORATORY

Students will be able to

CO1	Build a programs in ARM for a specific application
CO2	Interface memory, A/D and D/A convertors with ARM system
CO3	Analyze the performance of interrupt
CO4	Construct a program for interfacing keyboard, display, motor and sensor
CO5	Develop a mini project using embedded system
CO6	Develop a new interfacing program for different applications

EC8761 ADVANCED COMMUNICATION LABORATORY

Students will be able to

CO1	Explain the performance of simple optical link by measurement of losses
CO2	Analyzing the mode characteristics of fiber
CO3	Construct the Eye Pattern, Pulse broadening of optical fiber and the impact on BER
CO4	Estimate the Wireless Channel Characteristics of Wireless Communication System
CO5	Analyze the performance of Wireless Communication System
CO6	Illustrate the intricacies in Microwave System design



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COURSE OUTCOMES (CO)

VIII SEMESTER

EC8076 PROFESSIONAL ETHICS IN ENGINEERING

Students will be able to

CO1	Describe basic purpose of profession, professional ethics and various moral and social issues
CO2	Outline of professional rights and responsibilities of a Engineer, safety and risk benefit analysis of a Engineer
CO3	Utilize acquiring knowledge of various roles of Engineer in applying ethical principles at various professional levels
CO4	Define professional Ethical values and contemporary issues
CO5	Relate in competitive and challenging environment to contribute to industrial growth.
CO6	Choose academic learning with experimental learning in a profession.

EC8094 SATELLITE COMMUNICATION

Students will be able to

CO1	Analyze the different types of satellites
CO2	Find the orbital determination and launching methods.
CO3	Analyze the earth segment and space segment
CO4	Analyze the satellite Link design
CO5	Learn the Comparison of Multiple access methods
CO6	Design various satellite applications

EC8811 PROJECT WORK

Students will be able to

CO1	Develop the ability to solve a specific problem right from its identification.
CO2	Review on literatures and learn more about the problem and its solutions.
CO3	Develop the analytical skills, requirement analysis, design skills.
CO4	Learn the various system modules for implementing the project useful for the society and testing with experimental data.
CO5	Train the students in preparing projects reports and to face reviews and viva voce examination.
CO6	Choose academic learning with experimental learning in a profession