

STATE INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - Analog and Digital Electronics

Subject Code: B24-EE-201

Year: -2nd

Semester:-3rd

Lecture No	Unit No	Topic	COs Covered
1	Unit-III	Introduction to Digital Electronics Number system : Decimal, binary, octal, hexadecimal number system	CO3
2		Number System Conversion	
3		binary weighted codes	
4		signed numbers, 1s and 2s complement codes, Binary arithmetic	
5		Logic gates: AND, OR, NOT, NAND, NOR, Exclusive-OR, Exclusive-NOR	
6		Boolean Algebra: Laws and Theorems	
7		Boolean Expression Reduction	
8		Realization of switching functions using logic gates	
9		TEST	
10	Unit-IV	Standard Representation of Logic Functions: SOP and POS Forms,	CO4
11		Simplification of Switching Functions using K-Map- 2 Variable, 3 Variable	
12		Simplification of switching functions using K-Map- 4	
13		Simplification of expressions.	
14		Combinational Circuits: Half Adder, Full Adder	
15		Half Subtractor, Full Subtractor	
16		Multiplexer, De-Multiplexer	
17		Encoder, Decoder	
18		Parity Generators, Parity Checker, Comparator	
19		Test	
20		Sequential Circuit: A 1-Bit Memory, Clocked SR Flip Flop, J-K Flip Flop	CO4
21		T and D Types Flip Flops	

22		Test	
23	Unit-I	Charge Carriers Transport: Energy bands in intrinsic and extrinsic silicon	CO1
24		Carrier transport: diffusion current, drift current, mobility, and resistivity	
25		Generation and recombination of carriers, Continuity equation	
26		PN Junction: Basic Structure, small signal equivalent circuit of p-n diode	
27		derivation of barrier potential and diode current equation	
28		Simple diode circuits: clipping, clamping, rectifiers	
29		Zener diode and its application as voltage regulator	
30		Test	
31	Unit-II	Bipolar Junction Transistor: Basic principle of operation	CO2
32		Current gains: derivation of α , β , γ and their relationship	
33		Various modes of operation of BJT	
34		Base Width Modulation	
35		Transistor hybrid model, h-parameter equivalent circuit of transistor	
36		Analysis of transistor amplifier using h-parameters, calculation of input impedance, output impedance and voltage gain.	
37		Revision	

Text Books:

1. Millman & Halkias: Integrated Electronics, TMH.
2. Boylestad & Nashelsky: Electronic Devices & Circuit Theory, PHI.
3. M. M. Mano, & Digital design & , Pearson Education India, 2016.
4. Donald P. Leach and Albert Paul Malvino, Digital Principles and Applications, 8th Edition, TMH, 2003

Reference Books:

1. B.G. Streetman, Solid State Electronic Devices, Prentice Hall of India, New Delhi, 1995.
2. E S. Yang, Microelectronic Devices, McGraw Hill, Singapore, 1988.
3. S. Salivahanan and Naresh Kumar, Electronics devices and circuits, McGraw Hill, 1998.