

Governement Polytechnic For Women, Faridabad

Academic Session: July'2019-Dec'2019

Lesson Plan

Course Name: **DIGITAL ELECTRONICS**

Semester: **III**

Date of commencement of classes: **22nd July 2019**

No of hours allotted per week as per timetable: **3 T + 3 P**

Week No	Module/Topic Details with sub and sub-sub topic	No of Hours Planned	Text books/ Reference
		Theory	Books
JULY 2019			
1 (22-26)	Unit-I Introduction: • Distinction between analog and digital signal. • Applications and advantages of digital signals.	1	[1], [2]
2 (29-31)	Unit II Number System • Binary, octal and hexadecimal number system: • Conversion from decimal and hexadecimal to binary and vice-versa. • Binary addition and subtraction including binary points. • 1's and 2's complement method of addition/subtraction.	4	[1], [2]
AUGUST 2019			
3 (1-2)*	Unit III Codes and Parity • Concept of code, weighted and non-weighted codes, • Examples of 8421, BCD, excess-3 and Gray code. • Concept of parity, single and double parity and error detection	1	[1], [2], [9]
4 (5-15)	Unit IV Logic Gates and Families • Concept of negative and positive logic • Definition, symbols and truth tables of NOT, AND, OR, NAND, NOR, EXOR Gates, NAND and NOR as universal gates. • Introduction to TTL and CMOS logic families	2	[1], [2], [9]

5 (18-29)*	Unit V Logic Simplification • Postulates of Boolean algebra, • De Morgan's Theorems. Implementation of Boolean (logic) equation with gates • Karnaugh map (upto 4 variables) and simple application in developing combinational logic circuits	3	[1], [2], [4]
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SEPTEMBER 2019

6 (2-6)	Unit VI Arithmetic circuits • Half adder and Full adder circuit, design and implementation. • 4 bit adder circuit	2	[1], [2], [4]
7 (12-20)	UNIT –VII Decoders, Multiplexers, De Multiplexers and Encoder • Four bit decoder circuits for 7 segment display and decoder/driver ICs. • Basic functions and block diagram of MUX and DEMUX with different ICs • Basic functions and block diagram of Encoder	3	1], [2], [9]
8(23-30)	UNIT –VIII Latches and flip flops • Concept and types of latch with their working and applications • Operation using waveforms and truth tables of RS, T, D, Master/Slave JK flip flops. • Difference between a latch and a flip flop	4	

OCTOBER 2019

9 (1-10)	UNIT –IX Counters • Introduction to Asynchronous and Synchronous counters • Binary counters • Divide by N ripple counters, Decade counter, Ring counter	3	[1], [2], [9]
10 (15-24)	UNIT –X Shift Register • Introduction and basic concepts including shift left and shift right. • Serial in parallel out, serial in serial out, parallel in serial out, parallel in parallel out. • Universal shift register	2	[1], [2], [9]

NOVEMBER 2019			
11 (4-8)	UNIT –XI A/D and D/A Converters - Working principle of A/D and D/A converters - Brief idea about different techniques of A/D conversion - study of : Stair step Ramp A/D converter - Dual Slope A/D converter - Successive Approximation A/D Converter Detail study of : - Binary Weighted D/A converter - R/2R ladder D/A converter - Applications of A/D and D/A converter.	2	[1], [2], [4]
12 (11-15)	UNIT XII Semiconductor Memories Memory organization, classification of semiconductor memories (RAM, ROM, PROM, EPROM, EEPROM), static and dynamic RAM, introduction to 74181 ALU IC	2	[1], [2]

TEXT BOOKS:

1. Digital Electronics and Applications by Malvino Leach, Tata McGraw Hill Education Pvt Ltd, New D
2. Digital Logic Designs by Morris Mano, Prentice Hall of India, New Delhi
3. Digital Electronics by Soumitra Kumar Mandal, Tata McGraw Hill Education Pvt Ltd,

REFERENCE BOOKS :

4. Digital Electronics by V K Sangar , Raj Publishers, Jalandhar
5. Digital Electronics by Tokheim, Tata McGraw Hill Education Pvt Ltd,
6. Digital Fundamentals by Thomas Floyds, Universal Book Stall
7. Digital Electronics by RP Jain, Tata McGraw Hill Education Pvt Ltd, New Delhi
8. Digital Electronics by KS Jamwal, Dhanpat Rai and Co., New Delhi
9. Digital Electronics by Yashpal and Sanjeev Kumar; North Publication, Ambala City
10. Digital Electronics by BR Gupta, Dhanpat Rai & Co., New Delhi
11. Digital Systems: Principles and Applications by RJ Tocci, Prentice Hall of India, New Delhi
12. Digital Electronics by Rajaraman V., Prentice Hall of India, New Delhi
13. Fundamentals of Digital Electronics by Naresh Gupta, Jain Brothers, New Delhi
14. e-books/e-tools/relevant software to be used as recommended by AICTE/HSBTE/NITTTR.

Subject Faculty
Ms. Karishma Shukla