

ACADEMIC SESSION : 2023-24

Discipline : Electrical Engineering	Semester : 5 th	Name of the Teaching Faculty : Tilu Behera
Subject : Digital Electronics & Microprocessor	No. of days / week class allotted	Semester From date: 01/08/23 to 30/11/2023 Nos. of Weeks per semester : 15
Week	Class Day	Theory/ Practical Topics
1 ST	1 st	Binary, Octal, Hexadecimal number systems
	2 nd	Compare Binary, Octal, Hexadecimal number systems with Decimal system
	3 rd	Binary addition, subtraction
	4 th	Binary Multiplication and Division.
	5 th	1's complement and 2's complement numbers for a binary number
2 ND	1 st	Subtraction of binary numbers in 2's complement method.
	2 nd	Use of weighted and Un-weighted codes
	3 rd	write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa.
	4 th	Importance of parity Bit.
	5 th	Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
3 RD	1 st	Realize AND, OR, NOT operations using NAND, NOR gates.
	2 nd	Different postulates and De-Morgan's theorems in Boolean algebra.
	3 rd	Use Of Boolean Algebra For Simplification Of Logic Expression
	4 th	Karnaugh Map For 2,3,4 Variable
	5 th	Simplification Of SOP And POS Logic Expression Using K-Map
4 TH	1 st	Give the concept of combinational logic circuits
	2 nd	Half adder circuit and verify its functionality using truth table.
	3 rd	Realize a Half-adder using NAND gates only and NOR gates only.
	4 th	Full adder circuit and explain its operation with truth table.
	5 th	Realize full-adder using two Half-adders and an OR – gate and write truth table
5 TH	1 st	Full subtractor circuit and explain its operation with truth table.
	2 nd	Operation of 4 X 1 Multiplexers
	3 rd	Operation of 1 X 4 Demultiplexer
	4 th	Working of Binary-Decimal Encoder
	5 th	Working of 3 X 8 Decoder.
6 TH	1 st	Working of Two bit magnitude comparator.
	2 nd	Give the idea of Sequential logic circuits.
	3 rd	State the necessity of clock and give the concept of level clocking and edge triggering.
	4 th	Clocked SR flip flop with preset and clear inputs.
	5 th	Construct level clocked JK flip flop using S-R flip-flop and explain with truth table
7 TH	1 st	Concept of race around condition and study of master slave JK flip flop.
	2 nd	Give the truth table of edge triggered D flip flop and draw it's symbol.
	3 rd	Give the truth table of edge triggered T flip flop and draw it's symbol.
	4 th	Applications of flip flops.
	5 th	Define modulus of a counter

8 TH	1 st	3-bit asynchronous counter and its timing diagram.
	2 nd	4-bit asynchronous counter and its timing diagram.
	3 rd	Asynchronous decade counter.
	4 th	4-bit synchronous counter.
	5 th	Distinguish between synchronous and asynchronous counters.
9 TH	1 st	State the need for a Register and list the four types of registers.
	2 nd	Working of SISO Register with truth table using flip flop.
	3 rd	Working of SIPO Register with truth table using flip flop.
	4 th	Working of PISO Register with truth table using flip flop.
	5 th	Working of PIPO Register with truth table using flip flop.
10 TH	1 st	Introduction to Microprocessors, Microcomputers
	2 nd	Architecture of Intel 8085A Microprocessor and description of each block.
	3 rd	Architecture of Intel 8085A Microprocessor and description of each block.
	4 th	Pin diagram and description.
	5 th	Pin diagram and description.
11 TH	1 st	Stack, Stack pointer & stack top
	2 nd	Interrupts
	3 rd	Opcode & Operand,
	4 th	Differentiate between one byte, two byte & three byte instruction with example.
	5 th	Instruction set of 8085 example
12 th	1 st	Instruction set of 8085 example
	2 nd	Addressing mode
	3 rd	Addressing mode
	4 th	Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
	5 th	Timing Diagram for memory read, memory write
13 th	1 st	Timing Diagram for I/O read, I/O write
	2 nd	Timing Diagram for 8085 instruction
	3 rd	Problems on Timing Diagram for 8085 instruction
	4 th	Counter and time delay.
	5 th	Simple assembly language programming of 8085
14 th	1 st	Question Discussion
	2 nd	Question Discussion
	3 rd	Question Discussion
	4 th	Basic Interfacing Concepts, Memory mapping & I/O mapping
	5 th	Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
15 th	1 st	Application using 8255: Seven segment LED display
	2 nd	Application using 8255: Square wave generator
	3 rd	Application using 8255: Traffic light Controller
	4 th	Question Discussion
	5 th	Question Discussion

Prepared By
31/07/2023

Tilu Behera
Lecturer in Electronics
GP Sonepur

31.07.23

Head of the Department
Electrical Engineering
GP Sonepur

31/7/23

Academic Co-ordinator
GP Sonepur