LESSON PLAN SESSION JUL. – DEC. 2024

SUBJECT: Digital Electronics **SEMESTER: 3rd**

BRANCH: - ET&T & CSE

UNIT NUMBER	NAME OF THE TOPIC	NO OF CLASS REQUIRED	TOTAL CLASSES	REMARK
Unit-1 NUMBER SYSTEM and CODES	1.1 Use number systems and codes for various applications Number systems.	01	10	
	1.2 Conversion between different number systems	03		
	1.3 r's and (r-1)'s complement of number	01		
	1.4 Binary Arithmetic operations : Addition, Subtraction, Multiplication and Division	01		
	1.5 Binary Codes Weighted and Un-weighted codes, Excess- 3 code, Gray code, Error Detection and Correction Code, Hamming code, BCD Code, ASCI code	02		
	• Content Beyond Syllabus	01		
	• QUIZ. • Doubt clearing session	01		ASSIGNMENT -1
Unit -2 **Logic gates and Boolean algebra**	2.1 Logic Gates: basic gates, AND, OR, NOT, EX-OR, EX-NOR, Universal Gates: NAND, NOR, truth table ,symbol, implement Basic Gate using Universal gate	03	10	
	2.2 Boolean Algebra: Boolean theorems, De Morgan's Theorems, duality.	02		
	2.3 Max - term, Min - term, Sum of product (SOP) and Product of Sum(POS) expressions, Simplify the Boolean functions,, Simplify the Boolean functions using K-map method(up to 4 variables).	03		
	• Content Beyond Syllabus	01		
	• QUIZ • Doubt clearing session	01		ASSIGNMENT-2
Unit-3 Combinational Circuits	3.1 Half Adder, Full Adder, Half subtractor, Full Subtractor, parallel adder, 4 bit binary adder, 4 bit binary Subtractor, BCD adder	03	10	
	3.2 Magnitude comparator(2 ,3 and 4 bit)	01		

	3.3 Encoder and Decoder: 4 I/P and 2 O/P encoder,8 I/P and 3 O/P encoder, Octal to Binary and Decimal to BCD Encoder Decoders: 3-Line to 8-Line Decoder, 8-4-2-1 BCD to Decimal Decoder, BCD to Seven Segment Decoder	03		
	3.4 Multiplexer(Mux) and Demultiplexer (Demux): 2X1,4X1 and 8X1 multiplixer,1X2,1X4 and 1X8 demultiplexer, applications of Multiplexers and demultiplexers	01		
	• Content Beyond Syllabus	01		
	• QUIZ • Doubt clearing session	01		ASSIGNMENT-3
Unit 4.0 SEQUENTIAL CIRCUITS	4.1 Flip Flop - basic flip flop and latch, Clock, Set and Reset inputs to F/F, clock triggering- Positive & Negative clock Edge triggering, level triggering	02	12	
	4.2 RS F/F, JK F/F, D F/F, T F/F, truth table, characteristic table or excitation table.	03		
	4.3 Race around condition, Master Slave F/F	01		
	4.4 Counters: - Modules of a counter, Synchronous & Asynchronous counter, Ripple Counter, Up – down binary counter, Decade counter, BCD counter, Designing of counters.	01		
	4.5 Register –Shift register, Serial in parallel out, Serial in Serial out, Parallel in Serial out, Parallel in Parallel out register, designing of register	01		
	• Content Beyond Syllabus	01		
	• QUIZ • Doubt clearing session	01		ASSIGNMENT-4
Unit 5.0 CONVERTERS AND LOGIC FAMILIES	5.1 Digital to Analog converter(DAC): R- 2R DAC, Weighted resister DAC	02	08	
	5.2 Analog to Digital converter(ADC) Counter type, ramp, Successive approximation, Flash type	02		
	5.3 Logic Families – Digital IC specifications (threshold voltage ,	02		

	propagation delay, power dissipation, Fan in ,Fan out, transition width, logic levels, Noise margin , speed power product, figure of merit), TTL, RTL, DTL ,ECL, I^2L and CMOS			
	• Content Beyond Syllabus	01		
	• QUIZ • Doubt clearing session	01		ASSIGNMENT-5
	Total Classes Required	48	48	

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