

Institute of Engineering
 Department of Electronics & Telecommunication Engineering

Course Outcomes

FE		
FE-2015	COs	Course Outcome
104012 Basic Electronics Engineering	104012.1	To give knowledge of some basic electronic components and circuits.
	104012.2	To introduce basics of diode and transistor circuits
	104012.3	To understand working of some IC based circuits
	104012.4	To study logic gates and their usage in digital circuits.
	104012.5	To expose the students to working of some power electronic devices, transducers and application of transducers.
	104012.6	To introduce basic aspect of electronic communication systems.
	104012.7	The associated Laboratory Practical course is designed to understand working of various Electronic circuits. The students will understand how to use the basic test and measuring instruments to test the circuits.
SE semester-I		
SE-2015	COs	Course Outcome
204181 Signals & Systems	204181 .1	Understand mathematical description and representation of continuous and discrete time signals and systems.
	204181 .2	Develop input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system
	204181 .3	Understand and resolve the signals in frequency domain using Fourier series and Fourier transforms.
	204181 .4	Understand the limitations of Fourier transform and need for Laplace transform and develop the ability to analyze the system in s-domain.
	204181 .5	Understand the basic concept of probability, random variables & random signals and develop the ability to find correlation, CDF, PDF and probability of a given event
204182 Electronic Devices & Circuits	204182 .1	Comply and verify parameters after exciting devices by any stated method.
	204182.2	Implement circuit and test the performance
	204182 .3	Analyze small signal model of FET and MOSFET
	204182 .4	Explain behavior of FET at low frequency
	204182.5	Design an adjustable voltage regulator circuits
204183 Electrical Circuits and Machines	204183.1	Analyze basic AC & DC circuit for voltage, current and power by using KVL, KCL, and network theorems
	204183.2	Explain the working principle of different electrical machines.
	204183.3	Select proper electrical motor for given application.
	204183.4	Design and analyze transformers

204184 Data Structures and Algorithms	204184 .1	Discuss the computational efficiency of the principal algorithms such as sorting & searching.
	204184 .2	Write and understand the programs that use arrays & pointers in C
	204184 .3	Describe how arrays, records, linked structures are represented in memory and use them in algorithms.
	204184 .4	Implement stacks & queues for various applications.
	204184 .5	Understand various terminologies and traversals of trees and use them for various applications.
	204184 .6	Understand various terminologies and traversals of graphs and use them for various applications.
204185 Digital Electronics	204185 .1	Use the basic logic gates and various reduction techniques of digital logic circuit in detail
	204185 .2	Design combinational and sequential circuits
	204185.3	Design and implement hardware circuit to test performance and application.
	204185 .4	Understand the architecture and use of microcontrollers for basic operations and Simulate using simulation software.
204186 Electronic Measuring Instruments & Tools	204186 .1	Understand fundamental of various electrical measurements
	204186.2	Understand and describe specifications, features and capabilities of electronic instruments
	204186 .3	Finalize the specifications of instrument and select an appropriate instrument for given measurement
	204186 .4	Carry out required measurement using various instruments under different setups.
	204186 .5	Able to compare measuring instruments for performance parameters
	204186 .6	Select appropriate instrument for the measurement of electrical parameter professionally
SE semester-II		
SE-2015	COs	Course Outcome
	207005.1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits
207005 Engineering Mathematics -III	207005.2	Solve problems related to Fourier transform, Z-transform and applications to Communication systems and Signal processing
	207005.3	Obtain Interpolating polynomials, numerically differentiate and integrate functions, numerical solutions of differential equations using single step and multi-step iterative methods used in modern scientific computing
	207005.4	Perform vector differentiation and integration, analyze the vector fields and apply to Electro-Magnetic fields
	207005.5	Analyze conformal mappings, transformations and perform contour integration of complex functions in the study of electrostatics and signal processing.
204187 Integrated Circuits	204187.1	Understand the characteristics of IC and Op-Amp and identify the internal structure
	204187.2	Understand and identify various manufacturing techniques
	204187.3	Derive and determine various performances based parameters and their significance for Op-Amp
	204187.4	Comply and verify parameters after exciting IC by any stated method
	204187.5	Analyze and identify the closed loop stability considerations and I/O limitations
	204187.6	Analyze and identify linear and nonlinear applications of Op-Amp

	204187.7	Understand and verify results (levels of V & I) with hardware implementation
	204187.8	Implement hardwired circuit to test performance and application for what it is being designed
	204187.9	Understand and apply the functionalities of PLL to Frequency synthesizer, multiplier, FM, and AM demodulators
204188 Control Systems	204188.1	Determine and use models of physical systems in forms suitable for use in the analysis and design of control systems
	204188.2	Determine the (absolute) stability of a closed-loop control system
	204188.3	Perform time domain and frequency domain analysis of control systems required for stability analysis
	204188.4	Perform time domain and frequency domain correlation analysis.
	204188.5	Apply root-locus, Frequency Plots technique to analyze control systems
	204188.6	Express and solve system equations in state variable form
204189 Analog Communications	204189.1	Understand and identify the fundamental concepts and various components of analog communication systems
	204189.2	Explain signal to noise ratio, noise figure and noise temperature for single and cascaded stages in a communication system
	204189.3	Describe analog pulse modulation techniques and digital modulation technique.
	204189.4	Develop the ability to compare and contrast the strengths and weaknesses of various communication systems
204190 Object Oriented Programming	204190.1	Describe the principles of object oriented programming
	204190.2	Apply the concepts of data encapsulation, inheritance in C++
	204190.3	Understand basic program constructs in Java
	204190.4	Apply the concepts of classes, methods and inheritance to write programs Java
	204190.5	Use arrays, vectors and strings concepts and interfaces to write
		programs in Java
	204190.6	Describe and use the concepts in Java to develop user friendly program
204191 Employability skill development	204191.1	Have skills and preparedness for aptitude tests
	204191.2	Be equipped with essential communication skills (writing, verbal and non-verbal)
	204191.3	Master the presentation skill and be ready for facing interviews
	204191.4	Build team and lead it for problem solving
TE semester-I		
TE-2015	COs	Course Outcome
304181 Digital Communication	304181.1	Understand working of waveform coding techniques and analyse their performance.
	304181.2	Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.
	304181.3	Perform the time and frequency domain analysis of the signals in a digital communication system.
	304181.4	Design of digital communication system.
	304181.5	Understand working of spread spectrum communication system and analyze its performance.

304182 Digital Signal Processing	304182.1	Analyze the discrete time signals and system using different transform domain techniques.
	304182.2	Design and implement LTI filters for filtering different real world signals.
	304182.3	Develop different signal processing applications using DSP processor.
304183 Electromagnetics	304183.1	Understand the basic mathematical concepts related to electromagnetic vector fields.
	304183.2	Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.
	304183.3	Apply the principles of magnetostatics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.
	304183.4	Understand the concepts related to Faraday's law, induced emf and Maxwell's equations.
	304183.5	Apply Maxwell's equations to solutions of problems relating to transmission lines and uniform plane wave propagation.
304184 Microcontrollers	304184.1	Learn importance of microcontroller in designing embedded application
	304184.2	Learn use of hardware and software tools.
	304184.3	Develop interfacing to real world devices.
304185 Mechatronics	304185.1	Identification of key elements of mechatronics system and its representation in terms of block diagram
	304185.2	Understanding basic principal of Sensors and Transducer.
	304185.3	Able to prepare case study of the system given.
304193 Electronic System Design	304193.1	Apply the fundamental concepts and working principles of electronics devices to design electronics systems.
	304193.2	Shall be able to interpret datasheets and thus select appropriate components and devices
	304193.3	Select appropriate transducer and signal conditioning circuit to design prototype of Data Acquisition system.
	304193.4	Design an electronic system/sub-system and validate its performance by simulating the same.
	304193.5	Shall be able to use an EDA tool for circuit schematic and simulation.
	304193.6	Create, manage the database and query handling using suitable tools.
TE semester-II		
TE-2015	COs	Course Outcome
304186 Power Electronics	304186.1	Design & implement a triggering / gate drive circuit for a power device
	304186.2	Understand, perform & analyze different controlled converters.
	304186.3	Evaluate battery backup time & design a battery charger.
	304186.4	Design & implement over voltage / over current protection circuit.
304187 Information Theory Coding Techniques and Communication Networks	304187.1	Perform information theoretic analysis of communication system.
	304187.2	Design a data compression scheme using suitable source coding technique.
	304187.3	Design a channel coding scheme for a communication system.
	304187.4	Understand and apply fundamental principles of data communication and networking.

	304187.5	Apply flow and error control techniques in communication networks.
304188 Business Management	304188.1	Get overview of Management Science aspects useful in business.
	304188.2	Get motivation for Entrepreneurship
	304188.3	Get Quality Aspects for Systematically Running the Business
	304188.4	To Develop Project Management aspect and Entrepreneurship Skills.
304189 Advanced Processors	304189.1	Describe the ARM microprocessor architectures and its feature.
	304189.2	Interface the advanced peripherals to ARM based microcontroller
	304189.3	Design embedded system with available resources.
	304189.4	Use of DSP Processors and resources for signal processing applications.
304190 System Programming and Operating System	304190.1	Demonstrate the knowledge of Systems Programming and Operating Systems
	304190.2	Formulate the Problem and develop the solution for same.
	304190.3	Compare and analyze the different implementation approach of system programming operating system abstractions.
	304190.4	Interpret various OS functions used in Linux / Ubuntu
304196 Employability Skills and Mini Project	304196.1	Understand, plan and execute a Mini Project with team.
	304196.2	Implement electronic hardware by learning PCB artwork design, soldering techniques, testing and troubleshooting etc.
	304196.3	Prepare a technical report based on the Mini project.
	304196.4	Deliver technical seminar based on the Mini Project work carried out.
BE semester-I		
BE-2015	COs	Course Outcome
404181 VLSI Design & Technology	404181.1	Write effective HDL coding for digital design.
	404181.2	Apply knowledge of real time issues in digital design.
	404181.3	Model digital circuit with HDL, simulate, synthesis and prototype in PLDs.
	404181.4	Design CMOS circuits for specified applications.
	404181.5	Analyze various issues and constraints in design of an ASIC
	404181.6	Apply knowledge of testability in design and build self test circuit.
404182 Computer Networks & Security	404182.1	Understand fundamental underlying principles of computer networking
	404182.2	Describe and analyze the hardware, software, components of a network and the interrelations.
	404182.3	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies
	404182.4	Have a basic knowledge of installing and configuring networking applications.
	404182.5	Specify and identify deficiencies in existing protocols, and then go onto select new and better protocols.
	404182.6	Have a basic knowledge of the use of cryptography and network security.
404183 Radiation and Microwave Techniques	404183.1	Differentiate various performance parameters of radiating elements.
	404183.2	Analyze various radiating elements and arrays.
	404183.3	Apply the knowledge of waveguide fundamentals in design of transmission lines.
	404183.4	Design and set up a system consisting of various passive microwave components.

	404183.5	Analyze tube based and solid state active devices along with their applications.
	404183.6	Measure various performance parameters of microwave components.
404184 Internet of Things (Elective-I)	404184.1	On completion of the course, student will be able to
	404184.2	Understand the various concepts, terminologies and architecture of IoT systems.
	404184.3	Use sensors and actuators for design of IoT.
	404184.4	Understand and apply various protocols for design of IoT systems
	404184.5	Use various techniques of data storage and analytics in IoT
	404184.6	Understand various applications of IoT
404185 Electronic Product Design (Elective-II)	404185.1	Understand various stages of hardware, software and PCB design.
	404185.2	Importance of product test & test specifications.
	404185.3	Special design considerations and importance of documentation.
BE Semester-II		
BE-2015	COs	Course Outcome
404189 Mobile Communication	404189.1	Apply the concepts of switching technique and traffic engineering to design multistage networks.
	404189.2	Explore the architecture of GSM.
	404189.3	Differentiate thoroughly the generations of mobile technologies.
404190 Broadband Communication systems	404190.1	Perform Link power budget and Rise Time Budget by proper selection of components and check its viability.
	404190.2	Perform Satellite Link design for Up Link and Down Link.
404191 (Elective III) PLC & Automation (Elective III)	404191.1	Understand PLC architecture
	404191.2	Develop PLC ladder programs for simple industrial applications
	404191.3	Design Automation systems for industrial applications
	404191.4	Implement the Engineering Automation using PLC approach.
404191 Audio Video Engineering (Elective III)	404191.1	Apply the fundamentals of Analog Television and Colour Television standards.
	404191.2	Explain the fundamentals of Digital Television, DTV standards and parameters.
	404191.3	Study and understand various HDTV standards and Digital TV broadcasting systems and acquainted with different types of analog, digital TV and HDTV systems.
	404191.4	Understand acoustic fundamentals and various acoustic systems.
404194 Wireless Sensor Networks (Elective-IV)	404194.1	Explain various concepts and terminologies used in WSN
	404194.2	Describe importance and use of radio communication and link management in WSN
	404194.3	Explain various wireless standards and protocols associated with WSN
	404194.4	Recognize importance of localization and routing techniques used in WSN
	404194.5	Understand techniques of data aggregation and importance of security in WSN
	404194.6	Examine the issues involved in design and deployment of WSN