

COURSE CODE	COURSE NAME	CO	CO STATEMENT
C301	Pulse & Digital Circuits	C301.1	Analyze the response of linear wave shaping circuits for different signals.
		C301.2	Sketch the response of nonlinear wave shaping circuits using nonlinear elements and observe the transfer characteristics.
		C301.3	Acquire knowledge about switching characteristics of diode & transistor and realize digital logic circuits using different logic families
		C301.4	Analyze different types of Multi vibrators and their design procedures.
		C301.5	Acquire knowledge about the working of time base generators for generation of sweep waveforms
		C301.6	Interpret the construction of circuits to achieve synchronization and frequency division.
C302	Linear IC Applications	C302.1	Explain the basic concepts and performance parameters of Differential Amplifiers and their stages.
		C302.2	Interpret the characteristics of Op-Amp and measurement of its parameters
		C302.3	Apply Op-Amp circuits for various Linear and Nonlinear Applications.
		C302.4	Design of active filters, analog multipliers and Modulator circuits using Op-Amps.
		C302.5	Analyse the architecture and working of Timers and PLL used in various Analog and Digital circuit applications.
		C302.6	Design the different methods of A/D and D/A converters and compare their performance

			parameters.
C303	Control Systems	C303.1	Analyze the effect of feedback in physical, electrical and mechanical systems and calculate their transfer functions.
		C303.2	Model the Transfer function of AC, DC Servo motors using Block diagram reduction and signal flow graph techniques.
		C303.3	Apply the concepts of time response analysis on first and second order systems.
		C303.4	Analyze the absolute and relative stability of LTI systems using Routh-Hurwitz criterion and Root Locus method.
		C303.5	Examine the stability of LTI systems in frequency domain using Bode, Polar and Nyquist plots.
		C303.6	Design Lag, Lead, Lead-Lag compensators to improve system performance and apply the concepts of controllability and observability.
C304	Digital System Design & Digital IC Applications	C304.1	Interpret the VHDL programming constructs and associated coding styles to apply on various digital Integrated circuits.
		C304.2	Interrelate the various steps involved in the design of digital IC.
		C304.3	Design Programmable logic devices and memories of various sizes.
		C304.4	Design logic gates of different logic families based on relevant interfacing standards.
		C304.5	Design combinational logic based digital integrated circuits and simulate them using VHDL.
		C304.6	Design sequential logic based digital integrated circuits and simulate them using VHDL.
C305	Antennas and Wave Propagation	C305.1	Define basic principles of radiation and antenna parameters
		C305.2	Analyze the working principles of thin linear wire antennas with respect to their design

			parameters
		C305.3	Construct different types of antenna arrays in accordance with desired directional properties.
		C305.4	Discuss the construction and major applications of antennas like long wire, helical and patch antennas etc., to meet the electronic system requirements.
		C305.5	Compare the performance parameters of different types of Non-resonant, VHF, UHF and Microwave antennas.
		C305.6	Analyze the atmospheric effects on different types of radio wave propagation mechanisms
C306	Pulse & Digital Circuits Lab	C306.1	Develop different pulse and digital circuits for generation of pulse, sweep and different signals
		C306.2	Analyze the behaviour of wave shaping circuits using passive and active elements.
		C306.3	Explain the working of transistor acts as a switch
		C306.4	Build logic gates, flip flops and sampling gate circuits using diodes, transistor and passive elements.
		C306.5	Compare the performance characteristics of different multivibrator circuits
		C306.6	Experiment with time base generators to obtain the sweep signal
C307	LIC Applications Lab	C307.1	Identify the functionality of IC's 741 ,IC 555,IC 565 and IC 1496.
		C307.2	Make use of IC 741 to model adder, subtractor, comparator, integrator and differentiator and various active filters.
		C307.3	Develop various waveform generator circuits using IC 741, IC 565 and IC 566
		C307.4	Construct various multi-vibrator circuits using IC 555 timer.
		C307.5	Build various fixed voltage and variable Voltage Regulator using ICs.

		C307.6	Construct binary weighted R-2R ladder digital to analog converters using IC 741.
C308	Digital System Design & DICA Lab	C308.1	Acquire VHDL programming skills for implementing digital designs using Xilinx tool.
		C308.2	Design of logic gates using VHDL and their implementation on SPARTAN-3 FPGA using Xilinx Tool.
		C308.3	Design of combinational circuits using VHDL and their implementation on SPARTAN-3 FPGA using Xilinx Tool.
		C308.4	Design of sequential circuits using VHDL and their implementation on SPARTAN-3 FPGA using Xilinx Tool.
		C308.5	Design of FIFO unit using VHDL and its implementation on SPARTAN-3 FPGA using Xilinx Tool.
		C308.6	Design of Arithmetic Logic Unit (74381) using VHDL and its implementation on SPARTAN-3 FPGA using Xilinx Tool.
C309	IPR& Patents	C309.1	Knowledge on basic concepts of Intellectual Property , Innovations and Inventions of Intellectual Property Law
		C309.2	Evaluate the principles and rights afforded by Copyright, its infringement and International Copyright Law .
		C309.3	Analyze Patent registration requirements, infringement and Litigation, new developments and international laws
		C309.4	Registration Process of Trade Marks, Interparties proceedings, litigations , claims and global factors related to trade marks

		C309.5	Conceptual awareness about trade Secrets, Employee Confidentiality Agreement, Trade Secret Litigation and breach of law
		C309.6	Elucidate Cyber Law and Cyber Crimes , E-commerce, International aspects of Computer and Online Crime