PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY
Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - Digital Electronics **Subject Code:** EC-205
Year: -2nd **Semester:-3rd**

Lecture No	Unit No	Topic	COs Covered
L 1	Unit-I	Introduction to Digital Electronics	CO1
L 2		Digital Signals, AND, OR, NOT, NAND, NOR and Exclusive-OR Operations	
L 3		Boolean Algebra: Laws and Theorems	
L 4		Boolean Expression Reduction	
L 5		Number Systems: Binary, Signed Binary, Octal, Hexadecimal Number	
L 6		Number System Conversion Practice	
L 7		Binary Arithmetic, One's and Two's Complements Arithmetic	
L 8		Codes: BCD Codes, Excess-3, Gray codes,	
L 9		Error Detecting and Correcting Codes: Parity Check Codes and Hamming Code	
L 10		Standard Representation of Logic Functions: SOP and POS Forms,	
L 11		Simplification of Switching Functions using K-Map- 2 Variable, 3 Variable	
L 12		Simplification of switching functions using K-Map- 4, 5 and 6 Variables	
L 13		Quine-McCluskey Tabular Methods, Don't Care Conditions	
L 14		Quine-McCluskey Tabular methods Example Practice	
L 15		Digital Logic Families: TTL, Schottky TTL and CMOS Logic,	
L 16		Interfacing CMOS and TTL, Tri-State Logic	
L 17		Revision	
L 18	Unit-II	Half Adder, Full Adder, Half Subtractor, Full Subtractor	CO2
L 19		Parallel Binary Adder, Parallel Binary Subtractor	
L 20		Carry Look Ahead Adder	
L 21		Serial Adder/Subtractor,	
L 22		BCD adder, Binary Multiplier, Binary Divider	
L 23		Multiplexer/ De-Multiplexer, Decoder, Encoder	
L 24		Parity Checker, Parity Generators,	

L 25		Code Converters, Magnitude Comparator.	
L 26		Revision	
L 27	Unit -III	A 1-Bit Memory, Circuit Properties of Bistable Batch,	CO3
L 28		Clocked SR Flip Flop	
L 29		J-K Flip Flop	
L 30		T and D Types Flip Flops	
L 31		Shift Registers, Serial to Parallel Converter, Parallel to Serial Converter	
L 32		Synchronous and Asynchronous Mod Counter	
L 33		Finite State Machine (FSM)	
L 34		Sequence Generator and Detector	
L 35		Revisions	
L 36	Unit-IV	Introduction to Digital to Analog Converter, Weighted Resistor/Converter	CO4
L 37		R-2R Ladder D/A Converter, Specifications for D/A Converters	
L 38		Introduction to Analog to Digital Converter, Quantization and Encoding, Parallel Comparator A/D Converter,	
L 39		Successive Approximation A/D Converter, Specifications for A/D Converters	
L 40		Characteristics of Memories, Read Only Memory (ROM)	
L 41		Read and Write Memory (RAM)	
L 42		Programmable Logic Array (PLA)	
L 43		Programmable Array Logic (PAL)	
L 44		Introduction to Field Programmable Gate Array (FPGA)	
L 45		Revision	

Text Books:

1. M. M. Mano, "Digital design", Pearson Education India, 2016.
2. Donald P. Leach and Albert Paul Malvino, Digital Principles and Applications, 8th Edition, TMH, 2003. 3. Taub Schilling, Digital Integrated Electronics, TMH

References:

1. A. Kumar, "Fundamentals of Digital Circuits", Prentice Hall India, 2016.
2. A.K. Maini, Digital Electronics, Wiley India
3. R P Jain, Modern digital electronics, TMH

Web resources:

1. https://onlinecourses.nptel.ac.in/noc21_ee10/preview
2. https://web.iitd.ac.in/~shouri/eel201/lectures.php