

Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electronics and Communication Engineering

Lesson plan of faculty member for the academic year 2020–21

Class: II B Tech

Branch-Section: ECE C

Semester: I

Subject: Digital System Design (DSD)

Lectures per week: 4

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Number System and Boolean algebra And Switching Functions		
1.	Introduction to Digital System Design Decimal number systems Binary number systems	01 September 2020
2.	Octal number system, hexadecimal number system	02 September 2020
3.	Problems on conversion of number systems	03 September 2020
4.	Problems on conversion of number systems	04 September 2020
5.	Complements of Numbers	08 September 2020
6.	Codes- Binary Codes	09 September 2020
7.	Binary Coded Decimal Code and its Properties	10 September 2020
8.	Unit Distance Codes	11 September 2019
9.	Error Detecting and Correcting Codes, Boolean Algebra	15 September 2020
10.	Boolean Algebra Properties	16 September 2020
11.	Boolean Algebra Problems	17 September 2020
12.	Switching Functions	18 September 2020
13.	Canonical and Standard Form Algebraic Simplification of Digital Logic Gates	22 September 2020
14.	Properties of XOR Gates, Universal Gates.	23 September 2020
15.	Multilevel NAND/NOR realizations	24 September 2020
UNIT – II Minimization and Design of Combinational Circuits		
16.	Introduction	25 September 2020
17.	The Minimization of Switching Function	29 September 2020
18.	The Karnaugh Map Method-Up to Five Variable Maps	30 September 2020
19.	Don't Care Map Entries	01 October 2020
20.	Tabular Method	06 October 2020
21.	Design of Combinational Logic Adders	07 October 2020
22.	Subtractors	08 October 2020
23.	Comparators, Multiplexers,	09 October 2020
24.	Demultiplexer	13 October 2020
25.	Decoders,	14 October 2020
26.	Encoders, Code Converters	15 October 2020
27.	Code Converters, Hazards	16 October 2020
28.	Hazard Free Relations	27 October 2020
29.	Design of Combinational Logic	28 October 2020
30.	Examples on K Map	29 October 2020
UNIT – III: Sequential Circuit Fundamentals and Applications		
31.	Introduction: Basic Architectural Distinctions between Combinational and Sequential circuits, The Binary Cell	10 November 2020
32.	Fundamentals of Sequential Machine Operation	11 November 2020
33.	Flip Flops SR, JK	12 November 2020
34.	Race Around Condition in JK	13 November 2020

35.	D and T Type Flip Flops, Excitation Table of all Flip Flops	17 November 2020
36.	Design of a Clocked Flip-Flop	18 November 2020
37.	Timing and Triggering Consideration	19 November 2020
38.	Conversion from one type of Flip-Flop to another, Registers and Counters: Shift Registers	20 November 2020
39.	Data Transmission in Shift Registers	24 November 2020
40.	Operation of Shift Registers, Shift Register Configuration	25 November 2020
41.	Bidirectional Shift Registers, Applications of Shift Registers	26 November 2020
42.	Design and Operation of Ring Counter Twisted Ring Counter	27 November 2020
43.	Synchronous Counters	01 December 2020
44.	Operation of Synchronous Counters	02 December 2020
45.	Asynchronous Counters	03 December 2020
UNIT - IV Sequential Machines		
46.	Introduction to FSM, Analysis of Synchronous Sequential Circuits	04 December 2020
47.	Approaches to the Design of Synchronous Sequential Finite State Machines	08 December 2020
48.	Synthesis of Synchronous Sequential Circuits	09 December 2020
49.	Serial Binary Adder	10 December 2020
50.	Sequence Detector Parity-bit Generator	11 December 2020
51.	Design of Asynchronous Counters, Design of Synchronous Modulo N – Counters	15 December 2020
52.	Finite state machine-capabilities and limitations Mealy and Moore models	16 December 2020
UNIT - V Realization of Logic Gates using Diode & Transistor		
53.	Introduction to AND, OR, NOT gates using diode, transistor	17 December 2020
54.	CMOS Logic families and comparison	18 December 2020
55.	IC Classification, standard TTL NAND gate analysis & characteristics.	22 December 2020
56.	TTL open collector's O/PS	23 December 2020
57.	MOS & CMOS open drain and tristate outputs	24 December 2020
58.	CMOS transmission gates,	29 December 2020
59.	IC Interfacing	30 December 2020
60.	Previous Paper	31 December 2020

Textbooks:

1. Switching and Finite Automata Theory- Zvi Kohavi & Niraj K. Jha, 3rd Edition, Cambridge.
2. Modern Digital Electronics -RP Jain 4th Edition, McGraw Hill

Reference Books:

1. Digital Design- Morris Mano, PHI, 4th Edition, Pearson.
2. Switching Theory and Logic Design – A Anand Kumar, 3rd Edition, PHI, 2013.
3. Fundamentals of Logic Design- Charles H. Roth, 5th Edition, 2004
4. Introduction to Switching Theory and Logic Design- Fredriac J. Hill, 3rd Edition

Name and signature of the faculty: Ms Nikhat Parvin ----

Name and signature of Head of the Department: Ms N Shribala ----