

GOVERNMENT POLYTECHNIC, SAMBALPUR, RENGALI

DEPARTMENT OF E&TC ENGINEERING

LESSON PLAN(WINTER-2021)

SUBJECT-DIGITAL ELECTRONICS & MICROPROCESSOR(TH-3)

SEMESTER-5TH ELECTRICAL ENGINEERING

NAME OF THE FACULTY- Ms. Sadhana Subhalaxmi

TOTAL NO. OF PERIODS-75(5P/WEEK)

UNIT	DATE	PERIOD	TOPICS TO BE COVERED
1	1 st week of October,2021		BASICS OF DIGITAL ELECTRONICS
		1	Binary, Octal, Hexadecimal number systems and compare with Decimal system
		2	Binary, Octal, Hexadecimal number systems and compare with Decimal system
		3	Binary addition, subtraction, Multiplication and Division
		4	1's complement and 2's complement numbers for a binary number
		5	Subtraction of binary numbers in 2's complement method.
		6	Use of weighted and Un-weighted codes & write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa.
		7	Use of weighted and Un-weighted codes & write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa. Importance of parity Bit.
		8	Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
		9	Realize AND, OR, NOT operations using NAND, NOR gates
		10	Different postulates and De-Morgan's theorems in Boolean algebra
		11	Use Of Boolean Algebra For Simplification Of Logic Expression
		12	Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
		13	Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
		14	Previous year questions discussion
15	Numericals & assignment discussion		
			COMBINATIONAL LOGIC CIRCUITS
		1	Give the concept of combinational logic circuits.
		2	Half adder circuit and verify its functionality using truth table.
		3	Realize a Half-adder using NAND gates only and NOR gates only.
		4	Full adder circuit and explain its operation with truth table.
	3 rd week of November,2021	5	Realize full-adder using two Half-adders and an OR – gate and write truth table

2		6	Full subtractor circuit and explain its operation with truth table
		7	Operation of 4 X 1 Multiplexers
		8	Operation of 1 X 4 demultiplexer
		9	Working of Binary-Decimal Encoder.
		10	Working of 3 X 8 Decoder
		11	Working of Two bit magnitude comparator
		12	Working of Two bit magnitude comparator
		13	Revision Test-1
		14	Previous year questions discussion
		15	Numericals & assignment discussion
3	3 rd week of December,2021		SEQUENTIAL LOGIC CIRCUITS
		1	Give the idea of Sequential logic circuits
		2	State the necessity of clock and give the concept of level clocking and edge triggering,
		3	Clocked SR flip flop with preset and clear inputs
		4	Construct level clocked JK flip flop using S-R flip-flop and explain with truth table
		5	Concept of race around condition and study of master slave JK flip flop.
		6	Give the truth tables of edge triggered D and T flip flops and draw their symbols
		7	Applications of flip flops, Define modulus of a counter
		8	4-bit asynchronous counter and its timing diagram
		9	Asynchronous decade counter.
		10	4-bit synchronous counter.
		11	Distinguish between synchronous and asynchronous counters
		12	State the need for a Register and list the four types of registers.
		13	Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.
		14	Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.
15	Previous year questions discussion, Numericals & assignment discussion		
4	3 rd week of January,2022		8085 MICROPROCESSOR
		1	Introduction to Microprocessors, Microcomputers
		2	Architecture of Intel 8085A Microprocessor and description of each block
		3	
		4	
		5	Pin diagram and description
		6	Stack, Stack pointer & stack top
		7	Interrupts, Opcode & Operand
		8	Differentiate between one byte, two byte & three byte instruction with example
		9	Instruction set of 8085 example
		10	Addressing mode
		11	Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
		12	Timing Diagram for memory read, memory write, I/O read, I/O write
		13	
		14	Timing Diagram for 8085 instruction
15	Counter and time delay		

		16	Simple assembly language programming of 8085	
		17		
		18		Previous year questions discussion
		19		Numericals & assignment discussion
		20		Revision Test-2
5	2 nd week of February,2022		INTERFACING AND SUPPORT CHIPS	
		1	Basic Interfacing Concepts, Memory mapping & I/O mapping	
		2	Functional block diagram and description of each block of Programmable peripheral interface Intel 8255	
		3		
		4	Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller	
		5		
		6		
		7		
		8	Previous year questions discussion	
		9	Numericals & assignment discussion	
10	Revision Test-3			