

LECTURE PLAN

DIGITAL ELECTRONICS (III SEM- CS)

Pankaj Kumar Israni (Guest Faculty)

S.No.	Chapter Title	Lectures	Contents of the Lectures
1	NUMBER SYSTEMS, BASIC LOGIC GATES & BOOLEAN ALGEBRA	1	Binary Arithmetic & Radix representation of different numbers
		2	Fixed point representation, complement notation
		3	various codes & arithmetic in different codes & their inter conversion
		4	Features of logic algebra, postulates of Boolean algebra
		5	Theorems of Boolean algebra. Boolean function
		6	Derived logic gates: Exclusive-OR, NAND, NOR gates, their block diagrams and truth tables
		7	Logic diagrams from Boolean expressions and vica-versa.
		8	Converting logic diagrams to universal logic. Positive, negative and mixed logic. Logic gate conversion
2	DIGITAL LOGIC GATE CHARACTERISTICS	9	TTL logic gate characteristics
		10	Theory & operation of TTL NAND gate circuitry
		11	Open collector TTL
		12	Three state output logic
		13	TTL subfamilies. MOS & CMOS logic families
		14	Realization of logic gates in RTL
		15	DTL, ECL, C-MOS & MOSFET
		16	Interfacing logic families to one another
3	MINIMIZATION TECHNIQUES	17	Minterm, Maxterm, Karnaugh Map
		18	K map upto 4 variables
		19	Simplification of logic functions with K-map
		20	conversion of truth tables in POS and SOP form
		21	Incomplete specified functions
		22	Variable mapping
		23	Quinn-Mc Klusky minimization techniques
4	COMBINATIONAL SYSTEMS	24	Combinational logic circuit design
		25	half and full adder, subtractor, Binary serial and parallel adders
		26	BCD adder, Binary multiplier
		27	Decoder: Binary to Gray decoder
		28	BCD to decimal, BCD to 7-segment decoder
		29	Multiplexer, demultiplexer
		30	Encoder. Octal to binary, BCD to excess-3 encoder
		31	Diode switching matrix
		32	Design of logic circuits by multiplexers, encoders, decoders and demultiplexers
5	SEQUENTIAL SYSTEMS	33	Latches, flip-flops, R-S, D, J-K, Master Slave flip flops
		34	Conversions of flip-flops, Counters, Asynchronous (ripple)
		35	synchronous and synchronous decade counter
		36	Modulus counter, skipping state counter
		37	counter design. Ring counter, Counter applications
		38	Registers
		39	buffer register
		40	shift register