



LOYOLA INSTITUTE OF TECHNOLOGY
 Palanchur, Chennai – 600 123
 Approved by AICTE, New Delhi and Affiliated to Anna
 University, Chennai (An ISO Certified Institution)

Department of Electronics & Communication Engineering

Regulation 2021

Course Outcomes (COs)

ODD SEM

II YEAR (6 Theory + 3 Labs)

Si.No	Name of the Subject (In Abbreviation)	Course Outcomes	Statement
1	CP &DS	CO1	Develop C programs for any real world/technical application.
		CO2	Apply advanced features of C in solving problems.
		CO3	Write functions to implement linear and non-linear data structure operations.
		CO4	Suggest and use appropriate linear/non-linear data structure operations for solving a given problem
		CO5	Appropriately use sort and search algorithms for a given application
		CO6	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval.
2	CS	CO1	Compute the transfer function of different physical systems
		CO2	Analyse the time domain specification and calculate the steady state error
		CO3	Illustrate the frequency response characteristics of open loop and closed loop system response.
		CO4	Analyse the stability using Routh and root locus techniques
		CO5	Illustrate the state space model of a physical system and discuss the concepts of sampled data control system.
		CO6	To be familiar with the concepts of understanding polar plot and bode plots
3	DSD	CO1	Use Boolean algebra and simplification procedures relevant to digital logic.
		CO2	Design various combinational digital circuits using logic gates.
		CO3	Analyse and design synchronous sequential circuits.
		CO4	Analyse and design asynchronous sequential

			circuits. .
		CO5	Build logic gates and use programmable devices
		CO6	To introduce semiconductor memories and related technology
4	RPLA	CO1	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
		CO2	Demonstrate accurate and efficient use of advanced algebraic techniques.
		CO3	Apply the concept of random processes in engineering disciplines.
		CO4	Understand the fundamental concepts of probability with a thorough knowledge of standard distributions that can describe certain real-life phenomenon.
		CO5	Understand the basic concepts of one and two dimensional random variables and apply them to model engineering problems.
		CO6	To Apply the concept of random processes in engineering disciplines
5	EDC	CO1	Explain the structure and working operation of basic electronic devices.
		CO2	Design and analyze amplifiers.
		CO3	Analyze frequency response of BJT and MOSFET amplifiers
		CO4	Design and analyze feedback amplifiers and oscillator principles.
		CO5	Design and analyze power amplifiers
		CO6	Design and analyze supply circuits
6	SS	CO1	Determine if a given system is linear/causal/stable
		CO2	Determine the frequency components present in a deterministic signal
		CO3	Characterize continuous LTI systems in the time domain and frequency domain
		CO4	Characterize discrete LTI systems in the time domain and frequency domain
		CO5	Compute the output of an LTI system in the time and frequency domains
		CO6	To analyze the characteristics of the signals.
7	EDC Lab	CO1	Characteristics of PN Junction Diode and Zener diode.
		CO2	Design and Testing of BJT and MOSFET amplifiers.
		CO3	Operation of power amplifiers
		CO4	Examine input-output characteristics of common emitter configurations and MOSFETs.

		CO5	Analyze the frequency response of various amplifiers, including CE, CS, CB, CC, and Cascode.
		CO6	Measure CMRR of differential amplifiers and design Class A transformer-coupled power amplifiers.
8	CP Lab	CO1	Use different constructs of C and develop applications
		CO2	Write functions to implement linear and non-linear data structure operations
		CO3	Suggest and use the appropriate linear / non-linear data structure operations for a given problem
		CO4	Apply appropriate hash functions that result in a collision free scenario for data storage and Retrieval
		CO5	Implement Sorting and searching algorithms for a given application
		CO6	Implement the collision techniques
9	Professional Development	CO1	Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements
		CO2	Use MS Word to create and use document templates, manage references, citations, comments, and ensure document security and accessibility, ensuring professional and accessible document preparation.
		CO3	Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding
		CO4	Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects
		CO5	Analyze data using advanced functions, charts, pivot tables, and data consolidation techniques to generate insightful results
		CO6	Design and format presentations using templates, layouts, themes, and multimedia elements, enhancing their visual communication skills.



Department of Electronics & Communication Engineering

Regulation 2021

Course Outcomes (COs)

EVEN SEM

II YEAR (6 Theory + 2 Labs)

Si.No	Name of the Subject (In Abbreviation)	Course Outcomes	Statement
1	ESS	CO1	To recognize and understand the functions of environment, ecosystems and biodiversity and their conservation.
		CO2	To identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.
		CO3	To identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.
		CO4	To recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development
		CO5	To demonstrate the knowledge of sustainability practices and identify green materials.
		CO6	Explain energy cycles and the role of sustainable urbanization
2	EMF	CO1	Relate the fundamentals of vector, coordinate system to electromagnetic concepts
		CO2	Analyze the characteristics of Electrostatic field
		CO3	Interpret the concepts of Electric field in material space and solve the boundary conditions
		CO4	Explain the concepts and characteristics of Magneto Static field in material space and solve boundary conditions.
		CO5	Determine the significance of time varying fields

		CO6	Determine the boundary conditions
3	DSP	CO1	Apply DFT for the analysis of digital signals and systems
		CO2	Design IIR and FIR filters
		CO3	Characterize the effects of finite precision representation on digital filters
		CO4	Design multirate filters
		CO5	Apply adaptive filters appropriately in communication systems
		CO6	To study the various DSP architectures
		4	CS
CO2	Understand the concepts of Random Process to the design of communication systems		
CO3	Gain knowledge in digital techniques		
CO4	Gain knowledge in sampling and quantization		
CO5	Understand the importance of demodulation techniques		
CO6	To understand the inter symbol interference		
5	N & S	CO1	Explain the Network Models, layers and functions.
		CO2	Categorize and classify the routing protocols.
		CO3	List the functions of the transport and application layer
		CO4	Evaluate and choose the network security mechanisms.
		CO5	Discuss the hardware security attacks and countermeasures
		CO6	To provide knowledge about the blockchain technology
6	LIC	CO1	Design linear and nonlinear applications of OP – AMPS
		CO2	Design applications using analog multiplier and PLL
		CO3	Design ADC and DAC using OP – AMPS
		CO4	Generate waveforms using OP – AMP Circuits
		CO5	Analyze special function ICs
		CO6	Analyze various types of amplifiers
7	LIC Lab	CO1	Analyze various types of feedback amplifiers
		CO2	Design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators
		CO3	Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-

			shaping circuits and multivibrators, filters using SPICE Tool.
		CO4	Design amplifiers, oscillators, D-A converters using operational amplifiers.
		CO5	Design filters using op-amp and perform an experiment on frequency response
		CO6	To simulate oscillators and amplifiers using SPICE
8	CS Lab	CO1	Design AM, FM & Digital Modulators for specific applications
		CO2	Compute the sampling frequency for digital modulation.
		CO3	Simulate & validate the various functional modules of Communication system.
		CO4	Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes.
		CO5	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of Communication system.
		CO6	To simulate the various error control coding schemes



Department of Electronics & Communication Engineering

Regulation 2021

Course Outcomes (COs)

ODD SEM

III YEAR (7 Theory + 1 Labs)

Si.No	Name of the Subject (In Abbreviation)	Course Outcomes	Statement
1	WC	CO1	Understand The Concept And Design Of A Cellular System
		CO2	Understand Mobile Radio Propagation And Various Digital Modulation Techniques.
		CO3	Understand The Concepts Of Multiple Access Techniques And Wireless Networks
		CO4	Characterize a wireless channel and evolve the system design specifications
		CO5	Design a cellular system based on resource availability and traffic demands.
		CO6	To understand the packet communication services and network databases
2	MIC & RF	CO1	Apply knowledge of S parameter theory to any RF active component design circuit for obtaining performance measure.
		CO2	Analyze microwave circuits for filters design.
		CO3	Evaluate the performance of any practical Microwave integrated circuits
		CO4	Create communication circuits and subsystems with practical design parameters for nonreciprocal components in MICs.
		CO5	Design microwave integrated antenna design circuit for the required Performance using professional software tools
		CO6	To understand about the various probing techniques
3	TLRF	CO1	Explain the characteristics of transmission lines and its losses
		CO2	Calculate the standing wave ratio and input impedance in high frequency transmission lines.
		CO3	Analyze impedance matching by stubs using Smith Charts.
		CO4	Comprehend the characteristics of TE and TM waves.

		CO5	Design a RF transceiver system for wireless communication
		CO6	Design the various amplifiers
4	UWC	CO1	Explore fibre optic communication for underwater application
		CO2	Analyse underwater wireless optical communication systems
		CO3	Design MI coil based underwater communication systems
		CO4	Design MI coil based underwater wireless sensor networks
		CO5	Analyse the principles and features of underwater acoustic communication systems
		CO6	Explore the construction, architecture and advancements in underwater acoustic network technology
5	CV	CO1	To understand basic knowledge, theories and methods in image processing and computer vision
		CO2	To implement basic and some advanced image processing techniques in OpenCV
		CO3	To apply 2D a feature-based based image alignment, segmentation and motion estimations
		CO4	To apply 3D image reconstruction techniques
		CO5	To design innovative image processing algorithms.
		CO6	Develop the ability to create advanced computer vision applications that solve real-world problems.
6	VLSI	CO1	In depth knowledge of MOS technology
		CO2	Understand Combinational Logic Circuits and Design Principles
		CO3	Understand Sequential Logic Circuits and Clocking Strategies
		CO4	Understand Memory architecture and building blocks
		CO5	Understand the ASIC Design Process and Flow.
		CO6	Understand the ASIC Design Testing to ensure functionality and reliability.
7	DRRM	CO1	To impart knowledge on the concepts of Disaster, Vulnerability and Disaster Risk reduction
		CO2	To enhance understanding on Hazards, Vulnerability and Disaster Risk Assessment prevention and risk reduction
		CO3	To develop disaster response skills by adopting relevant tools and technology
		CO4	Enhance awareness of institutional processes for Disaster response in the country
		CO5	Develop a basic ability to respond to their surroundings with potential disaster response skills.
		CO6	Exhibit sensitivity and preparedness for disaster response in their local areas.



LOYOLA INSTITUTE OF TECHNOLOGY

Palanchur, Chennai – 600 123

Approved by AICTE, New Delhi and Affiliated to Anna
University, Chennai (An ISO Certified Institution)

8	VLSI LAB	CO1	Write HDL code for basic as well as advanced digital integrated circuit
		CO2	Import the logic modules into FPGA Boards
		CO3	Synthesize Place and Route the digital Ips
		CO4	Design, Simulate and Extract the layouts of Digital IC Blocks using EDA tools
		CO5	Design, Simulate and Extract the layouts of Analog IC Blocks using EDA tools
		CO6	Test and Verification of IC design

Department of Electronics & Communication Engineering

Regulation 2021

Course Outcomes (COs)

EVEN SEM

III YEAR (6 Theory)

Si.No	Name of the Subject (In Abbreviation)	Course Outcomes	Statement
1	IS	CO1	Understand the basic concept of safety.
		CO2	Obtain knowledge of Statutory Regulations and standards.
		CO3	Know about the safety Activities of the Working Place.
		CO4	Analyze on the impact of Occupational Exposures and their Remedies
		CO5	Obtain knowledge of Risk Assessment Techniques.
		CO6	To identify the various hazards
2	ES & IoT	CO1	Explain the architecture and features of 8051
		CO2	Develop a model of an embedded system
		CO3	List the concepts of real time operating systems
		CO4	Learn the architecture and protocols of IoT.
		CO5	Apply the concepts to design an IoT based system.
		CO6	Design an IoT based system for any application.
3	AI & ML	CO1	Use appropriate search algorithms for problem solving
		CO2	Apply reasoning under uncertainty
		CO3	Build supervised learning models
		CO4	Build ensembling and unsupervised models
		CO5	Build deep learning neural network models
		CO6	Apply deep learning neural network models in various applications

4	DM	CO1	To examine and explore the role and importance of digital marketing in today's rapidly changing business environment..
		CO2	To focuses on how digital marketing can be utilized by organizations and how its effectiveness can be measured.
		CO3	To know the key elements of a digital marketing strategy.
		CO4	To study how the effectiveness of a digital marketing campaign can be measured
		CO5	To demonstrate advanced practical skills in common digital marketing tools such as SEO, SEM, Social media and Blogs.
		CO6	To analyze the strategies and study about the recent development in digital marketing
5	SC	CO1	Identify the satellite orbits
		CO2	Analyze the satellite subsystems
		CO3	Evaluate the satellite link power budget
		CO4	Identify access technology for satellite
		CO5	Design various satellite applications
		CO6	Design various navigational systems
6	OCN	CO1	Realize Basic Elements in Optical Fibers, Different Modes and Configurations.
		CO2	Analyse the Transmission Characteristics Associated with Dispersion and Polarization Techniques.
		CO3	Design Optical Sources and Detectors with their use in Optical Communication System.
		CO4	Construct Fiber Optic Receiver Systems, Measurements and Techniques.
		CO5	Design Optical Communication Systems and its Networks.
		CO6	Design Wavelength Routing and Packet Switched Networks