LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOME

(Academic Year: 2023-2024 Even Sem)

COURSE OUTCOME(CO's)

Name of the Course:Analog Communications Year: II-IV Sem A.Y: 2023-24

CO. No.	Outcome
C221.1	Analyze and design various modulation and demodulation analog systems
C221.2	Compare and analyze analog modulation techniques
C221.3	Explain the angle modulation and demodulation techniques
C221.4	Design AM & FM receivers
C221.5	Evaluate Signal to Noise Ratio (SNR) performance of various Analog Communication systems & Analyze and design the various Pulse Modulation Systems

Name of the Course:Pulse and Linear Integrated Circuits Year: II-IV Sem A.Y: 2023-24	
CO. No.	**Outcome**
C222.1	Construct different linear networks and analyse their response to different input signals
C222.2	Analyse and Design multivibrators and sweep circuits using transistors
C222.3	Illustrate the basic concepts of Operational Amplifier and Differential Amplifier
C222.4	Develop skills to design simple circuits using OP-AMP and simple filter circuits
C222.5	Design and Analyse A/D and D/A convertors

Name of the Course: Electronic Circuit Analysis Year: II-IV Sem A.Y: 2023-24	
CO. No.	**Outcome**
C223.1	Design and Analyze low frequency, mid frequency and high frequency response of small signal Single stage and Multistage RC coupled and Transformer amplifiers using BJT.
C223.2	Identify the type of negative feedback and to analyse the design of negative feedback amplifiers.
C223.3	To evaluate frequency of Oscillations of RC and LC oscillators.
C223.4	Distinguish between the classes of Power Amplifiers and to compare their efficiency.
C223.5	Compare the performance of single and double tuned amplifiers with BJT.

Name of the Course: Digital System Design Year: II-IV Sem A.Y: 2023-24	
CO. No.	**Outcome**
C224.1	Interpret Boolean algebra to minimize the logical expressions and optimize the implementation of logical functions
C224.2	Design combinational circuits like adder, Mux
C224.3	Analyse sequential circuits and design of register and counters.
C224.4	Representation of Sequential circuits using FSM and applying state minimization techniques to design FSM
C224.5	Implement the combinational and sequential circuits using VHDL coding

Name of the Course: Electromagnetic Theory and Transmission Lines Year: II-IV Sem A.Y: 2023-24	
CO. No.	**Outcome**
C225.1	Illustrate the different coordinate systems, vector calculus, coulombs law and gauss law for finding electric fields due to different charges and to formulate the capaci
C225.2	Illustrate basic magneto-statics concepts and laws such as Biot-Savarts law and Amperes law, their application in finding magnetic field intensity, inductance and ma
C225.3	Distinguish between the static and time-varying fields, establish the corresponding sets of Maxwell's Equations and use them for solving engineering problems.
C225.4	Determine the Transmission Line parameters to characterize the distortions and estimate the characteristics for different lines.
C225.5	Demonstrate the Smith Chart profile and stub matching features, and gain ability to practically use the same for solving practical problems.

Name of the Course: Pulse and Linear Integrated Circuits Lab Year: II-IV Sem A.Y: 2023-24	
CO. No.	**Outcome**
C226.1	Design and analyse linear and non-linear wave shaping circuits
C226.2	Design and analyse clipping and clamping circuits
C226.3	Design and analyse multivibrator circuits and sweep circuits
C226.4	Design and analyse Schmitt trigger circuit
C226.5	Design and analyse inverting and non-inverting OP-AMP

Course Outcomes:C227: Electronic Circuit Analysis Lab Year: II-IV Sem A.Y: 2023-24	
CO. No.	**Outcome**
C227.1	To calculate gain and bandwidth of BJT , FET amplifiers.
C227.2	To determine frequency of Oscillations of Oscillatory Circuits.
C227.3	To demonstrate Filter Circuits.
C227.4	To demonstrate Power amplifier and Op-amp Circuits.
C227.5	To demonstrate RF amplifiers.

Name of the Course: Programming Language -II Year: II-IV Sem A.Y: 2023-24	
CO. No.	**Outcome**
C228.1	Develop python programs using library modules
C228.2	Able to implement python programs using pandas
C228.3	Develop python programs using Matplotlin Module

C228.4	Write,Test,Debug python library modules.
C228.5	Debug python image programs using various modules

Name of the Course: Data Communications and Networks	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C321.1	Illustrate network topologies like star,bus& ring, and concepts of circuit & Packet switching	
C321.2	Comprehend the role of data link layer and significance of mac protocols	
C321.3	Compare network and internet protocols	
C321.4	Interpret transport layer working with TCP/IP ,UDP and ATM layer	
C321.5	Comprehend the functionality of application layer and importance of network security	

Name of the Course: Antennas and wave propagation	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C322.1	Characterize the basic principles of antennas and interpret the antenna terminology.	
C322.2	Apply the design considerations of different types of wire antennas and its usage in understanding practical antennas.	
C322.3	Analyze the non-resonant antennas for various ranges of frequencies and get updated with latest developments in the smart antennas	
C322.4	Apply the principles and design considerations of antennas as well as antenna arrays, measure the standard antenna parameters.	
C322.5	Interpret the various modes of radio wave propagation used for different applications.	

Name of the Course: VLSI Design	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C323.1	Demonstrate the fabrication process of Integrated circuits and basic electrical properties of MOS transistors.	
C323.2	Illustrate the layout of any logic circuit which helps to understand and estimate parasitic effect of any logic circuit.	
C323.3	Implement logic gates and other complex gates using gate level design and understand the concept of wiring capacitance, fan-in and fan-out.	
C323.4	Demonstrate building blocks of data path systems using different combinational circuit elements.	
C323.5	Describe the concept of CMOS testing and design approach of different programmable logic devices.	

Name of the Course: Digital Signal Processing	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C324.1	Evaluate Discrete Fourier transform and fast Fourier transform algorithms	
C324.2	Design digital FIR filters using windowing techniques	
C324.3	Design digital IIR filters using various techniques	
C324.4	Demonstrate the impact of finite word leng effect in filters and use of multirate signal processing	
C324.5	Describe the fundamental features of advanced DSP processors	

Name of the Course: PE-II: Fundamentals of IOT	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C325.1	Analyze the IoT technology and research directions.	
C325.2	Comprehend various protocols and architecture of IoT	
C325.3	Design simple IoT systems with IoT reference model	
C325.4	Analyze with the various applications of IoT	
C325.5	Comprehend the different privacy and security approaches at IoT.	

Name of the Course: Digital Signal Processing Lab	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C326.1	Illustrate various signal processing algorithms	
C326.2	Analyse FIR with specific magnitude and phase requirements	
C326.3	Analyse IIR with specific magnitude and phase requirements	
C326.4	Illustrate basics of multi rate signal processing	
C326.5	Analyse Digital filters on DSP processor	

Name of the Course: VLSI & ECAD Lab	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C327.1	Demonstrate Verilog code simulation for logic gates and complex logic gates using vivado.	
C327.2	Illustrate Verilog code simulation for combinational circuits using switch level, gate level, data flow and behavioral modeling.	
C327.3	Design test bench code for sequential circuits using switch level, gate level, data flow and behavioral modeling.	
C327.4	Design the FPGA implementation of Finite State Machine and generate the synthesis report.	
C327.5	Implement the layouts of basic logic gates using Micro wind.	

Name of the Course: Computer Appplications Lab	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C328.1	Familiarize with the usage of IDE tools and programming	
C328.2	Implement use various on chip like LCD, Temperature sensor, Buzzer using LC2148	
C328.3	Analyze the devices like Stepper Motor by interfacing them to ARMP processor	
C328.4	Design the digital logic circuits in various modeling styles using Verilog HDL	
C328.5	Implement basic gates at transistor level	

Name of the Course: Mini Project	**Year: III-VI**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C329.1	Formulate a specific problem and give solution	
C329.2	Develop model/models either theoretical/practical/numerical form	
C329.3	Solve, interpret/correlate the results and discussions	

C329.4	Conclude the results obtained
C329.5	Write the documentation in standard format

Name of the Course: Wireless Sensor Networks	**Year: IV-VIII**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C421.1	Illustrate deployment strategies, challenges and technologies for WSN.	
C421.2	Describe the network architecture wireless sensor notwork.	
C421.3	Describe the communication, energy efficiency computing, storage and transmission .	
C421.4	Establish the infrastructure and simulation	
C421.5	Demonstrate the concept of security ,and attacks in WSN and Introduction to 5G	

Name of the Course: Global Navigational Satellite Systems	**Year: IV-VIII**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C422.1	Define the fundamentals of GPS	
C422.2	Describe the different types of GNSS Signals and GNSS Datum.	
C422.3	Analyze the GPS errors and their modeling techniques.	
C422.4	Explain various GPS data processing and GPS integration techniques.	
C422.5	Discuss the augmentation systems and regional navigation satellite systems	

Name of the Course: Smart Building Systems	**Year: IV-VIII**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C423.1	Describe the basic blocks and systems for building automation	
C423.2	Apply the concept of fire alarm systems in Smart building	
C423.3	Use different subsystems for building automation and integrate them	
C423.4	Anaylze the building automation	
C423.5	Design different systems for building automation and integrate those systems	

Name of the Course: Project Work Phase -II	**Year: IV-VIII**	**Sem A.Y: 2023-24**
CO. No.	**Outcome**	
C424.1	Demonstrate the ability to synthesize and apply the knowledge and skills acquired in the academic program to the real-world problems.	
C424.2	Evaluate different solutions based on economic and technical feasibility.	
C424.3	Effectively plan a project and confidently perform all aspects of project management	
C424.4	Demonstrate effective written and oral communication skills.	
C424.5	Find relevant sources (e.g., library, Internet, experts) and gathers information for preparing reports and other relevant documentation.	