Lovely Professional University, Punjab

Course Code	Course Title	Course Planner	Lectures	Tutorials	Practicals	Credits
ECE216	DIGITAL ELECTRONICS LABORATORY	15978::Sanjeev Sharma	0	0	2	1

Course Weightage	ATT: 5 CAP: 45 ETP: 50	Exam Category: X6: Mid Term Exam: Not Applicable – End Term Exam: Practical
Course Orientation	ENTERPRENEURSHIP, KNOWLEDGE ENHANCEMENT	

	TextBooks (T)		
Sr No	Title	Author	Publisher Name
T-1	DIGITAL DESIGN PRINCIPLES AND PRACTICES	JOHN F. WAKERLY	PEARSON

	Reference Books (R)		
Sr No	Title	Author	Publisher Name
R-1	DIGITAL ELECTRONICS PRINCIPLES AND INTEGRATED CIRCUITS	ANIL K MAINI	WILEY
R-2	DIGITAL FUNDAMENTALS	THOMAS L. FLOYD , R. P JAIN	PEARSON
R-3	DIGITAL INTEGRATED ELECTRONICS	H. TAUB AND D. SCHILLING	MCGRAW HILL EDUCATION

*Each experiment of the lab will be evaluated using following relative scheme:

Component	% of Marks
Performance/Job evaluation/conduct/skill execution/demonstration	100

Detailed Plan For Practicals

Practical No	Broad topic (Subtopic)	Practical Description	Learning Outcomes	Equipment Used
Practical 1	Analysis and Synthesis of Boolean Expressions using Basic Logic Gates (Understanding the combinational logic by implementing the boolean function using basic logic gates)	Practical 1 Introduction of 5 practicals before MTE Practical 2 To design a circuit to implement boolean expressions.	Students will be able to understand the analysis and synthesis of Boolean expressions	IC 7408, 7432, 7400, 7402, 7486, 7404, Power supply, LED, switches

An instruction plan is a tentative plan only and a teacher may make some changes in his/her teaching plan. The students are advised to use syllabus for preparation of all examinations. The students are expected to keep themselves updated on the contemporary issues related to the course. Upto 20% of the questions in any examination/Academic tasks can be asked from such issues even if not explicitly mentioned in the instruction plan.

Practical 2	Analysis and Synthesis of Boolean Expressions using Basic Logic Gates (Understanding the combinational logic by implementing the boolean function using basic logic gates)	Practical 1 Introduction of 5 practicals before MTE Practical 2 To design a circuit to implement boolean expressions.	Students will be able to understand the analysis and synthesis of Boolean expressions	IC 7408, 7432, 7400, 7402, 7486, 7404, Power supply, LED, switches
Practical 3	Analysis and Synthesis of Arithmetic Expressions using Adders/Subtractors (Understanding the combinational logic by implementing the adders with the help of logic gates.)	To design a circuit to implement full adder and subtractor.	Students will be able to understand the analysis and synthesis of Boolean expressions	IC 7486, IC 7432, IC 7408, IC 7400, Power supply ,switches, LED
Practical 4	Analysis and Synthesis of Arithmetic Expressions using Adders/Subtractors (Understanding the combinational logic by implementing the subtractor with the help of logic gates.)	To design a circuit for subtractor using logic gates	Students will be able to understand the implementation of subtractor with the help of logic gates.	IC 7486, IC 7432, IC 7408, IC 7400, etc.
Practical 5	Analysis and Synthesis of Logic Functions using Multiplexers and decoders(Understanding the combinational logic by implementing the boolean function using multiplexer)	To design a circuit to implement boolean functions using Multiplexers	Students will be able to understand the analysis and synthesis of logic functions with the help of multiplexers	Different types of multiplexer ICs(dual 4:1 mux 74153) , Chords.
Practical 6	Design and implementation of combinational and sequential circuit using Software(To implement and simulate combinational and sequential circuit using DSCH/Proteus.)	To implement the combinational/sequential circuit using DSCH or Proteus.	How to implement the combinational and sequential circuit on virtual platform. • Student will learn the simulation of the digital circuits. • Students will learn the software usage in circuit implementation and the benefits of that.	Laptop with DSCH/Proteus installed.
Practical 7		WTP1		
Practical 8	Analysis and Synthesis of Logic Functions using Multiplexers and decoders(Understanding the combinational logic by implementing the boolean function using Decoder)	Practical 8 Introduction of 5 practicals after MTE Practical 9 To design a circuit to implement boolean functions using Decoders.	Students will be able to understand the analysis and synthesis of logic functions with the help of decoders.	IC 74138 7432 power supply switches, LEDs
Practical 9	Analysis and Synthesis of Logic Functions using Multiplexers and decoders(Understanding the combinational logic by implementing the boolean function using Decoder)	Practical 8 Introduction of 5 practicals after MTE Practical 9 To design a circuit to implement boolean functions using Decoders.	Students will be able to understand the analysis and synthesis of logic functions with the help of decoders.	IC 74138 7432 power supply switches, LEDs

An instruction plan is a tentative plan only and a teacher may make some changes in his/her teaching plan. The students are advised to use syllabus for preparation of all examinations. The students are expected to keep themselves updated on the contemporary issues related to the course. Upto 20% of the questions in any examination/Academic tasks can be asked from such issues even if not explicitly mentioned in the instruction plan.

Practical 10	Analysis and Synthesis of Sequential Circuits using Flip-Flops (Understanding the sequentianal logic by implementing the flip flop with the help of logic gates)	To design a sequential circuit using flipflops.	Students will be able to understand the analysis and synthesis of sequential circuits using Flip-flops	IC 7400, 7402, LEDs, Power supply , Switches
Practical 11	Analysis and Synthesis of Sequential Circuits using Flip-Flops (Understanding the sequentianal logic by implementing the counter with flip flop.)	To design a circuit to implement sequential circuits using counters with flip-flops.	Students will be able to understand the analysis and synthesis of sequential circuits using Flip-flops	IC 7476, 7473, LEDs Switches, Power supply
Practical 12	Analysis of Functions of BCD-TO-7-segment Decoder / Driver and Operation of 7-segment LED Display (To visualize the output in decimal on seven segment display for BCD inputs)	To Design a circuit to analyse the functions of BCD to 7 segment display	Students will be able to understand the analysis of functions on seven segment display	IC 7447, seven segment display, power supply, switches
Practical 13	Analysis of Functions of BCD-TO-7-segment Decoder / Driver and Operation of 7-segment LED Display (To visualize the output of decade counter on seven segment display)	To Design a circuit to analyse the functions of decade counter on 7 segment display	Students will be able to understand the analysis of functions on seven segment display	IC 7493, seven segment display, power suply
Practical 14		WTP2		
SPILL OVER				
Practical 15		Spill Over		

An instruction plan is a tentative plan only and a teacher may make some changes in his/her teaching plan. The students are advised to use syllabus for preparation of all examinations. The students are expected to keep themselves updated on the contemporary issues related to the course. Upto 20% of the questions in any examination/Academic tasks can be asked from such issues even if not explicitly mentioned in the instruction plan.