Department of Electronics and Telecommunication

SE – 2015 Course			
Course Code	**Course Name**		**Course Outcomes**
204181	**Signals & Systems**	CO1	Understand mathematical description and representation of continuous and discrete time signals and systems.
		CO2	Develop input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system.
		CO3	Understand and resolve the signals in frequency domain using Fourier series and Fourier transforms.
		CO4	Understand the limitations of Fourier transform and need for Laplace transform and develop the ability to analyze the system in s- domain.
		CO5	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**	CO1	Comply and verify parameters after exciting devices by any stated method.
		CO2	Implement circuit and test the performance.
		CO3	Analyze small signal model of FET and MOSFET
		CO4	Explain behavior of FET at low frequency.
		CO5	Design an adjustable voltage regulator circuits.
204183	**Electrical**	CO1	Analyze basic AC & DC circuit for voltage, current and power by using KVL, KCL, andnetwork theorems

		CO2	Explain the working principle of different electrical machines.
		CO3	Select proper electrical motor for given application
		CO4	Design and analyze transformers.
204184	**Data Structures and Algorithms**	CO1	Discuss the computational efficiency of the principal algorithms such as sorting & searching.
		CO2	Write and understand the programs that use arrays & pointers in C
		CO3	Describe how arrays, records, linked structures are represented in memory and use them in algorithms.
		CO4	Implement stacks & queues for various applications.
		CO5	Understand various terminologies and traversals of trees and use them for various applications.
		CO6	Understand various terminologies and traversals of graphs and use them for various applications.
204185	**Digital Electronics**	CO1	Use the basic logic gates and various reduction techniques of digital logic circuit in detail.
		CO2	Design combinational and sequential circuits.
		CO3	Design and implement hardware circuit to test performance and application.
		CO4	Understand the architecture and use of microcontrollers for basic operations and Simulate using simulation software
204186	**Electronic Measuring Instruments &Tools**	CO1	Understand fundamental of various electrical measurements.
		CO2	Understand and describe specifications, features and capabilities of electronic instruments

		CO3	Finalize the specifications of instrument and select an appropriate instrument for given measurement
		CO4	Carry out required measurement using various instruments under different setups.
		CO5	Able to compare measuring instruments for performance parameters
		CO6	Select appropriate instrument for the measurement of electrical parameter professionally
SE – 2015 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester – IV			
207005	**Engineering MIII**	CO1	Solve higher order linear differential equation using appropriate techniques for modeling and analyzing electrical circuits.
		CO2	Solve problems related to Fourier transform, Z-transform and applications to Communication systems and Signal processing.
		CO3	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.
		CO4	Perform vector differentiation and integration, analyze the vector fields and apply to Electro-Magnetic fields.
		CO5	Analyze conformal mappings, transformations and perform contour integration of complex functions in the study of electrostatics and signal processing.

204187	**Integrated Circuits**	CO1	Understand the characteristics of IC and Op-Amp and identify the internal structure.
		CO2	Understand and identify various manufacturing techniques.
		CO3	Derive and determine various performances based parameters and their significance for Op-Amp.
		CO4	Comply and verify parameters after exciting IC by any stated method
		CO5	Analyze and identify the closed loop stability considerations and I/O limitation
		CO6	Analyze and identify linear and nonlinear applications of Op-Amp
		CO7	Understand and verify results (levels of V & I) with hardware implementation.
		CO8	Implement hardwired circuit to test performance and application for what it is being designed.
		CO9	Understand and apply the functionalities of PLL to Frequency synthesizer, multiplier, FM, and AM demodulators
204188	**Control Systems**	CO1	Determine and use models of physical systems in forms suitable for use in the analysis and design of control systems
		CO2	Determine the (absolute) stability of a closed-loop control system.
		CO3	Perform time domain and frequency domain analysis of control systems required for stability analysis
		CO4	Perform time domain and frequency domain correlation analysis

		CO5	1. Apply root-locus, Frequency Plots technique to analyze control systems.
		CO6	Express and solve system equations in state variable form.
204189	**Analog**	CO1	Understand and identify the fundamental concepts and various components of analogcommunication systems
		CO2	1. Explain signal to noise ratio, noise figure and noise temperature for single and cascaded stages in a communication system.
		CO3	1. Describe analog pulse modulation techniques and digital modulation technique.
		CO4	Develop the ability to compare and contrast the strengths and weaknesses of variouscommunication systems
204190	**Object Oriented Programming**	CO1	Describe the principles of object oriented programming
		CO2	Apply the concepts of data encapsulation, inheritance in C++.
		CO3	Understand basic program constructs in Java
		CO4	Apply the concepts of classes, methods and inheritance to write programs Java
		CO5	Use arrays, vectors and strings concepts and interfaces to write programs in Java.
		CO6	Describe and use the concepts in Java to develop user friendly program,
204191	**Employability Skill Development**	CO1	Have skills and preparedness for aptitude test
		CO2	Be equipped with essential communication skills

			(writing, verbal and non-verbal)
		CO4	Master the presentation skill and be ready for facing interviews
		CO5	Build team and lead it for problem solving.
Semester – III			
204181	**Signals & Systems**	CO1	Understand mathematical description and representation of continuous and discrete time signals and systems.
		CO2	Develop input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system.
		CO3	Understand and resolve the signals in frequency domain using Fourier series and Fourier transforms.
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SE – 2015 Course		
Course Code	**Course Name**	**Course Outcomes**
Semester – IV		

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Department of Electronics and Telecommunication

TE – 2015 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester –V			
304181	**Digital Communication**	CO1	Understand working of waveform coding techniques and analyse their performance
		CO2	Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.
		CO3	Perform the time and frequency domain analysis of the signals in a digital communication system.
		CO4	Design of digital communication system
		CO5	Understand working of spread spectrum communication system and analyze its performance.
304182	**Digital Signal Processing**	CO1	Analyze the discrete time signals and system using different transform domain techniques.
		CO2	Design and implement LTI filters for filtering different real world signals
		CO3	Develop different signal processing applications using DSP processor
304183	**Electromagnetics**	CO1	Understand the basic mathematical concepts related to electromagnetic vector fields.
		CO2	Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.
		CO3	Apply the principles of magnetostatics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.
		CO4	Understand the concepts related to Faraday‘s law, induced emf and Maxwell‘s equations.
		CO5	Apply Maxwell‘s equations to solutions of problems relating to transmission lines and uniform plane wave propagation.
304184	**Microcontrollers**	CO1	Learn importance of microcontroller in designing embedded application

		CO2	Learn use of hardware and software tools.
		CO3	Develop interfacing to real world devices.
304185	**Mechatronics**	CO1	Identification of key elements of mechatronics system and its representation in terms of block diagram
		CO2	Understanding basic principal of Sensors and Transducer
		CO3	Able to prepare case study of the system given.
304193	**Electronic System Design**	CO1	Apply the fundamental concepts and working principles of electronics devices to design electronics systems.
		CO2	Shall be able to interpret datasheets and thus select appropriate components and devices
		CO3	Select appropriate transducer and signal conditioning circuit to design prototype of Data Acquisition system.
		CO4	Design an electronic system/sub-system and validate its performance by simulating the same.
		CO5	Shall be able to use an EDA tool for circuit schematic and simulation.
		CO6	Create, manage the database and query handling using suitable tools.
TE – 2015Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester – VI			
304186	**Power Electronics**	CO1	Design & implement a triggering / gate drive circuit for a power device
		CO2	Understand, perform & analyze different controlled converters.
		CO3	Evaluate battery backup time & design a battery charger.
		CO4	Design & implement over voltage / over current protection circuit.
304187	**Information Theory, Coding and Communication Networks**	CO1	Perform information theoretic analysis of communication system
		CO2	Design a data compression scheme using suitable source coding technique.
		CO3	Design a channel coding scheme for a

			communication system.
		CO4	Understand and apply fundamental principles of data communication and networking
		CO5	Apply flow and error control techniques in communication networks.
304188	**Business Management**	CO1	Get overview of Management Science aspects useful in business.
		CO2	Get motivation for Entrepreneurship
		CO3	Get Quality Aspects for Systematically Running the Business
		CO4	To Develop Project Management aspect and Entrepreneurship Skills
306189	**Advanced Processors**	CO1	Describe the ARM microprocessor architectures and its feature
		CO2	Interface the advanced peripherals to ARM based microcontroller
		CO3	Design embedded system with available resources
		CO4	Use of DSP Processors and resources for signal processing applications.
304190	**System Programming and Operating Systems**	CO1	Demonstrate the knowledge of Systems Programming and Operating Systems
		CO2	Formulate the Problem and develop the solution for same.
		CO3	Compare and analyse the different implementation approach of system programming operating system abstractions.
		CO4	Interpret various OS functions used in Linux / Ubuntu
304196	**Employability Skills and Mini Project**	CO1	Understand, plan and execute a Mini Project with team.
		CO2	Implement electronic hardware by learning PCB artwork design, soldering techniques, testing and troubleshooting etc
		CO3	Prepare a technical report based on the Mini project
		CO4	Deliver technical seminar based on the Mini Project work carried out

Department of Electronics and Telecommunication

BE – 2015 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester –VII			
404181	**VLSI Design &**	CO1	Write effective HDL coding for digital design
		CO2	Apply knowledge of real time issues in digital design.
		CO3	Model digital circuit with HDL, simulate, synthesis and prototype in PLDs.
		CO4	Design CMOS circuits for specified applications.
		CO5	Analyze various issues and constraints in design of an ASIC
		CO6	Apply knowledge of testability in design and build self test circuit
404182	**Computer Networks & Security**	CO1	Understand fundamental underlying principles of computer networking
		CO2	Describe and analyze the hardware, software, components of a network and their interrelations.
		CO3	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies
		CO4	Have a basic knowledge of installing and configuring networking applications.
		CO5	Specify and identify deficiencies in existing protocols, and then go onto select new and better protocols
		CO6	Have a basic knowledge of the use of cryptography and network security.
404183	**Radiation & Microwave Techniques**	CO1	Differentiate various performance parameters of radiating elements
		CO2	Analyze various radiating elements and arrays.
		CO3	Apply the knowledge of waveguide fundamentals in design of transmission lines
		CO4	Design and set up a system consisting of various passive microwave components.
		CO5	Analyze tube based and solid state active devices along with their applications.
		CO6	Measure various performance parameters of

			microwave components.
404184	**Embedded System and RTOS**	CO1	understand design of embedded system
		CO2	use RTOS in embedded application
		CO3	use modern architecture for embedded system
		CO4	use Linux for embedded system development
		CO5	use open platform for embedded system development
404185	**Electronics Product Design**	CO1	Understand various stages of hardware, software and PCB design
		CO2	Importance of product test & test specifications.
		CO3	Special design considerations and importance of documentation.
		CO1	

BE – 2015 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester – VIII			
404189	**Mobile Communication**	CO1	Apply the concepts of switching technique and traffic engineering to design multistage networks.
		CO2	Explore the architecture of GSM
		CO3	Differentiate thoroughly the generations of mobile technologies.
404190	**Broadband Communication Systems**	CO1	Perform Link power budget and Rise Time Budget by proper selection of components and check its viability.
		CO2	Perform Satellite Link design for Up Link and Down Link.
404191	**Audio Video Engineering (Elective III)**	CO1	Apply the fundamentals of Analog Television and Colour Television standards.
		CO2	Explainthe fundamentals of Digital Television, DTV standards and parameters.
		CO3	Study and understand various HDTV standards and Digital TV broadcasting systems and acquainted with different types of analog, digital TV and HDTV

			systems.
		CO4	Understandacoustic fundamentals and various acoustic systems.
404194	**Renewable Energy Systems (Elective-IV)**	CO1	Interpret energy reserves of India and potential of different energy sources.
		CO2	Measure the solar radiation parameters and performance of different solar collectors
		CO3	Calculate different parameters of wind turbine rotor.
		CO4	Implicit the importance and applications of geothermal and ocean energy
		CO5	Demonstrate knowledge in field of fuel cell and potential for power generation.
404195	**Project Phase-II**	CO1	Students will be able to Learn teamwork
		CO2	Students will be able to Be well aware about Implementation phase
		CO3	Students will be able to Get exposure of various types of testing methods and tools
		CO4	Students will be able to Understand the importance of documentation