PRATHYUSHA ENGINEERING COLLEGE

DEPARTMENT OF ECE (R-2017)

I SEMESTER

S.NO	COURSE CODE	COURSE NAME	CO1	CO2	CO3	CO4	CO5
1	HS8151	COMMUNICATIVE ENGLISH	To read articles of a general kind in magazines and newspapers	To participate effectively in informal conversations	To introduce themselves and their friends and express opinions in English	To comprehend conversations and short talks delivered in English	To write short essays of a general kind and personal letters and emails in English
2	MA8151	ENGINEERING MATHEMATICS – I	To use differentiation to solve maxima and minima problems	To use integration methods to do multiple integrals	To evaluate integrals using substitution techniques, partial fractions and integration by parts	To determine convergence/divergence of improper integrals and evaluate convergent improper integrals	To apply various techniques in solving differntial equations
3	PH8151	ENGINEERING PHYSICS	To analyse the properties of matter and its applications	The anlayse the properties of waves and optical devices and their applications in fibre optics	To analyse the thermal properties of materials and their applications in expansion joints and heat exchangers	To analyse the characteristics of advanced physics concepts of quantum theory and its applications in tunneling miccroscopes	To anlayse the characterists of basics of crystals their structures and different crystal growth techniques
4	CY8151	ENGINEERING CHEMISTRY	To analyse the boiler water requirements, related problems and water	To undersatand the phase rule and its application	To anlayse the properties and applications of engineering materials	To use the calorific value calculations, manufacutre of solid, liquid and gaseous fuels	To understand the generation of energy in batteries, nuclear reacotrs, solar cells, wind mills and fuel cells.

			treatment techniques				
5	GE8151	PROBLEM SOLVING AND PYTHON PROGRAMMING	To write algorithmic problem solving	To read and write Python programs using condition and loops	To write programs using functins	To write programs in data structures - lists, tuples, dictionaries	To write programs perform input and output operation with files
6	GE8152	ENGINEERING GRAPHICS	To understand the standards of Engineering graphics	To perform freehand sketching of basic geometrical constructions and multiple views of objects	To project orthographic projections of lines and plane surfaces	To draw projections and solids and development of surfaces	To visulaize and to project isometric and perspective sections of simple solids
7	GE8161	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	To write, test and debug Python programs.	To implement Python programs with conditional and loops.	To develop Python programs with functions.	To develop programs using Python lists, tuples and dictionaries	To read and write data from/to files
8	BS8161	PHYSCIS AND CHEMISTRY LABORATORY	To analyse the influence of optical properties in engineering applications	To analyse the influence of thermal properties in engineering applications	To analyse the influence of elastic properties in engineering applications	To determine the water quality parameters through volumetric and instrumental analysis	To determine the molecular weight of a polymer by viscometery method

		III SEMESTER					
1	MA8352	Linear Algebra and Partial Differential Equations	Solve the basic objects associated with the vector spaces and linear transformation s	Apply the concepts on eigen values and eigen vectors of a linear transformation of a matrix	Analyse the basic concepts of inner product spaces and Least square approximation	Evaluate the PDE and the various solution produces for first order PDE	Analyse the Fourier series concepts to apply for solving Initial boundary value problems.
2	EC8393	Fundamentals of Datastucture in C	Design problem solotion using basic concept in c	Apply the concept of function,pointers, structure,stoarge class and preprocessor	Impliment and suggest appropriate linear and non linear data structure operation using C	Apply,design and analysis variouse graph concept to give soluion for real time application	Apply the concept of different sorting technique for real time apllication
3	EC8351	Electronic Circuits - I	Design of different types of biasing circuit for BJT and MOSFET	Design and analysis of BJT amplifier circuits	Design and analysis of MOSFET amplifier circuits	Evaluate the performance of low frquency and high frequency amplifier circuits	Design of rectifier cirucits and power supply circuits
4	EC8352	SIGNALS AND SYSTEMS	Ability to determine given signlas are causal, non-causal, systems are linear/non-linear.	Capable to determine the frequency response using Laplace transform and Frequency transform.	Design of LTI-CT systems	Able to analyse DT signal using DTFT and Z-Transform.	Design of LTI DT systems

5	EC8392	DIGITAL ELECTRONICS	Analyse different methods used for simplification of boolean expression	Design various combinational digital circuits using logic gates	Analysis and design procedurs for synchronous sequential circuits	Analysis and design procedurs for asynchronous sequential circuits	Design semiconductor memories using various techniques
6	EC8381	Control Systems	Identify the various control system components and their representations	Analyze the various time domain specifications	Analyze the various frequency lpots and systems	Apply the concepts of various system stability criterions	Design the various transfer functions of digital control systems
7	EC8392	Fundamentals of Datastucture in C Lab	Design and implementation of basic concepts in C.	Design and implementation of stack, queue using array.	Design and implementationof stack, queue using linked list.	Design and implementationof Binary Search Tree.	Design and implementationof Quick sort.
8	EC8361	Analog and Circuits Lab	Analyse the frequency response of different amplifiers using BJT and FET.	Analyse the frequency response of amplifiers using SPICE.	Design and implementation of code converters, Adder/Subtractor, Multiplexer/De-Multiplexer, Encoder/Decoder.	Design and implementation of counters.	Design and implementation of shift registers.
9	HS8381	InterpersonalSkills/ Listening &Speaking	To acquire the skill to listen and respond appropriately.	To participate in group discussions.	To make effective presentations.	To participate confidently and appropriately in formal conversations.	To participate confidently and appropriately in informal conversation

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		IV SEMESTER					
1	MA8451	Probability and Random Processes	· Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.	· Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.	· Apply the concept random processes in engineering disciplines.	· Understand and apply the concept of correlation and spectral densities.	· The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random inputs to linear time invariant systems.

2	EC8452	Electronic Circuits II	Analyze different types of amplifier, oscillator and multivibrator circuits	· Design BJT amplifier and oscillator circuits	· Analyze transistorized amplifier and oscillator circuits	· Design and analyze feedback amplifiers	Design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multivibrators, power amplifier and DC convertors.
3	EC8491	Communication Theory	· Design AM communication systems	Design Angle modulated communication systems	· Apply the concepts of Random Process to the design of Communication systems	· Analyze the noise performance of AM and FM systems	Gain knowledge in sampling and quantization
4	EC8451	Electromagnetic Fields	Analyze the requisite of vectors in Electromagnetics	Explain the concepts and solve simple problems requiring estimation of Electric fields	Explain the concepts and solve simple problems requiring estimation of Electric fields	Describe coupling between electric and magnetic fields through Maxwells equation	Infer electromagnetic wave propagation in lossy and lossless media
5	EC8453	Linear Integrated Circuits	· Design linear and non linear applications of OP – AMPS	· Design applications using analog multiplier and PLL	Design ADC and DAC using OP – AMPS	· Generate waveforms using OP – AMP Circuits	Analyze special function ICs

6	GE8291	Environmental Science and Engineering	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.	· Public awareness of environmental is at infant stage.	Ignorance and incomplete knowledge has lead to misconceptions	· Development and improvement in std. of living has lead to serious environmental disasters	
7	EC8461	Circuits Design and Simulation Laboratory	To analyse the different types of feedback amplifiers	To design oscillators, tuned amplifier circuits.	To design wave-shaping circuits and multivibrator circuits.	To design and simulate feedback amplifiers, oscillators and tuned amplifiers using SPICE tool.	To design and simulate wave shaping and multivibrator circuits using SPICE tool.
8	EC8462	LinearI ntegrated Circuits Laboratory	To design amplifiers, oscillators, D-A converters using operational	To design and analyse frequency response of filters using op-amp.	To analyse the working of PLL .	To design DC power supply using ICs.	To analyse the performance of filters, multivibrators, A/D

			amplifiers.				converter and analog multiplier using SPICE.
		V SEMESTER					
1	EC8501	Digital Communication	Ability to represent signal as basis function and convert analog signals to digital signals	Ability to use source and channel coding in the design of a digital communication system.	Ability to evaluate the performance of digital communication system using different modulation schemes.	Ability to design matched and correlation receivers for a digital communication system.	
2	EC8553	Discrete Time Signal Processing	Apply DFT for the analysis of digital signals and systems	Design of IIR filters using Impulse invariant method and Bilinear Transformation	Design of FIR filters using Fourier Series method,Winodwing technique and Frequency Sampling Technique	Analyze the Characteristics of finite precision representation on digital filters	Design of multirate filters and adaptive filters
3	EC8552	Computer Architecture and Organisation	To understand the basic structures and instruction formats of digital computer	To understand the concepts of fixed and floating point arthimetic operations	To design and implement the schemes of control unit and pipeline performance	To discuss the various memory interfacing and organization of multiple processors	To discuss the parallel processing technique and unconventio nal architectures

4	EC8551	Communication Networks	Identify the components required to build different types of networks with each functionality, different error schemes and flow control mechanisms used in link layer services.	Choose the required transmission medium for various specific applications with its required protocols	Trace the flow of information from one to another node in the network.	Identify solution for each functionality at Transport layer to maintain the QoS in data transmission.	Understand the traditional applications with its Functionalities and protocols involved in these applications.
5	GE8077	Total Quality Management	Apply the knowledge of TQM relevant to both manufacturing and service industry invluding IT sector.	Design the tools and techniques for quality management.	Analyze various quality management teamwork.	Apply the knowledge on various ISO standards and quality system.	Design the organization for performance excellence by analyzing issues and evaluating functional areas.
6	OMD551	Biomedical Instrumentation	To identify different biopotentials and its propagation	To familiarise with the different electrode placement for various physiological recording	To design Bio Amplifier for various physiological recording	To identify the appropriate technique for non electrical physiological measurements	To analyse and interpret different biochemical measurements

7	EC8562	DigitalSignalProcessingLaboratory	To develop basic signal processing operations.	To demonstrate the implementation of DSP systems.	To analyze the architecture of DSP processor.	To design and implement the FIR and IIR filters in DSP processor for performing filtering operation over real-time signals.	To design DSP system for different applications of DSP.
8	EC8561	Communication Networks Lab	To communicate between two desktop computers.	To implement the different protocols.	To program using sockets.	To implement various network topology.	To implement and compare the various routing algorithms.
9	E8563	CommunicationSystemsLaboratory	To analyse the effects of sampling and TDM.	To implement AM and FM modulation and demodulation.	To implement PCM and DM modulation.	To simulate and anlayse Digital modulation schemes.	To simulate and analyse Error control coding schemes.
	VI semester						
1	EC8691	Microprocessorsand Microcontrollers	Understand and execute programs based on 8086 microprocessor.	· Design Memory Interfacing circuits.	Understand and Analyse various architecture	· Design and interface I/O circuits.	· Design and implement 8051 microcontroller based systems.
2	EC8095	VLSIDesign	· Realize the concepts of digital building blocks using MOS transistor.	· Design combinational MOS circuits and power strategies.	Design and construct Sequential Circuits and Timing systems.	·Design arithmetic building blocks and memorysubsystems.	Apply and implement FPGA design flow and testing.

3	EC8652	WirelessCommunication	Characterize a wireless channel and evolve the system design specifications	• Design a cellular system based on resource availability and traffic demands	Identify suitable signaling and multipath mitigation techniques for the wireless channel and system under consideration.	Analyse various Modulation techniques for fading channels	Analyse various multiplexing techniques based on channels and transmitter-receiver diversity
4	MG8591	PrinciplesofManagement	To identify and analyze the function of management in global and economic trends	To analyze and evaluate the steps involved in planning and decision making as a team work	To evaluate the need for organizing activity as life long process.	To identify the process of recruitment, leadership for effective communication	To evaluate and analyze the need for quality controlling in various application area.
5	EC8651	Transmission LinesandRFSystems	Explain the propagation of Low Frequency signal through Transmission Lines	Analyze the signal propagation at Radio frequencies.	Utilizing the smith chart to solve Transmission lines & impedance matching of the network.	Elobarate radio propagation in guided system & determine the field configuration	Design of RF transceiver systems
6	EC8004	Wireless Networks	Analyze & review the different WLAN technologies architecture & their layers.	Design an appropriate routing protocols for MANET	To analyze the performance of radio network components	To analyze the performance of different archietecture in WWAN	Implement different types of applications for smart phones & mobiles devices with

							latest network strategies.
7	EC8681	Microprocessor and Microcontroller Laboratory	To develop ALP program for fixed and floating point arithmetic operations using 8086.	To develop ALP program to interface different I/Os with processor.	To generate waveforms using microprocessors.	To write ALP program for arithmetic operations using 8051.	To compare simulator and emulator.
8	EC8661	VLSI Design Lab	To develop program using HDL code for basic and advanced digital integrated circuit.	To analyse the principles of VLSI circuit design in digital and analog domain.	To import the logic modules into FPGA boards.	To synthesize place and route the digital IPs.	To design, simulate and extract the layouts of digital and analog IC blocks using EDA tools.
9	HS8581	PROFESSIONAL COMMUNICATION	To enhance the employability and career skills	To orient students towards grooming professional	To make the graduate employable	To enable the students attend interviews	To develop the required soft skills
VII semester							
1	EC8701	Antennas and Microwave Engineering	Explain the propagation of signalsthrough transmission lines	Analyse signal propagation at radio frequencies	Explain the various types of antennas and wave propagation.	Write about the radiation from a current element.	Analyze the antenna arrays, aperture antennas and special

							antennas such as frequency independent and broad band
2	EC8702	AdHoc and Wireless Sensor Networks	Analyse the basic of Adhoc network and wireless sensor network	Identify the suitable routing algorithm	Identify appropriate physical and MAC layer protocols	Design of transport layer and security issues in Adhoc and sensor networks	To build wireless sensor networks using basic modules
3	EC8751	Optical Communication	Discuss the various optical fiber modes and configurations	To Analyze various signal degradation factors associated with optical fiber.	Explain the various optical sources and optical detectors and their use in the optical communication system	Analyze the digital transmission and its associated parameters on system performance	To study the optical Networks and its performance such as SONET/SDH and optical CDMA
4	EC8791	Embedded and Real Systems	Interpert the concepts of embedded computing and ARM processor.	Examine the designing in embedded computing.	Explain the process involved in embedded design and RTOS.	Apply the systems design techniques to develop software programming for embedded systems.	Design real time applications model using embedded systems concepts.

5	GE8071	Disaster Management	To understand the roles of the various phases of disaster	To acuire the knowledge of mitagation planning	To analyze the factors of short term and long term recovery	To analyze the vulnerbility in disaster	To understand the roles of state and central government
6	OME752	Supply Chain Management	To Understand fundamental supply chain management concepts.	To Analyse the design factors and various design options of distribution networks in industries	To Understand the foundational role of logistics as it relates to transportation and warehousing.	To realize the various sourcing decisions and co-ordination in supply chain	To examine the supply chain management in IT industries
7	EC8711	Embedded Lab	To develop programs in ARM processor for different applications.	To interface memory, A/D and D/A convertors with ARM system.	To analyse the performance of interrupt.	To develop program for interfacing keyboard and display.	To develop program for interfacing motor and sensor.
8	EC8761	Advanced Communication Lab	To analyse the characteristics of optical sources, detector and fibers	To analyse the performance of optical link by measuring losses	To analyse the eye pattern, pulse broadening of optical fiber and the impact on BER	To analyze the performance of wireless communication system	To analyze the performance of microwave communication system
	VIII semester						
1	GE 8076	PROFESSIONAL ETHICS IN ENGINEERING	The students should be able to apply human values and morals in life	To discus the ethical issues related to Engineering	The students should be able to apply Engineering ethics in society	To realize the responsiblities and rights in the society	To discuss the global issues in ethics

2	EC8702	Satellite Communication	Identify the principles, concepts and operation of satellite communicatio n systems by designing orbits taking into consideration the influential factors.	Analyse the signal propagation effects, rain fading, perform interference calculations and design link budget expressions.	Identify and formulate modulation techniques and error correction codes for satellite communication using software tools.	Use software tools to simulate and analyse the performance of satellite communication systems, and use real satellite up/down links (subject to the availability of satellite links) to conduct link experiments	Analyse, identify and design the multiple access techniques to be employed for various satellite communicati on systems and its applications.
3	EC8811	Project Work	Identification of domain, Literature review and formulation of the problem	Analyse the data collected using specific modern engineering tools to interpret the results and provide valid conclusions	Examine the analysed result towards social relevance of its applications	Visually represent the results in the form of graphs and compare with existing systems	Identify future enhancemnet s in broader comtext of technology