

**Bhoj Reddy Engineering College for Women: Hyderabad**

Department of Electronics and Communication Engineering

Lesson plan of faculty member for the academic year 2019–20

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)
<b>UNIT – I: Number System and Boolean algebra And Switching Functions</b>		
1.	Introduction to Digital System design	15 July 2019
	Decimal number systems Binary number systems	
2.	Octal number system , hexadecimal number system	16 July 2019
3.	Problems on conversion of number systems	17 July 2019
4.	Problems on conversion of number systems	18 July 2019
5.	Complements of Numbers	22 July 2019
	Complements of Numbers	
6.	Codes- Binary Codes	23 July 2019
7.	Binary Coded Decimal Code and its Properties	24 July 2019
8.	Unit Distance Codes	25 July 2019
9.	Error Detecting and Correcting Codes	30 July 2019
10.	Boolean Algebra Basic Theorems	31 July 2019
11.	Boolean Algebra Properties	01 August 2019
12.	Boolean Algebra Problems	05 August 2019
	Switching Functions	
13.	Canonical and Standard Form	06 August 2019
14.	Digital Logic Gates	07 August 2019
15.	Algebraic Simplification of Digital Logic Gates	08 August 2019
16.	Properties of XOR Gates, Universal Gates.	13 August 2019
17.	Multilevel NAND/NOR realizations	14 August 2019
<b>UNIT – II Minimization and Design of Combinational Circuits</b>		
18.	Introduction	19 August 2019
	The Minimization of Switching Function	
19.	The Karnaugh Map Method-Up to Five Variable Maps	20 August 2019
20.	The Karnaugh Map Method-Up to Five Variable Maps	21 August 2019
21.	Don't Care Map Entries	22 August 2019
22.	Tabular Method	26 August 2019
	Tabular Method	
23.	Design of Combinational Logic Adders	27 August 2019
24.	Subtractors	28 August 2019
25.	Comparators	29 August 2019
26.	Multiplexers, Demultiplexers	03 September 2019
27.	Decoders, Encoders	04 September 2019
28.	Code Converters	05 September 2019
29.	Hazards	09 September 2019
	Hazard Free Relations	
30.	Design of Combinational Logic	11 September 2019
31.	Examples on K Map	12 September 2019
<b>UNIT – III: Sequential Circuit Fundamentals and Applications</b>		
32.	Introduction: Basic Architectural Distinctions between Combinational and Sequential circuits	16 September 2019
	The Binary Cell	

33.	Fundamentals of Sequential Machine Operation	17 September 2019
34.	Flip Flops SR, JK	18 September 2019
35.	Race Around Condition in JK	19 September 2019
36.	D and T Type Flip Flops	23 September 2019
	Excitation Table of all Flip Flops	
37.	Design of a Clocked Flip-Flop	24 September 2019
38.	Timing and Triggering Consideration	25 September 2019
39.	Conversion from one type of Flip-Flop to another	26 September 2019
40.	Registers and Counters: Shift Registers	30 September 2019
	Data Transmission in Shift Registers	
41.	Operation of Shift Registers, Shift Register Configuration	01 October 2019
42.	Bidirectional Shift Registers, Applications of Shift Registers	03 October 2019
43.	Design and Operation of Ring Counter	14 October 2019
	Twisted Ring Counter	
44.	Synchronous Counters	15 October 2019
45.	Operation of Synchronous Counters, Asynchronous Counters	16 October 2019
<b>UNIT - IV Sequential Machines</b>		
46.	Introduction to FSM	17 October 2019
47.	Analysis of Synchronous Sequential Circuits	21 October 2019
	Approaches to the Design of Synchronous Sequential Finite State Machines	
48.	Synthesis of Synchronous Sequential Circuits	22 October 2019
49.	Serial Binary Adder	23 October 2019
50.	Sequence Detector Parity-bit Generator	24 October 2019
51.	Design of Asynchronous Counters	28 October 2019
	Design of Synchronous Modulo N – Counters.	
52.	Finite state machine-capabilities and limitations	29 October 2019
53.	Mealy and Moore models	30 October 2019
<b>UNIT - V Realization of Logic Gates using Diode &amp; Transistor</b>		
54.	Introduction to AND ,OR ,NOT gates using diode, transistor	31 October 2019
55.	CMOS Logic families and comparison	04 November 2019
	IC Classification, standard TTL NAND gate analysis & characteristics .	
56.	TTL open collectors O/PS	05 November 2019
57.	MOS & CMOS open drain and tristate outputs	06 November 2019
58.	CMOS transmission gates,	07 November 2019
59.	IC Interfacing	11 November 2019
60.	Previous Paper Discussion	13 November 2019

**Text books:**

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 ----