

PRATHYUSHA ENGINEERING COLLEGE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING (R-2013)

S.NO	COURSE CODE	COURSE NAME	CO1	CO2	CO3	CO4	CO5
Odd Semester		I SEMESTER					
1	HS6151	Technical English – I	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	MA6151	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 differential equations
3	PH6151	Engineering Physics – I	To analyse the properties of matter and its applications	The analyse 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 microscopes	To analyse the characteristics of basics of crystals their structures and different crystal growth techniques
4	CY6151	Engineering Chemistry – I	To analyse the boiler water requirements, related problems and water treatment techniques	To understand the phase rule and its application	To analyse the properties and applications of engineering materials	To use the calorific value calculations, manufacture of solid, liquid and gaseous fuels	To understand the generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.
5	GE6151	Computer Programming	To write algorithmic problem solving	To read and write C programs using condition and loops	To write programs using functions	To write programs in data structures - lists, Array, Stack.	To write programs perform input and output operation with files
6	GE6152	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 visualize and to project isometric and perspective sections of simple solids
7	GE6161	Computer Practices Laboratory	To write, test and debug C programs.	To implement C programs with conditional and loops.	To develop C programs with functions.	To develop programs using Python lists, tuples and dictionaries.	To read and write data from/to files
8	GE6162	Engineering Practices Laboratory	To perform basic carpentry works.	To perform basic welding, foundry, smithy and machine operations.	To perform the basic electrical appliances work and measure electrical quantities.	To perform basic measurement using electronic equipment.	To design circuits in PCB using soldering.
9	GE6163	Physics 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 viscometry method.
Even Semester		II SEMESTER					
1	HS6251	Technical English – II	To read technical texts and write area-specific texts effortlessly	To listen and comprehend lectures and talks in their area of specialisation successfully	To speak appropriately and effectively in varied formal and informal contexts	To listening to a document and make notes	To acquire the skill group discussion and write job applications
2	MA6251	Mathematics – II	To determine eigen values and eigen vectors	To determine the gradient, divergence and curl of a vector point function and related identities	To evaluate line, surface and volume integrals using Gauss, Stokes and Green's theorem	To determine analytic functions, conformal mapping and complex integration	To determine Laplace transform and inverse transform

3	PH6251	Engineering Physics – II	To analyse the characteristics of classical and quantum electron theories and energy band structures	To analyse the semiconductor characteristics and its applications in various devices	To analyse the characteristics of magnetic and dielectric properties of materials	To analyse the functions of optical materials for optoelectronics	To analyse the characteristics of quantum structures
4	CY6251	Engineering Chemistry – II	To make the students conversant with boiler feed water requirements, related problems and water treatment techniques.	Principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of	Principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.	Preparation, properties and applications of engineering materials.	Types of fuels, calorific value calculations, manufacture of solid, liquid and gaseous fuels.
5	EC6201	Electronic Devices	To analyse the characteristics of semiconductor diodes	To analyse the characteristics of BJT	To analyse the characteristics of FET	To analyse the characteristics of special semiconductor devices	To analyse the characteristics of power devices and display devices
6	EE6201	Circuit Theory	To analyse the characteristics of networks topology	To analyse and apply network theorems for DC and AC circuits	To analyse the resonance and coupled circuits	To analyse the transient response of RC, RL and RLC circuits	To analyse the two port networks using Z, Y, H parameters
7	GE6262	Physics and Chemistry Laboratory	To analyse the influence of elastic properties in engineering applications.	To analyse the influence of thermal properties in engineering applications.	To analyse the influence of water conservation in engineering applications.	To determine the water quality parameters through volumetric and instrumental analysis.	To determine the corrosion measurement and cement analysis
8	EC6211	Circuits and Devices Laboratory	To analyse the characteristics of diode, BJT and FET.	To analyse the characteristics of SCR, clipper, clamper circuits.	To analyse the characteristics of Rectifier circuits.	To analyse the verify different theorems.	To analyse the working of RL, RC and RLC circuits.
S.NO	COURSE CODE	COURSE NAME	CO1	CO2	CO3	CO4	CO5
Odd Semester		III SEMESTER					
1	MA6351	Linear Algebra and Partial Differential Equations	Solve the basic objects associated with the vector spaces and linear transformations	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	EC6301	Object oriented Programming and Data Structures	Design problem solution using basic concept in c	Apply the concept of function, pointers, structure, storage class and preprocessor	Implement and suggest appropriate linear and non linear data structure operation using C	Apply, design and analysis various graph concept to give solution for real time application	Apply the concept of different sorting technique for real time application
3	EC6304	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 frequency and high frequency amplifier circuits	Design of rectifier circuits and power supply circuits
4	EC6303	SIGNALS AND SYSTEMS	Ability to determine given signals 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	EC6302	DIGITAL ELECTRONICS	Analyse different methods used for simplification of boolean expression	Design various combinational digital circuits using logic gates	Analysis and design procedures for synchronous sequential circuits	Analysis and design procedures for asynchronous sequential circuits	Design semiconductor memories using various techniques
6	EC6405	Control Systems Engineering	Identify the various control system components and their representations	Analyse the various time domain specifications	Analyse the various frequency plots and systems	Apply the concepts of various system stability criterions	Design the various transfer functions of digital control systems

7	EC8381	Analysis of Data Structures in C	Design and implementation of basic concepts in C.	Design and implementation of stack, queue using array.	Design and implementation of stack, queue using linked list.	Design and implementation of Binary Search Tree.	Design and implementation of Quick sort.
8	EC6311	analog and Digital 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	EC6312	OPS and Data Structures Lab	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 conversations.

IV SEMESTER							
S.NO	COURSE	COURSE NAME	CO1	CO2	CO3	CO4	CO5
1	MA6451	Probability and Random Processes	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can be used in engineering applications.	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.
2	EC6401	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 converters.
3	EC6402	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	EC6403	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	EC6404	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	EC6405	Control System Engineering	Identify the various control system components and their representations	Analyze the various time domain specifications	Analyze the various frequency plots and systems	Apply the concepts of various system stability criterions	Design the various transfer functions of digital control systems
7	EC8461	Design and Simulation Lab	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	Linear Integrated Circuits Laboratory	To design amplifiers, oscillators, D-A converters using operational amplifiers.	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 converter and analog multiplier using SPICE.

V SEMESTER

S.NO	COURSE	COURSE NAME	CO1	CO2	CO3	CO4	CO5
1	EC6501	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	EC6502	PRINCIPLES OF DIGITAL 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, Windowing technique and Frequency Sampling Technique	Analyze the Characteristics of finite precision representation on digital filters	Design of multirate filters and adaptive filters
3	EC6503	TRANSMISSION LINES AND WAVEGUIDES	Explain the propagation of signal through transmission lines	Analyse signal propagation at radio frequencies	Utilise smith chart to solve transmission lines and impedance matching problems	Design various passive filters	Elaborate radio propagation in guided system and determining the field configuration
4	EC6504	MICROPROCESSOR AND MICROCONTROLLER	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.
5	GE6351	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	
6	EC6511	Digital Signal Processing Laboratory	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.
7	EC6512	Communication Systems Laboratory	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 analyse Digital modulation schemes.	To simulate and analyse Error control coding schemes.
8	EC6513	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.

VI SEMESTER

S.NO	COURSE	COURSE NAME	CO1	CO2	CO3	CO4	CO5
1	EC6001	Medical Electronics	Interpret and analyze various recording methods and computer aided devices for biomedical applications.	Demonstrate measuring of basic medical parameters	Interpret the various assist devices used in hospitals such as pacemakers, defibrillators, dialyzers and ventilators.	Apply safety standards and select disposal methods and procedures for electrical diagnostic equipment.	Analyze the current trends in medical instrumentation
2	EC6601	VLSI Design	Design & analyze of CMOS transistor & its scaling	Design of different types of combinational logic circuits and power dissipation analyzes	Analyze & Design the sequential circuit using different methodology	Design of various Components of building blocks	Analyze the architecture of ASIC & FPGA building blocks
3	CS6303	Computer Architecture	To understand the basic structures and instruction formats of digital computer	To understand the concepts of fixed and floating point arithmetic 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 unconventional architectures
4	MG6851	Principles of Management	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	CS6551	Computer 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.
6	EC6602	Antenna & Wave propagation	Explain the propagation of signal through 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
7	EC6611	Computer 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.

8	EC6612	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 LEDA tools.
9	GE6674	Communication and Soft Skills - Laboratory Based	To be totally learner-centric with minimum teacher intervention as the course revolves around practice.	Suitable audio/video samples from Podcast/YouTube to be used for illustrative purposes.	Portfolio approach for writing to be followed. Learners are to be encouraged to blog, tweet, text and email employing appropriate language.	GD/Interview/Role Play/Debate could be conducted off the laboratory (in a regular classroom) but learners are to be exposed to telephonic interview and video conferencing.	Learners are to be assigned to read/write/listen/view materials outside the classroom as well for gaining proficiency and better participation in the class

S.NO	COURSE	COURSE NAME	CO1	CO2	CO3	CO4	CO5
1	EC6701	RF & Microwave Engineering	Analyze 2 port network and the basics of Scattering parameter with S matrix formulation	Analyze the RF transistor Amplifier and design the different matching Network.	Acquire knowledge about various components of Microwave	Analyze the characteristics of Cavity Resonator, Reflex Klystron, and Magnetron Oscillator.	Measurement and Analyze the microwave signals with its parameter.
2	EC6702	Optical Communication and Networks	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.
3	EC6703	Embedded Systems and Real Time Systems	Interpret 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.
4	EC6004	SATELLITE COMMUNICATION	Identify the principles, concepts and operation of satellite communication 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 communication systems and its applications.
5	EC6011	ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY	The students would gain enough knowledge to understand concept of EMI related to product design	Analyse the different EM coupling principles and its impact on performance of electronic system	Analyse EMI concepts on Susceptibility and immunity	Analyse the present leading edge industry standards in different countries.	Gain broad knowledge on EM radiation measurement techniques.
6	EC6015	RADAR AND NAVIGATIONAL AIDS	Analyze various types of radar equipment and measurement systems.	Understand the operation of Moving Target Indicator and pulse Doppler radar and calculate range and location of the target	Analyze features of Radar transmitters and receivers and design amplifiers using modern tools.	Distinguish different navigation systems and analyse the performance of the navigational systems	Compare Navigation aids, conduct experiments for direction finding and range of travel of aircrafts using modern tools.
7	EC6711	EMBEDDED LABORATORY	To develop programs in ARM processor for different applications.	To interface memory, A/D and D/A converters 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	EC6712	Optical and Microwave Laboratory	Analyze the performance of simple optical link.	Test microwave and optical components.	Analyse the mode characteristics of fiber	Analyse the radiation of pattern of antenna.	Analyse about the characteristics and measurements in optical fiber
Even Semester		VIII SEMESTER					
1	GE 6757	TOTAL QUALITY MANAGEMENT	Apply the knowledge of TQM relevant to both manufacturing and service industry including 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.
2	GE6075	PROFESSIONAL ETHICS IN ENGINEERING	The students should be able to apply human values and morals in life	To discuss the ethical issues related to Engineering	The students should be able to apply Engineering ethics in society	To realize the responsibilities and rights in the society	To discuss the global issues in ethics
3	EC6801	WIRELESS COMMUNICATIONS	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	EC6802	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 architecture in WWAN	Implement different types of applications for smart phones & mobiles devices with latest network strategies.
5	EC6811	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 enhancements in broader context of technology


 HOD

FRATHTYUSHA ENGINEERING COLLEGE
DEPARTMENT OF ECE (R-2017)

1 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 differential equations
3	PH8151	ENGINEERING PHYSICS	To analyse the properties of matter and its applications	The analyse 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 microscopes	To analyse the characteristics 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 treatment	To understand the phase rule and its application	To analyse the properties and applications of engineering materials	To use the calorific value calculations, manufacture of solid, liquid and gaseous fuels	To understand the generation of energy in batteries, nuclear reactors, solar cells, wind mills
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 functions	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 visualize 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	PHYSICS 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 viscometry method

II SEMESTER							
1	HS8251	TECHNICAL ENGLISH	To read technical texts and write area-specific texts effortlessly	To listen and comprehend lectures and talks in their area of specialisation successfully	To speak spontaneously and effectively in varied formal and informal contexts	To listen to a document and make notes	To accept the shift group discussion and write job applications
2	MA8251	ENGINEERING MATHEMATICS – II	To determine eigen values and eigen vectors	To determine the gradient, divergence and curl of a vector point function and related identities	To evaluate line, surface and volume integrals using Gauss, Stokes and Green's theorem	To determine analytic functions, conformal mapping and complex integration	To determine Laplace transform and inverse transform
3	PH8253	PHYSICS FOR ELECTRONICS ENGINEERING	To analyse the characteristics of classical and quantum electron theories and energy band structures	To analyse the semiconductor characteristics and its applications in various devices	To analyse the characteristics of magnetic and dielectric properties of materials	To analyse the functions of optical materials for optoelectronics	To analyse the characteristics of quantum structures
4	BE8254	BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING	To analyse the characteristics of AC circuits and power systems	To analyse the working of Transformer	To analyse the working of DC machines	To analyse the working of AC machines	To analyse the measuring instruments for given applications
5	EC8251	CIRCUIT ANALYSIS	To analyse the characteristics of networks topology	To analyse and apply network theorems for DC and AC circuits	To analyse the resonance and coupled circuits	To analyse the transient response of RC, RL and RLC circuits	To analyse the two port networks using Z, Y, H parameters
6	EC8252	ELECTRONIC DEVICES	To analyse the characteristics of semiconductor diodes	To analyse the characteristics of BJT	To analyse the characteristics of FET	To analyse the characteristics of special semiconductor devices	To analyse the characteristics of power devices and display devices
7	EC8261	Circuits and Devices Laboratory	To analyse the characteristics of diode, BJT and FET.	To analyse the characteristics of SCR, clipper, clamper circuits.	To analyse the characteristics of Rectifier circuits.	To analyse the verify different theorems.	To analyse the working of RL, RC and RLC circuits.
8	GE8261	Engineering Practices Laboratory	To perform basic carpentry works.	To perform basic welding, foundry, smithy and machine operations.	To perform the basic electrical appliances work and measure electrical quantities.	To perform basic measurement using electronic equipment.	To design circuits in PCB using soldering.
III SEMESTER							
1	MA8352	Linear Algebra and Partial Differential Equations	Solve the basic objects associated with the vector spaces and linear transformations	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 Datastructure in C	Design problem solution using basic concept in c	Apply the concept of function, pointers, structure, storage class and preprocessor	Implement and suggest appropriate linear and non linear data structure operation using C	Apply, design and analysis various graph concept to give solution for real time application	Apply the concept of different sorting technique for real time application
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 frequency and high frequency amplifier circuits	Design of rectifier circuits and power supply circuits
4	EC8352	SIGNALS AND SYSTEMS	Ability to determine given signals 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 procedures for synchronous sequential circuits	Analysis and design procedures 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 plots and systems	Apply the concepts of various system stability criterions	Design the various transfer functions of digital control systems
7	EC8392	Fundamentals of Datastructure in C Lab	Design and implementation of basic concepts in C.	Design and implementation of stack, queue using array.	Design and implementation of stack, queue using linked list.	Design and implementation of Binary Search Tree.	Design and implementation of 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	Interpersonal Skills/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 conversations.
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 converters.
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 mismanagement	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	Linear Integrated Circuits Laboratory	To design amplifiers, oscillators, D-A converters using operational amplifiers.	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 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, Windowing technique and Frequency Sampling Technique	Analyze the Characteristics of finite precision representation of 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 arithmetic 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 unconventional 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 including 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 analyse Digital modulation schemes.	To simulate and analyse Error control coding schemes.

VI semester

1	EC8691	MicroprocessorsandMicrocontrollers	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 memory subsystems.	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.	Elobrate 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 architecture in WWAN.	Implement different types of applications for smart phones & mobiles devices with latest network strategies.
7	EC8681	Microprocessor and Microcontroller Lab	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 signal through 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 spacial 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	Interpret 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	Identify the roles of the various phases	To acquire the knowledge of mitigation planning	To analyze the factors of short term	To analyze the vulnerability 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 converters 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	EC 8072	EMC	The students would gain enough knowledge to understand concept of EMI related to product design	Analyse the different EM coupling principles and its impact on performance of electronic system	Analyse EMI concepts on Susceptibility and immunity	Analyse the present leading edge industry standards in different countries.	Gain broad knowledge on EM radiation measurement techniques.
2	EC8702	Satellite Communication	Identify the principles, concepts and operation of satellite communication 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 communication 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 enhancements in broader context of technology

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