GOVERNMENT POLYTECHNIC, SAMBALPUR, RENGALI

DEPARTMENT OF E&TC ENGINEERING

LESSON PLAN

SUBJECT- DIGITAL ELECTRONICS (TH-3)
SEMESTER-3RD

NAME OF THE FACULTY- MS. LOPAMUDRA BHOI

TOTAL NO. OF PERIODS-60(4/W)

UNIT	DATE	PERIOD	TOPICS TO BE COVERED AS PER SYALLABUS
1	2nd week of November,2021		**Basics of Digital Electronics**
		1	Number System-Binary, Octal, Decimal, Hexadecimal - Conversion from one system to another number system
		2	Arithmetic Operation-Addition, Subtraction, Multiplication, Division, 1's & 2's complement of Binary numbers& Subtraction using complements method
		3	Digital Code & its application & distinguish between weighted & non-weight Code, Binary codes, excess-3 and Gray codes
		4	Logic gates: AND,OR,NOT,NAND,NOR, Exclusive-OR, Exclusive-NOR--Symbol, Function, expression, truth table & timing diagram
		5	Universal Gates& its Realisation
		6	Boolean algebra, Boolean expressions, Demorgan's Theorems.
		7	Represent Logic Expression: SOP & POS forms
		8	Karnaugh map (3 & 4 Variables)&Minimization of logical expressions ,don't care condition
		9	Previous year questions discussion
		10	Previous year questions discussion & assignments.
2	1st Week of December,2021		**Combinational logic circuits.**
		1	Half adder, Full adder, Half Subtractor, Full Subtractor, Serial and Parallel Binary 4 bit adder
		2	Multiplexer (4:1), De- multiplexer (1:4), Decoder, Encoder, Digital comparator (3 Bit)
		3	Seven segment Decoder
		4	Previous year questions discussion & assignments.
3	2nd week of December,2021		**Sequential logic Circuits**
		1	Principle of flip-flops operation, its Types,
		2	SR Flip Flop using NAND,NOR Latch (un clocked)
		3	Clocked SR,D,JK,T,JK Master Slave flip-flops-Symbol, logic Circuit, truth table and applications
		4	Concept of Racing and how it can be avoided.
		5	Previous year questions discussion & assignments.
4			**Registers, Memories & PLD**

	2nd week of December,2021	1		Shift Registers-Serial in Serial -out, Serial- in Parallel-out, Parallel in serial out and Parallel in parallel out
		2		Universal shift registers-Applications.
		3		Types of Counter & applications
		4		Binary counter, Asynchronous ripple counter (UP & DOWN), Decade counter. Synchronous counter, Ring Counter.
		5		Concept of memories-RAM, ROM, static RAM, dynamic RAM,PS RAM
		6		Basic concept of PLD & applications
		7		Previous year questions discussion & assignments.
5	3rd week of December,2021			**A/D and D/A Converters**
		1		Necessity of A/D and D/A converters.
		2		D/A conversion using weighted resistors methods.
		3		D/A conversion using R-2R ladder (Weighted resistors) network.
		4		A/D conversion using counter method.
		5		A/D conversion using Successive approximate method
		6		Previous year questions discussion & assignments.
6	3rd week of January,2021			**LOGIC FAMILIES**
		1		Various logic families &categories according to the IC fabrication process
		2		Characteristics of Digital ICs- Propagation Delay, fan-out, fan-in, Power Dissipation ,Noise Margin ,Power Supply requirement &Speed with Reference to logic families
		3		Features, circuit operation &various applications of TTL(NAND), CMOS (NAND & NOR)
		4		Previous year questions discussion & assignments.