



**SYNERGY SCHOOL OF ENGINEERING
DEPARTMENT OF ELECTRICAL ENGINEERING**

Discipline :Computer Science Engineering Subject:- digital electronics	Semester:- 3rd Sem	Name of the teaching faculty:- PRAJNAPARAMITA KABI
	No. of Days/week class Allotted:-4	No. of weeks:-15 SESSION-2023-2024 WINTER
No. of week	No. of class	Topic to be Taught
1	1 st	Introduction class
	2 nd	Number System-Binary, Octal, Decimal, Hexadecimal
	3 rd	Conversion from one system to another number system
	4 th	Arithmetic Operation-Addition,Subtraction,Multiplication,Division
2	1 st	1S and 2S complement of Binary numbers& Subtraction using complements method
	2 nd	Digital Code & its application & distinguish between weighted & non-weight Code,
	3 rd	Binary codes, excess-3 and Gray codes
	4 th	Logic gates: AND,OR,NOT,NAND,NOR, Exclusive-OR, Exclusive-NOR — Symbol Function, expression, truth table & timing diagram
3	1 st	Universal gates and its realization
	2 nd	Boolean algebra, Boolean expressions, Demorgan's Theorems
	3 rd	Represent Logic Expression: SOP & POS forms
	4 th	Karnaugh map (3 & 4 Variables)&Minimization of logical expression
4	1 st	Karnaugh map (3 & 4 Variables)&Minimization of logical expressions ,don't care condition
	2 nd	Combinational logic circuit Half adder, Full adder
	3 rd	Combinational logic circuit Half subtractor , Full subtractor
	4 th	Serial and Parallel Binary 4 bit adder
5	1 st	Serial and Parallel Binary 4 bit adder
	2 nd	MUX & DEMUX
	3 rd	DECODER
	4 th	ENCODER
6	1 st	DIGITAL COMPARATOR
	2 nd	Seven segment Decoder
	3 rd	Seven segment Decoder relevance application
	4 th	Seven segment Decoder
7	1 st	Seven segment gate level of circuit Logic circuit
	2 nd	Sequential logic circuit
	3 rd	Principle of flip flops operation,
	4 th	Types of flipflop

8	1 st	Application of flip flop
	2 nd	SR Flip Flop using NAND, Latch (un clocked)
	3 rd	SR Flip Flop using NOR Latch (un clocked)
	4 th	Clocked SR,D, flipflop
9	1 st	JK&T flip flop
	2 nd	JK Master Slave flip-flops-Symbol, logic Circuit,
	3 rd	JK Master Slave flip-flops-application
	4 th	Concept of Racing and how it can be avoided
10	1 st	Concept of Racing and how it can be avoided
	2 nd	Shift Registers-Serial in Serial -out, Serial- in Parallel-out.
	3 rd	Shift resistor Parallel in serial out and Parallel in parallel out
	4 th	Universal shift registers-Applications
11	1 st	Types of counter and its application
	2 nd	Binary counter, Asynchronous ripple counter (UP & DOWN), Decade counter
	3 rd	Synchronous counter, Ring Counter
	4 th	Concept of memories RAM ROM static RAM dynamic RAM PS RAM
12	1 st	Basic concept of PLD & applications
	2 nd	A/D and D/A Converters
	3 rd	Necessity of A/D and D/A converters
	4 th	D/A conversion using weighted resistors methods
13	1 st	D/A conversion using R-2R ladder network
	2 nd	D/A conversion using (Weighted resistors) network
	3 rd	A/D conversion using counter method.
	4 th	A/D conversion using Successive approximate method
14	1 st	Various logic families
	2 nd	categories according to the IC fabrication process
	3 rd	Characteristics of Digital ICs- Propagation Delay
	4 th	fan-out, fan-in, Power Dissipation
15	1 st	Noise Margin ,Power Supply requirement
	2 nd	Speed with Reference to logic families
	3 rd	Features, circuit operation TTL(NAND), CMOS (NAND & NOR)
	4 th	various applications of TTL(NAND),
	5 th	various applications of TTL(NAND), CMOS (NAND & NOR)

Prepared by
1/1/23

HO D, EE
1/1/23