



COURSE OUTCOMES (COS) ODD SEMESTER

Course Outcomes: C211- Electronic Devices and Circuits Year: II- I Sem A.Y: 2019-20

C211.1	Understanding of the characteristic behavior of electronic devices such as Diodes and its applications.
C211.2	Compare and Contrast the characteristics of BJT in various configurations along with biasing techniques.
C211.3	Understand the principle of operation of JFET and Special purpose devices along with its characteristics.
C211.4	Analysis and Design of Small Signal Low Frequency BJT Amplifiers
C211.5	Design and analyze small signal FET amplifier circuits

Course Outcomes: C212 – Network Analysis and Transmission Lines Year: II- I Sem A.Y: 2019-20

C212.1	Understand the network topology along with their characteristic's behavior.
C212.2	Determine the transient behavior of first and second order circuits.
C212.3	Analyze the two port networks by determining the various parameters
C212.4	Differentiate various types of transmission lines and its parameters
C212.5	Understand the use of transmission lines with different lengths and also about smith charts.

Course Outcomes: C213 Digital System Design Year: II- I Sem A.Y: 2019-20

C213.1	Understand the numerical information in different forms and Boolean Algebra theorems
C213.2	Apply various techniques to minimize Boolean functions and design of combinational circuits.
C213.3	Design and analyze sequential circuits to implement registers and counters.
C213.4	Understand the Synthesis of Synchronous Sequential Circuits
C213.5	Understand the Realization of Logic Gates Using Diodes & Transistors

Course Outcomes: C214 – Signals and Systems Year: II- I Sem A.Y: 2019-20

C214.1	Understand the mathematical description and representation of continuous and discrete time signals along with analysis.
C214.2	Derive the Fourier series for continuous time signals and can find Fourier transforms for different signals.
C214.3	Develop input output relationship for linear shift invariant systems and understand the convolution operator for continuous and discrete time systems.
C214.4	Apply the Laplace transform and Z- transform technique for analysis of continuous-time and discrete-time signals and systems.
C214.5	Understand the sampling theorem and correlation function.

Course Outcomes: C215 – Probability theory and Stochastic Processes Year: II- I Sem A.Y: 2019-20

C215.1	Understand the Basic concepts of Probability & Random Variable along with their properties.
C215.2	Perform the Operations on Single & Multiple Random Variables.
C215.3	Determine the Spectral and temporal characteristics of Random Signals.
C215.4	Utilization of Random signals and systems in Communications and Signal Processing area
C215.5	Understand the concepts of Noise in Communication systems.

Course Outcomes: C216 – Electronic Devices and Circuits Lab Year: II- I Sem A.Y: 2019-20

C216.1	Study and Verify the diode and transistor characteristics along with an application and implement them using hardware.
C216.2	Design various amplifiers like CE, CC, common source amplifiers and implement them using hardware and also observe their frequency responses.
C216.3	Study and Verify the concept of Switching Characteristics of transistors and observe its characteristics.
C216.4	Understand the operation of different types of clippers and clampers at different reference voltages
C216.5	Understand the steady state output waveform of clampers for a square wave input.

Course outcomes: C217 – Digital System Design Lab**Year: II- I Sem A.Y: 2019-20**

C217.1	Design and realize the logic gates using universal gates and also implement the Boolean function.
C217.2	Implement the Generation of clock using NAND / NOR gates.
C217.3	Design and realization of combinational circuit elements such as Adder, Subtractor, Comparator, Multiplexer and Code converters.
C217.4	Design and realization of a Synchronous, Asynchronous counter and shift register using flip-flops.
C217.5	Design and Realization of a sequence detector-a finite state machine.

Course outcomes: C218 – Basic Simulation Lab**Year: II- I Sem A.Y: 2019-20**

C218.1	Understand the generation of different signals and perform various operations on them.
C218.2	Perform convolution and correlation operations on different signals and sequences.
C218.3	Verification of Linearity and Time Invariance Properties of a given Continuous/Discrete System.
C218.4	Analyze the spectrum and convert various time domain signals into frequency domain using different techniques.
C218.5	Generation of Gaussian noise and studying the noise effects for different random processes.

Course outcomes: C218 – Constitution of India**Year: II- I Sem A.Y: 2019-20**

C218.1	Impart basic knowledge about the constitution of India.
C218.2	Understand the students about their obligations, responsibilities, privileges and rights with respect to the constitutional law.
C218.3	Inculcate national and patriotic spirit among the students as responsible citizens of India.
C218.4	To impart knowledge about state and central policies, fundamental duties and electoral process.
C218.5	Understand the Scope of the Right to Life and Personal Liberty under different articles amended by constitutional authorities.

**COURSE OUTCOMES (COS)****Course outcomes: C311 – Electromagnetic Theory and Transmission Lines Year: III-I Sem****A.Y: 2019-20**

C311.1	Distinguish between the static and time-varying fields, establish the corresponding sets of Maxwell's Equations and Boundary Conditions, and use them for solving engineering problems.
C311.2	Analyze the Wave Equations for good conductors and good dielectrics, and evaluate the UPW Characteristics for several practical media of interest.
C311.3	Establish the proof and estimate the polarization features, reflection and transmission coefficients for Uniform Plane Waves propagation, distinguish between Brewster and Critical Angles, and acquire knowledge of their applications.
C311.4	Determine the Transmission Line parameters for different lines, characterize the distortions and estimate the characteristics for different lines.
C311.5	Study the Smith Chart profile and stub matching features, and gain the ability to practically use the same for solving practical problems.

Course outcomes: C312 – Linear and Digital IC Applications Year: III-I Sem**A.Y: 2019-20**

C312.1	Understand the operation of the operational amplifier and its applications.
C312.2	Understand the functionality of IC-555 & IC 565 and its Applications
C312.3	Understand the operation of different types of data converters and their specifications.
C312.4	Understanding of the different families of digital integrated circuits and their characteristics.
C312.5	Interpret the Sequential Logic IC's and understand different types of memories.

Course outcomes: C313 – Digital Communication**Year: III-I Sem****A.Y: 2019-20**

C313.1	Understand basic components of Digital Communication Systems and different waveform coding techniques such as PCM, DPCM etc.
C313.2	Know about different error detecting and error correction codes like block codes, cyclic codes and convolutional codes.
C313.3	Analyze the baseband pulse transmission and digital pass band transmission techniques and its usage.
C313.4	Analyze the performance of different digital modulation techniques and its bit error calculations.
C313.5	Understand the Spread Spectrum Modulation techniques

Course outcomes: C314 – Operating Systems**Year: III-I Sem****A.Y: 2019-20**

C314.1	Determine the role of Operating System in a computer
C314.2	Relate the methods for providing concurrency, communication and synchronization among concurrent tasks.
C314.3	Illustrate the schemes used to address the issues of deadlocks.
C314.4	Contrast different memory management techniques.
C314.5	Examine various file management strategies and security issues

Course outcomes: C315 – Linear IC Applications Lab Year: III-I Sem**A.Y: 2019-20**

C315.1	Understand the operation of inverting & non-inverting amplifier using opamps.
C315.2	Implement the adder, subtractor, integrator and differentiator circuit using operational amplifiers.
C315.3	Understand the applications of active filters like LPF & HPF and waveform generators.
C315.4	Understand the operation of monostable, astable and Schmitt trigger circuits.
C315.5	Understand the operation of Voltage Regulator using IC 723.

Course outcomes: C316 – Digital IC Applications Lab Year: III-I Sem**A.Y: 2019-20**

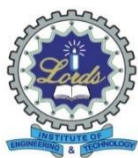
C316.1	Implement the various combinational circuit elements using digital ICs.
C316.2	Design a model to 53 counter using two-decade counters.
C316.3	Implement the design of clock generator and pseudo random sequence generator.
C316.4	Plot the transform Characteristics of 74H, LS, HS series IC's.
C316.5	Implement the design of shift registers and counters.

Course outcomes: C317 – Digital Communications Lab Year: III-I Sem**A.Y: 2019-20**

C317.1	Study and verify different digital modulation techniques.
C317.2	Understand the basic concept of Time Division Multiplexing of two Band Limited Signals
C317.3	Demonstrate the operation of ASK, PSK and FSK techniques.
C317.4	Study and verify the spectral characteristics of PWM, PAM and QAM schemes.
C317.5	Understand the operation of QPSK, DPSK and OFDM techniques.

Course outcomes: C318 – Professional Ethics**Year: III-I Sem A.Y: 2019-20**

C318.1	Understand ethical theories and concepts.
C318.2	Understanding an engineer's work in the context of its impact on society.
C318.3	Understand and analyze the concepts of safety and risks.
C318.4	Understand the professional responsibilities and rights of Engineers.
C318.5	Understand the concepts of ethics in the global context.



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Department of Electronics and Communication Engineering

COURSE OUTCOMES (COS)

Course Name: C411 Microwave engineering
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Year: IV-I Sem

A.Y: 2019-

C411.1	Analyze completely the rectangular waveguides, their mode characteristics, and design waveguides for solving practical microwave transmission line problems
C411.2	Distinguish between the different types of waveguide and ferrite components, explain their functioning and select proper components for engineering applications.
C411.3	Realize the need for solid state microwave sources, understand the concepts of TEDs, RWH Theory and explain the salient features of Gunn Diodes and ATT Devices.
C411.4	Understand the principle and operation of M type tubes and their applications.
C411.5	Understand the properties of Scattering Matrix, formulate the S-Matrix for various microwave junctions, and understand the utility of S-parameters in microwave component design.

Course Name: C412 Computer Networks

Year: IV-I Sem A.Y: 2019-20

C412.1	Understand the basic computer network technology and different protocols.
C412.2	Distinguish various guided transmission media and understand the error detection and error correction techniques.
C412.3	Understand the concept of different routing techniques for different data communication networks
C412.4	Understand the working phenomena of transport layer and application layer with its applications.
C412.5	Understand the concepts of network security, Mobile and ad hoc networks.

Course Name: C413 Electronics Measurements and Instrumentation Year: IV-I Sem A.Y: 2019-20

C413.1	Identify the various electronic instruments based on their specifications for carrying out a particular task of measurement.
C413.2	Understand the usage of various types of signal generators, signal analyzers for generating and analyzing various real-time signals.
C413.3	Understanding the basic features of oscilloscope and its internal structures and different types of oscilloscopes
C413.4	Understand the measurement of various physical parameters by appropriately selecting the transducers.
C413.5	Understand the use of various measuring techniques for measurement of different physical parameters using different classes of transducers.

Course Name: C414 Embedded System Design

Year: IV-I Sem A.Y: 2019 -20

C414.1	Understand the basic concept of Embedded System Design and its characteristics.
C414.2	Understand the concepts of typical embedded system and memory system selection.
C414.3	Analyze the design procedure for embedded firmware.
C414.4	Visualize the role of real time operating systems in embedded systems.
C414.5	Evaluate the correlation between task synchronization and latency issues.

Course Name: C415 VLSI Design**Year: IV-I Sem A.Y: 2019-20**

C415.1	Acquire qualitative knowledge about the fabrication process of integrated circuits using MOS transistors.
C415.2	Draw the layout of any logic circuit which helps to understand and estimate parasitic effects of any logic circuit.
C415.3	Design building blocks of data path systems, memories and simple logic circuits using PLA, PAL, FPGA and CPLD.
C415.4	Understand concepts required to design building blocks of data path subsystems using gates.
C415.5	Understand different types of faults that can occur in a system and learn the concept of testing and adding extra hardware to improve testability of the system.

Course Name: C416 VLSI & E-CAD Lab**Year: IV-I Sem A.Y: 2019-20**

C416.1	Understand the fundamentals of VLSI design and electronic computer-aided design tools.
C416.2	Design and simulate digital circuits using VLSI CAD tools.
C416.3	Analyze and optimize digital circuits for timing performance.
C416.4	Implement digital circuits using Field Programmable Gate Arrays (FPGAs).
C416.5	Demonstrate proficiency in using EDA (Electronic Design Automation) tools for layout and verification.

Course Name: C417 Microwave Engineering Lab**Year: IV-I Sem A.Y: 2019-20**

C417.1	Study and Verify the characteristics of Reflex Klystron, Gunn diode and directional coupler.
C417.2	Understand the measurement of VSWR for different loads.
C417.3	Analyse the characteristics of the waveguide parameters and its measurement techniques.
C417.4	Understand the Measurement of Scattering Parameters of different microwave components.
C417.5	Understand the measurement of microwave frequency, attenuation and radiation pattern.

Course Name: C418 Industry Oriented Mini Project**Year: IV-I Sem A.Y: 2019-20**

C418.1	Understand the technical aspects within the chosen area of technology for project development.
C418.2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
C418.3	Reproduce, improve and refine the technical aspects for engineering projects.
C418.4	Design the basic requirements for the proposed idea implementation for a cost effective solution.
C418.5	Communicate and report effectively project related activities and findings.

Course Name: C419 Seminar**Year: IV-I Sem A.Y: 2019-20**

C419.1	Engaged in the integral activities of reading, discussion and composition around a particular topic.
C419.2	Inculcate presentation skills for the overall personality development.
C419.3	Enhance the confidence level of individuals to face the interviews.
C419.4	Acquire the knowledge in the core domain area.
C419.5	Distinguish opinions from researched claims through discussion.