

DISCIPLINE: Electrical & Electronics Engg.	SEMESTER: 5 th Semester	NAME OF THE TEACHING FACULTY: Ms. Deepika sarkar Lecturer -II in ETC
SUBJECT: Digital Electronics & Microprocessor(th2)	NO OF DAYS/PER WEEK CLASSES ALLOTTED: 5	SEMESTER FROM DATE: 14.07.2025 TO DATE: 15.11.2025 NO OF WEEKS: 15

Week	Class Day	Topics
BASICS OF DIGITAL ELECTRONICS		
1. BASICS OF DIGITAL ELECTRONICS		
1st	1st	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	1 st	Use of weighted and Un-weighted codes & write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa
	2 ND	Importance of parity Bit.
	3 RD	Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
	4 TH	Realize AND, OR, NOT operations using NAND, NOR gates.
	5th	Different postulates and De-Morgan's theorems in Boolean algebra.
3rd	1st	Use Of Boolean Algebra For Simplification Of Logic Expression
	2nd	Use Of Boolean Algebra For Simplification Of Logic Expression
	3rd	Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
	4th	Problem solving
	5th	Test
2. COMBINATIONAL LOGIC CIRCUITS		
4th	1 ST	Give the concept of combinational logic circuits.
	2 ND	Half adder circuit and verify its functionality using truth table.
	3 RD	Half adder circuit and verify its functionality using truth table.
	4 TH	Realize a Half-adder using NAND gates only and NOR gates only.
	5th	Full adder circuit and explain its operation with truth table.
5th	1 ST	Realize full-adder using two Half-adders and an OR – gate and write truth table
	2 ND	Realize full-adder using two Half-adders and an OR – gate and write truth table
	3 RD	Full Subtractor circuit and explain its operation with truth table.
	4 TH	Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer
	5th	Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer
6th	1 ST	Working of Binary-Decimal Encoder & 3 X 8 Decoder.

	2 ND	Working of Two bit magnitude comparator.
	3 RD	Working of Two bit magnitude comparator.
	4 TH	Problem solving
	5 th	Test
	3. SEQUENTIAL LOGIC CIRCUITS	
7 th	1 ST	Give the idea of Sequential logic circuits...
	2 ND	State the necessity of clock and give the concept of level clocking and edge triggering.
	3 RD	Clocked SR flip flop with preset and clear inputs
	4 TH	Construct level clocked JK flip flop using S-R flip-flop and explain with truth table
	5 th	Concept of race around condition and study of master slave JK flip flop.
8 th	1 ST	Give the truth tables of edge triggered D and T flip flops and draw their symbols.
	2 ND	Applications of flip flops
	3 RD	Define modulus of a counter
	4 TH	4-bit asynchronous counter and its timing diagram.
	5 th	Asynchronous decade counter...
9 th	1 ST	4-bit synchronous counter
	2 ND	Distinguish between synchronous and asynchronous counters
	3 RD	State the need for a Register and list the four types of registers.
	4 TH	Working of SISO, SIPO, PISO, PPIO Register with truth table using flip flop.
	5 th	Problem solving
10 th	4.8085 MICROPROCESSOR	
	1 ST	Introduction to Microprocessors, Microcomputers
	2 ND	Architecture of Intel 8085A Microprocessor and description of each block.
	3 RD	Pin diagram and description.
	4 TH	Stack, Stack pointer & stack top
	5 th	Interrupts
11 th	1 ST	Opcode & Operand,
	2 ND	Differentiate between one byte, two byte & three byte instruction with example.
	3 RD	Differentiate between one byte, two byte & three byte instruction with example.
	4 TH	Instruction set of 8085 example
	5 th	Instruction set of 8085 example
12 th	1 ST	Addressing mode
	2 ND	Fetch Cycle, Machine Cycle, Instruction Cycle, T-State.
	3 RD	Timing Diagram for memory read, memory write, I/O read, I/O write
	4 TH	Timing Diagram for memory read, memory write, I/O read, I/O write
	5 th	Timing Diagram for 8085 instruction

13 th	1 ST	Counter and time delay
	2 ND	Simple assembly language programming of 8085.
	3 RD	Simple assembly language programming of 8085
	4 TH	Simple assembly language programming of 8085
	5 th	Test
14 th	5.INTERFACING AND SUPPORT CHIPS	
	1 ST	Basic Interfacing Concepts, Memory mapping & I/O mapping
	2 ND	Basic Interfacing Concepts, Memory mapping & I/O mapping
	3 RD	Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	4 TH	Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	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, Square wave generator, Traffic light Controller
	2 nd	Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
	3 rd	Doubt Clearing class
	4 th	Preparation for semester examination
	5 th	Test

D. D. D. D.
Lecturer 14.07.25

D. D. D. D.
HOD 14.07.25

D. D. D. D.
Principal 14.07.25