Department of Electronics and Telecommunication

SE – 2012 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester – III			
24181	**Signals & Systems**	CO1	Understand the basic signals and their classification, perform operations on signals
		CO2	Understand and identify the systems based on their properties
		CO3	Understand, identify the system based on their properties in terms impulse response and also solve the convolution integral and sum
		CO4	Understand, and resolve the signals in frequency domain using Fourier series and Fourier transform. Find the amplitude spectrum, phase spectrum of the various signals and also systems. Analyze the system in frequency domain
		CO5	Understand, and resolve the signals in complex frequency domain using Laplace Transform. Analyze the system in s – domain. Characterize the system in s-domain. Apply Laplace transforms to analyze electrical circuits.
		CO6	Understand, apply and determine the correllogram, auto correlation, cross correlation, energy spectral density, and power spectral density of discrete and continuous signals. Carry out the system analysis and inter play between frequency and time domain.
		CO7	Understand the basic concept of probability, random variables and random signals. Calculate the CDF, PDF and probability of a given event. Calculate the mean, mean square, variance and standard deviation for given random variables using pdf.
204182	**Electronics Devices and Circuits**	CO1	Understand and apply basic and semiconductor principles to the device to observe its performance.
		CO2	Comply and verify parameters after exciting devices by

			any stated method
		CO3	Simulate electronics circuits using computer simulation software to obtain desired results
		CO4	Understand and verify simulated circuit with hardware implementation
		CO5	Implement hardwired circuit to test performance and application for what it is being designed
		CO6	Analyze and model BJT and MOSFET for small signal
		CO7	Understand and apply concept of feedback to improve stability of circuits.
		CO8	Understand behavior of transistors at low and high frequency.
204183	**Network Theory**	CO1	Understand, Analyze the basic AC and DC circuits using KCL,KVL and network Theorems
		CO2	Determine the voltages, currents, power and impedances at various nodes and loops using all the simplification techniques.
		CO3	Understand and apply graph theory to solve network equations
		CO4	Understand, and calculate the initial conditions of RL, RC circuits
		CO5	Formulate, solve the differential equations for RL, RC, and RLC circuits and carry out the transient analysis.
		CO6	Understand, identify and analyze the series, parallel resonance circuits, calculate the bandwidth, selectivity, Q-factor also.
		CO7	Understand, analyze and design prototype LC filters and Resistive attenuators
		CO8	Characterize; model the network in terms of all network parameters and analyze.
		CO9	Understand and formulate the network transfer function in s-domain and pole, zero concept
204184	**Data structures & Algorithms**	CO1	Choose the data structures that effectively model the information in a problem
		CO2	Judge efficiency trade-offs among alternative data structure implementations or combinations.
		CO3	Apply algorithm analysis techniques to evaluate the

			performance of an algorithm and to compare data structures
		CO4	Implement and know when to apply standard algorithms for searching and sorting.
		CO5	Design, implement, test, and debug programs using a variety of data structures including lists, stacks, queues, hash tables, binary tree structures, search trees, heaps, graphs
204185	**Digital Electronics**	CO1	Understand the basic logic gates and various variable reduction techniques of digital logic circuit in detail
		CO2	Understand, identify and design combinational and sequential circuits
		CO3	Design and implement hardware circuit to test performance and application for what it is being designed.
		CO4	Simulate and verify using computer simulation software to obtain desired result.
		CO5	Understand and verify simulated circuit model with hardware implementation
204186	**Electronic Measuring Instruments & Tools**	CO1	Understand fundamental of measurements of various electrical parameters.
		CO2	Aware and identify the control panels of measuring and generating instruments.
		CO3	Understand and describe specifications, features and capabilities of electronic instruments
		CO4	Select appropriate instrument for the measurement of electrical parameter professionally.
		CO5	Finalize the specifications of instrument and select an appropriate instrument for given measurement
		CO6	Make the required measurement using various instruments

SE – 2012 Course		
Course Code	**Course Name**	**Course Outcomes**
Semester – IV		

207005	**Engineering Maths-III**	CO1	
		CO2	
		CO3	
		CO4	
		CO5	
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 OpAmp
		CO4	Comply and verify parameters after exciting IC by any stated method
		CO5	Analyze and identify the closed loop stability considerations and I/O limitations
		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	Model a physical system and express its internal dynamics and input-output relationships by means of block diagrams, mathematical model and transfer function
		CO2	Understand and explain the relationships between the parameters of a control system and its stability, accuracy, transient behavior.
		CO3	Identify the parameters that the system is sensitive to. Determine the stability of a system and parameter ranges for a desired degree of stability
		CO4	Plot the Bode, Nyquist, Root Locus diagrams for a given control system and identify the parameters and carry out the stability analysis.

		CO5	Determine the frequency response of a control system and use it to evaluate or adjust the relative stability
		CO6	Design a P, PD, PI, or PID controller based on the transient and steady state response criteria
		CO7	Model and analyze the control systems using state space analysis
204189	**Analog Communication**	CO1	Understand and identify the fundamental concepts and various components of analog communication systems.
		CO2	Understand, analyze and explain various analog modulation schemes.
		CO3	Understand the performance of analog communications systems under the presence of noise
		CO4	Understand and apply concepts and techniques from Fourier analysis and circuit analysis to communication systems
		CO5	Develop the ability to compare and contrast the strengths and weaknesses of various communication systems
		CO6	Analyze Basic communications systems and their performance under the presence of noise
		CO7	Describe various pulse and digital modulation techniques.
204190	**Computer Organization**	CO1	Understand and describe the basic structure of a computer, machine instruction and their execution.
		CO2	Understand and analyze performance issues in computer system
		CO3	Understand, apply and carry out binary arithmetic operations such as high speed addition, multiplier including the algorithms
		CO4	Understand, and explain the instruction execution, internal functions of processor and control unit design
		CO5	Understand and describe the various way of communication with I/O devices and standard I/O interfaces.
		CO6	Understand and describe the memory organization and hierarchical memory system.
		CO7	Understand and explain the various aspects of 8086 (16

			bit microprocessor) processor as a case study
204191	**Object Oriented Programming**	CO1	Justify the philosophy of object-oriented design and the concepts of encapsulation, abstraction, inheritance, and polymorphism;
		CO2	Design, implement, test, and debug simple programs in an object-oriented programming language
		CO3	Describe how the class mechanism supports encapsulation and information hiding.
		CO4	Design, implement, and test the implementation of "is-a" relationships among objects using a class hierarchy and inheritance.
		CO5	Compare and contrast the notions of overloading and overriding methods in an object-oriented language.
204192	**Soft Skills**	CO1	Communicate, interact and present his ideas to the other professionals
		CO2	Understand and aware of importance, role and contents of soft skills through instructions, knowledge acquisition, demonstration and practice.
		CO3	Have right attitudinal and behavioral aspects, and build the same through activities
		CO4	Possess right professional and social ethical values

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TE – 2012 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester –V			
304181	**Digital Communication**	CO1	Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.
		CO2	Perform the time and frequency domain analysis of the signals in a digital communication system.
		CO3	Select the blocks in a design of digital communication system.
		CO4	Analyze Performance of spread spectrum communication system
304182	**Digital Signal Processing**	CO1	Understand use of different transforms and analyze the discrete time signals and systems
		CO2	Realize the use of LTI filters for filtering different real world signals
		CO3	Capable of calibrating and resolving different frequencies existing in any signal
		CO4	Design and implement multistage sampling rate converter
304183	**Micro Controller and Applications**	CO1	Learn importance of microcontroller in designing embedded application
		CO2	Learn use of hardware and software tools
		CO3	Develop interfacing to real world devices
304184	**Electromagnetics and Transmission Lines**	CO1	Interpret the electromagnetic problem and solve using Maxwell‟s equations.
		CO2	Apply boundary conditions to different media, and formulate uniform plane wave equation, which is the basic of Antenna and wave propagation
		CO3	Analyze the transmission line problem, use the Smith chart for impedance calculations
304185	**System Programming**	CO1	Demonstrate the knowledge of Systems

	and Operating System		Programming and Operating Systems
		CO2	Formulate the Problem and develop the solution for same
		CO3	Compare and analyze the different implementation approach of system programming and operating system abstractions
		CO4	Interpret various OS functions used in Linux / Ubuntu
304188	**Employability Skills in Electronics Design**	CO1	Shall be able to understand and interpret the specifications
		CO2	Shall be able to select optimal design topologies
		C03	Shall be able to interpret datasheets and thus select appropriate components and devices
		CO4	Shall be able to use an EDA tool for circuit schematic and simulation
		CO5	Shall be able to design an electronic system/sub-system and validate its performance by simulating the same
TE – 2012Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester – VI			
304189	**Information Theory and Coding Techniques**	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	Evaluate performance of a communication system.
304190	**Antenna and Wave Propagation**	CO1	Formulate the wave equation and solve it for uniform plane wave
		CO2	Analyze the given wire antenna and its radiation characteristics
		CO3	Identify the suitable antenna for a given communication system
304191	**Embedded 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.
304192	**Industrial Management**	CO1	Get overview of Management Science aspects useful in Industry.
		CO2	Get motivation for Entrepreneurship
304193	**Power Electronics**	CO1	Design & implement a triggering / gate drive circuit for a power device
		CO2	Understand, perform & analyze different controlled converters.
			Evaluate battery backup time & design a battery charger
		CO3	Design & implement over voltage / over current protection circuit.

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BE – 2012 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester – VII			
404181	**VLSI Design & Technology**	CO1	Model digital circuit with HDL, simulate, synthesis and prototype in PLDs.
		CO2	Understand chip level issues and need of testability
		CO3	Design analog & digital CMOS circuits for specified applications
404182	**Computer Networks**	CO1	Understand fundamental underlying principles of computer networking
		CO2	Describe and analyze the hardware, software, components of a network and the 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 the use of cryptography and network security;
		CO5	Have a basic knowledge of installing and configuring networking applications
		CO6	Specify and identify deficiencies in existing protocols, and then go onto select new and better protocols.
404183	**Microwave Engineering**	CO1	Formulate the wave equation in wave guide for analysis.
		CO2	Identify the use of microwave components and devices in microwave applications
		CO3	Understand the working principles of all the microwave tubes
		CO4	Understand the working principles of all the solid state devices
		CO5	Choose a suitable microwave tube and solid state device for a particular application
		CO6	Carry out the microwave network analysis
		CO7	Choose a suitable microwave measurement instruments and carry out the required measurements.
404184	**Embedded Systems & RTOS**	CO1	Get insight of design metrics of Embedded systems to design real time applications tomatch recent trends in technology
		CO2	Understand Real time systems concepts.

		CO3	Understand Linux operating system and device drivers.
		CO4	Get to know the hardware – software co design issues and testing methodology for Embedded system.
404185	**Electronic 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
404188	**Project Phase-I**	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

BE – 2012 Course			
Course Code	**Course Name**	**Course Outcomes**	
Semester – VIII			
404189	**Mobile Communication**	CO1	Explain and apply the concepts telecommunication switching, traffic and networks
		CO2	Analyze the telecommunication traffic
		CO3	Analyze radio channel and cellular capacity
		CO4	Explain and apply concepts of GSM and CDMA system
404190	**Broadband Communication Systems**	CO1	Carry out Link power budget and Rise Time Budget by proper selection of components and check its viability
		CO2	Carry out Satellite Link design for Up Link and Down Link
404191	**Audio Video Engineering**	CO1	To study the analysis and synthesis of TV Pictures, Composite Video Signal, Receiver, Picture Tubes and Television Camera Tubes.
		CO2	To study the various Colour Television systems with a greater emphasis on television standards.
		CO3	To study the advanced topics in Digital Television and High Definition Television

		CO4	To study audio recording systems such CD/DVD recording, Audio Standards, and Acoustics principles
404192	**Nano Electronics and MEMS**	CO1	Gain knowledge of Nano electronics material, and manufacturing of Nano devices
		CO2	Be introduced to MEMS and its sensors and actuators.
		CO3	Understand various measuring methods and tools.
404188	**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