LESSON PLAN
GOVT. POLYTECHNIC, KANDHAMAL

Discipline:ELECTRICAL.Semester: 5th**,Name of Faculty :** CHINMAYEE PANIGRAHI		
Subject: DE & MP	**No. of days/ weekClass allotted:** 5	**Semester From Date:** 01.08.2023 TO 09.12.2023
Week	**Class Day**	**Theory**
1st	**1st**	**BASICS OF DIGITAL ELECTRONICS** Binary, Octal, Hexadecimal number systems and compare with Decimal system.
	2nd	Binary addition, subtraction, Multiplication and Division.
	3rd	1's complement and 2's complement numbers for a binary number.
	4th	Subtraction of binary numbers in 2's complement method.
	5th	Use of weighted and Un-weighted codes. write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice versa.
2nd	**1st**	Importance of parity Bit.
	2nd	Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
	3rd	Realize AND, OR, NOT operations using NAND, NOR gates.
	4th	Different postulates and De-Morgan's theorems in Boolean algebra.
	5th	Use Of Boolean Algebra For Simplification Of Logic Expression.
3rd	**1st**	Karnaugh Map For 2,3,4 Variable.
	2nd	**COMBINATIONAL LOGIC CIRCUITS** Give the concept of combinational logic circuits.
	3rd	Realize a Half-adder using NAND gates only and NOR gates only.
	4th	Full adder circuit and explain its operation with truth table.
	5th	Realize full-adder using two Half-adders and an OR – gate and write truth table.
4th	**1st**	Full subtractor circuit and explain its operation with truth table.
	2nd	Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer.
	3rd	Working of Binary-Decimal Encoder & 3 X 8 Decoder.
	4th	Working of Two bit magnitude comparator.
	5th	**SEQUENTIAL LOGIC CIRCUITS** Give the idea of Sequential logic circuits.

5th	**1st**	State the necessity of clock and give the concept of level clocking and edge triggering.
	2nd	Clocked SR flip flop with preset and clear inputs.
	3rd	Construct level clocked JK flip flop using S-R flip-flop and explain with truth table.
	4th	Concept of race around condition and study of master slave JK flip flop.
	5th	Give the truth tables of edge triggered D and T flip flops and draw their symbols.
6th	**1st**	Applications of flip flops. Define modulus of a counter.

	2nd	4-bit asynchronous counter and its timing diagram.
	3rd	Asynchronous decade counter.
	4th	Distinguish between synchronous and asynchronous counters.
	5th	State the need for a Register and list the four types of registers.
7th	**1st**	Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.
	2nd	4-bit synchronous counter.
	3rd	Simplification Of SOP And POS Logic Expression Using K-Map.
	4th	write Binary equivalent number for a number in 8421.
	5th	Excess-3 and Gray Code and vice-versa.
8th	**1st**	Class test in binary numbers.
	2nd	Rivision sequential circuit.
	3rd	doubt class in binaery number convert.
	4th	Flipflop timing diagram.
	5th	4-bit asynchronous counter and its timing diagram
9th	**1st**	Give the truth tables of edge triggered D and T flip flops and draw their symbols.
	2nd	Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.
	3rd	Clocked SR flip flop with preset and clear inputs.
	4th	Clocked SR flip flop with preset and clear inputs.
	5th	Excess-3 and Gray Code and vice-versa.
10th	**1st**	Simplification Of SOP And POS Logic Expression Using K-Map.
	2nd	Full subtractor circuit and explain its operation with truth table.
	3rd	Working of Two bit magnitude comparator.
	4th	Working of Two bit magnitude comparator.

	5th	Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer.
11th	**1st**	**8085 MICROPROCESSOR**
		Introduction to Microprocessors, Microcomputers
	2nd	Architecture of Intel 8085A Microprocessor and description of each block
	3rd	Pin diagram and description
	4th	Stack, Stack pointer & stack top
	5th	Interrupts.
12th	**1st**	Opcode & Operand.
	2nd	Differentiate between one byte, two byte & three byte instruction with example.
	3rd	Instruction set of 8085 example.
	4th	Addressing mode.
	5th	Fetch Cycle, Machine Cycle, Instruction Cycle, T-State.

13th	**1st**	Timing Diagram for memory read, memory write, I/O read, I/O write.
	2nd	Timing Diagram for 8085 instruction.
	3rd	Counter and time delay.
	4th	Simple assembly language programming of 8085.
	5th	**Simple assembly language programming of 8085.** Basic Interfacing Concepts, Memory mapping & I/O mapping.
14th	**1st**	Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	2nd	Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	3rd	Application using 8255: Seven segment LED display, Square wave generator
	4th	Assignments using the above features
15th	**1st**	Traffic light Controller
	2nd	Assignments using the above features
	3rd	Doubts clearing class
	4th	Class test

BOOK REFERNCE:

1. Fundamental of Digital Electronics, Anand Kumar
2. Digital Electronics, B.R Gupta & V.Singhal