

Discipline: ELECTRICAL ENGG.	Semester: 5TH
Subject: DIGITAL ELECTRONICS & MICROPROCESSOR (TH.3)	No. of days/ per week class allotted: 5
Week	Class Day
1st	1st
	2nd
	3rd
	4th
	5th
2nd	1st
	2nd
	3rd
	4th
	5th
3rd	1st
	2nd
	3rd
	4th
	5th
4th	1st
	2nd
	3rd
	4th
	5th
5th	1st
	2nd
	3rd
	4th
	5th
6th	1st
	2nd
	3rd

	4th
	5th
7th	1st
	2nd
	3rd
	4th
	5th
8th	1st
	2nd
	3rd
	4th
	5th
9th	1st
	2nd
	3rd
	4th
	5th
10th	1st
	2nd
	3rd
	4th
	5th
11th	1st
	2nd
	3rd
	4th
	5th
12th	1st
	2nd
	3rd
	4th
	5th
13th	1st
	2nd
	3rd
	4th
	5th
14th	1st

	2nd
	3rd
	4th
	5th
15th	1st
	2nd
	3rd
	4th
	5th

LESSON PLAN

Name of the Teaching Faculty: Pallabi Mohanta

Semester From Date : 15/08/2022 to Date: 22/12/2022
No. of Weeks: 15

Theory/ Practical Topics

BASICS OF DIGITAL ELECTRONICS : Binary, Octal, Hexadecimal number systems and compare with Decimal system.

Binary addition, subtraction.

Binary Multiplication and Division.

1's complement and 2's complement numbers for a binary number.

Subtraction of binary numbers in 2's complement method.

Use of weighted and Un-weighted codes & write Binary equivalent number for a number in 8421

Excess-3 and Gray Code and vice-versa.

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

Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.

Realize AND, OR, NOT operations using NAND, NOR gates.

Different postulates and De-Morgan's theorems in Boolean algebra.

Use Of Boolean Algebra For Simplification Of Logic Expression

Karnaugh Map For 2,3,4 Variable.

Simplification Of SOP And POS Logic Expression Using K-Map.

COMBINATIONAL LOGIC CIRCUITS : Give the concept of combinational logic circuits.

Half adder circuit and verify its functionality using truth table.

Realize a Half-adder using NAND gates only and NOR gates only.

Full adder circuit and explain its operation with truth table.

Realize full-adder using two Half-adders and an OR – gate and write truth table

Realize full-adder using two Half-adders and an OR – gate and write truth table

Full subtractor circuit and explain its operation with truth table.

Full subtractor circuit and explain its operation with truth table.

Operation of 4 X 1 Multiplexers

1 X 4 demultiplexer

Working of Binary-Decimal Encode

3 X 8 Decoder

3 X 8 Decoder

Working of Two bit magnitude comparator.

Working of Two bit magnitude comparator.

SEQUENTIAL LOGIC CIRCUITS Give the idea of Sequential logic circuits.

State the necessity of clock and give the concept of level clocking and edge triggering,

Clocked SR flip flop with preset and clear inputs.

Construct level clocked JK flip flop using S-R flip-flop and explain with truth table

Concept of race around condition and study of master slave JK flip flop.

Give the truth tables of edge triggered D and T flip flops and draw their symbol

Applications of flip flops.

Define modulus of a counter

4-bit asynchronous counter and its timing diagram

Asynchronous decade counter.

4-bit synchronous counter.

Distinguish between synchronous and asynchronous counters

State the need for a Register and list the four types of registers

Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.

Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.

8085 MICROPROCESSOR Introduction to Microprocessors

Microcomputers

Architecture of Intel 8085A Microprocessor and description of each block.

Pin diagram and description.

Pin diagram and description.

Stack, Stack pointer & stack top

Interrupts

Opcode & Operand,

Differentiate between one byte, two byte & three byte instruction with example

Instruction set of 8085 example

Addressing mode

Fetch Cycle, Machine Cycle

Instruction Cycle, T-State

Timing Diagram for memory read, memory write

I/O read, I/O write

Timing Diagram for 8085 instruction

Timing Diagram for 8085 instruction

Counter and time delay.

Simple assembly language programming of 8085

Simple assembly language programming of 8085

INTERFACING AND SUPPORT CHIPS Basic Interfacing Concepts

Memory mapping & I/O mapping

Memory mapping & I/O mapping

Functional block diagram and description of each block of Programmable peripheral interface Intel 8255 ,

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Application using 8255: Seven segment LED display

Square wave generator

Traffic light Controller

Traffic light Controller