LESSON PLAN (WINTER-2021)

Discipline: IT	Semester: 3rd	Name of the Teaching Faculty: RAJEEV RANJAN SETH
Subject: DIGITAL ELECTRONICS	No of Days /per week class allotted:4	Semester From date: 01.10.2021 To 08.01.2022 No of Weeks:15
Week	Class Day	Theory / Practical Topics
1st	1st	**Unit-1: Basics of Digital Electronics (12)** 1.1 Number System-Binary, Octal, Conversion from one system to another number system.
	2nd	Decimal, Hexadecimal - Conversion from one system to another number system
	3rd	1.2 Arithmetic Operation-Addition, Subtraction, Multiplication, Division,
	4th	1's & 2's complement of Binary numbers& Subtraction using complements method
2nd	1st	PUJA VACATION
	2nd	
	3rd	
	4th	
3rd	1st	1.3 Digital Code & its application & distinguish between weighted & non-weight Code, Binary codes, excess-3 and Gray codes.
	2nd	1.4 Logic gates: AND,OR,NOT,NAND,-Symbol, Function, expression, truth table & timing diagram
	3rd	NOR, Exclusive-OR, Exclusive-NOR--Symbol, Function, expression, truth table & timing diagram
	4th	1.5 Universal Gates& its Realisation
4th	1st	1.6 Boolean algebra, Boolean expressions, Demorgan's Theorems.
	2nd	1.7 Represent Logic Expression: SOP & POS forms
	3rd	1.8 Karnaugh map (3 & 4 Variables)&
	4th	Minimization of logical expressions ,don't care conditions
5th	1st	**Unit-2: Combinational logic circuits (12)** 2.1 Half adder, Full adder
	2nd	Half Subtractor, Full Subtractor,
	3rd	Serial Binary 4 bit adder.
	4th	Parallel Binary 4 bit adder.
6th	1st	2.2 Multiplexer (4:1),
	2nd	De- multiplexer (1:4)
	3rd	Decoder,
	4th	Encoder
7th	1st	Digital comparator (3 Bit)
	2nd	Continue...
	3rd	2.3 Seven segment Decoder (Definition, relevance, gate level of circuit Logic circuit of above)
	4th	Seven segment Decoder (truth table, Applications of above)

8th	1st	**Unit-3: Sequential logic Circuits (12)** 3.1 Principle of flip-flops operation, its Types.
	2nd	3.2 SR Flip Flop using NAND Latch (un clocked)
	3rd	SR Flip Flop using NOR Latch (un clocked)
	4th	3.3 Clocked SR Flip Flop-Symbol, logic Circuit, truth table and applications
9th	1st	D Flip Flop-Symbol, logic Circuit, truth table and applications
	2nd	JK FLIP FLOP-Symbol, logic Circuit, truth table and applications
	3rd	T Flip Flop-Symbol, logic Circuit, truth table and applications
	4th	JK Master Slave flip-flops-Symbol, logic Circuit, truth table and applications
10th	1st	Continue...
	2nd	3.4 Concept of Racing and how it can be avoided
	3rd	4.5 Concept of memories-RAM, ROM, static RAM, dynamic RAM
	4th	4.6 Basic concept of PLD & applications
11th	1st	**Unit-4: Registers, Memories & PLD (8)** 4.1 Shift Registers-Serial in Serial -out, Serial- in Parallel-out, Parallel in serial out and Parallel in parallel out
	2nd	4.2 Universal shift registers-Applications. 4.3 Types of Counter & applications
	3rd	4.4 Binary counter,
	4th	Asynchronous ripple counter (UP & DOWN),
12th	1st	Decade counter. Synchronous counter,
	2nd	Ring Counter
	3rd	**Unit-5: A/D and D/A Converters (7)** 5.1 Necessity of A/D and D/A converters.
	4th	5.2 D/A conversion using weighted resistors methods
13th	1st	5.3 D/A conversion using R-2R ladder (Weighted resistors) network
	2nd	5.4 A/D conversion using counter method.
	3rd	5.5 A/D conversion using Successive approximate method
	4th	Continue.....
14th	1st	**Unit-6: LOGIC FAMILIES (9)**
	2nd	6.1 Various logic families &
	3rd	categories according to the IC fabrication process
	4th	6.2 Characteristics of Digital ICs- Propagation Delay, fan-out, fan-in, Power Dissipation
15th	1st	Noise Margin ,Power Supply requirement &Speed with [illegible]
	2nd	6.3 Features, circuit operation &various applications of [illegible] (NAND)
	3rd	Features, circuit operation &various applications of CMOS (NAND)
	4th	Features, circuit operation &various applications of CMOS (NOR)

Signature of [illegible]