LESSON PLAN

SUBJECT: Th-2 (DIGITAL ELECTRONICS & MICROPROCESSOR)

Name Of The Faculty :- Er. Pradipta Kumar Behera
Branch :- Electrical & Electronics Engg**.**   **Semester :-** 5th
Session :- 2025-26   **Examination :-** 2025 (W)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Basics Of Digital Electronics	15	15
2	Combinational Logic Circuits	15	15
3	Sequential Logic Circuits	15	15
4	8085 Microprocessor	20	20
5	Interfacing And Support Chips	10	10
	Total periods	75	75

Sign of Faculty   Sign of H.O.D.

Name of the programme: Diploma in Electrical & Electronics Engg.	Semester: 5th	Name of the Teaching Faculty: Er. Pradipta Kumar Behera	
		Academic Year : 2025-26 Examination : 2025 (W)	
Course Code: (TH-2)	Course Year: Third Year	No. of Classes Alloted Per Week :	5
		Planned Classes Required to Complete the Course	75
Week	Class Day	Topics to be Covered	

Week	Class Day	Topics to be Covered
1st	1st	1. BASICS OF DIGITAL ELECTRONICS 1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
	2nd	1.2 Binary addition, subtraction, Multiplication and Division.
	3rd	1.2 Binary addition, subtraction, Multiplication and Division.
	4th	1.3 1's complement and 2's complement numbers for a binary number
	5th	1.4 Subtraction of binary numbers in 2's complement method.
2nd	1st	1.5 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	1.6 Importance of parity Bit.
	3rd	1.7 Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
	4th	1.7 Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
	5th	1.8 Realize AND, OR, NOT operations using NAND, NOR gates.
3rd	1st	1.8 Realize AND, OR, NOT operations using NAND, NOR gates.
	2nd	1.9 Different postulates and De-Morgan's theorems in Boolean algebra.
	3rd	1.9 Different postulates and De-Morgan's theorems in Boolean algebra.
	4th	1.10 Use Of Boolean Algebra For Simplification Of Logic Expression
	5th	1.11 Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
4th	1st	2. COMBINATIONAL LOGIC CIRCUITS 2.1 Give the concept of combinational logic circuits.
	2nd	2.2 Half adder circuit and verify its functionality using truth table.
	3rd	2.2 Half adder circuit and verify its functionality using truth table.
	4th	2.3 Realize a Half-adder using NAND gates only and NOR gates only.
	5th	2.3 Realize a Half-adder using NAND gates only and NOR gates only.
5th	1st	2.4 Full adder circuit and explain its operation with truth table
	2nd	2.4 Full adder circuit and explain its operation with truth table
	3rd	2.5 Realize full-adder using two Half-adders and an OR – gate and write truth table
	4th	2.5 Realize full-adder using two Half-adders and an OR – gate and write truth table
	5th	2.6 Full subtractor circuit and explain its operation with truth table.

Week	Class Day	Topics to be Covered
6th	1st	2.7 Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer
	2nd	2.7 Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer
	3rd	2.8 Working of Binary-Decimal Encoder & 3 X 8 Decoder
	4th	2.8 Working of Binary-Decimal Encoder & 3 X 8 Decoder
	5th	2.9 Working of Two bit magnitude comparator.
7th	1st	3. SEQUENTIAL LOGIC CIRCUITS 3.1 Give the idea of Sequential logic circuits.
	2nd	3.2 State the necessity of clock and give the concept of level clocking and edge triggering,
	3rd	3.3 Clocked SR flip flop with preset and clear inputs.
	4th	3.5 Construct level clocked JK flip flop using S-R flip-flop and explain with truth table
	5th	3.6 Concept of race around condition and study of master slave JK flip flop.
8th	1st	3.6 Concept of race around condition and study of master slave JK flip flop.
	2nd	3.7 Give the truth tables of edge triggered D and T flip flops and draw their symbols.
	3rd	3.8 Applications of flip flops.
	4th	3.9 Define modulus of a counter
	5th	3.10 4-bit asynchronous counter and its timing diagram.
9th	1st	3.11 Asynchronous decade counter
	2nd	3.12 4-bit synchronous counter.
	3rd	3.13 Distinguish between synchronous and asynchronous counters.
	4th	3.14 State the need for a Register and list the four types of registers
	5th	3.15 Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.
10th	1st	4. 8085 MICROPROCESSOR 4.1 Introduction to Microprocessors, Microcomputers
	2nd	4.2 Architecture of Intel 8085A Microprocessor and description of each block.
	3rd	4.2 Architecture of Intel 8085A Microprocessor and description of each block.
	4th	4.3 Pin diagram and description.
	5th	4.3 Pin diagram and description.
11th	1st	4.4 Stack, Stack pointer & stack top
	2nd	4.5 Interrupts
	3rd	4.6 Opcode & Operand,
	4th	4.7 Differentiate between one byte, two byte & three byte instruction with example.
	5th	4.8 Instruction set of 8085 example

Week	Class Day	Topics to be Covered
12th	1st	4.8 Instruction set of 8085 example
	2nd	4.9 Addressing mode
	3rd	4 .10 Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
	4th	4 .10 Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
	5th	4.11 Timing Diagram for memory read, memory write, I/O read, I/O write
13th	1st	4.11 Timing Diagram for memory read, memory write, I/O read, I/O write
	2nd	4.11 Timing Diagram for memory read, memory write, I/O read, I/O write
	3rd	4.12 Timing Diagram for 8085 instruction
	4th	4.13 Counter and time delay.
	5th	4. 14 Simple assembly language programming of 8085.
14th	1st	5. INTERFACING AND SUPPORT CHIPS 5.1 Basic Interfacing Concepts, Memory mapping & I/O mapping
	2nd	5.1 Basic Interfacing Concepts, Memory mapping & I/O mapping
	3rd	5.2 Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	4th	5.2 Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	5th	5.2 Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
15th	1st	5.2 Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	2nd	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
	3rd	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
	4th	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
	5th	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller

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