

Discipline :- ELECTRICAL	Semester:- 5th	Name of the Teaching Faculty: - SASMITA DAS
Subject:- DIGITAL ELECTRONICS & MICROPROCESSOR (TH-3)	No of Days/per Week Class Allotted :- 05	Semester From:- 15.09.2022 To:- 22.12.2022
Week	Class Day	Theory
1st	1st	Introduction to DIGITAL ELECTRONICS
	2nd	NUMBER SYSTEMS AND CODES
	3rd	List different number system & their relevance: binary, octal, decimal, Hexadecimal, Study the Conversion from one number system to another
	4th	Perform Arithmetic operations of binary number systems.
	5th	1's & 2's complement of Binary numbers., Perform Subtraction of binary numbers using complementary numbers. Perform multiplication and division of binary numbers.
2nd	1st	Define concept of Digital Code & its application. Distinguish between weighted & non-weight Code
	2nd	Study Codes: definition, relevance
	3rd	Types of code (8-4-2-1, Gray, Excess-3 and importance of parity bit.
	4th	LOGIC GATES
	5th	Discuss the Basic Logic & representation using electric signals
3rd	1st	Learn the Basic Logic gates (NOT, OR, AND, NOR, NAND, EX-OR & EXNOR) – Symbol, function, expression, truth table & example IC nos.
	2nd	Define Universal Gates with examples & realization of other gates
	3rd	BOOLEAN ALGEBRA
	4th	Understand Boolean : constants, variables & functions. Comprehend the Laws of Boolean algebra
	5th	State and prove Demorgan's Theorems. Represent Logic Expression : SOP & POS forms & conversion
4th	1st	Simplify the Logic Expression/Functions (Maximum of 4 variables) : using Boolean algebra and Karnaugh's map methods
	2nd	What is don't care conditions ? Realisation of simplified logic expression using K-Map
	3rd	Realisation of simplified logic expression using gates. Illustrate with examples the above.
	4th	COMBINATIONAL CIRCUITS
	5th	Define a Combinational Circuit and explain with examples. Arithmetic Circuits (Binary)

12 th	1 st	Basic Interfacing Concept , Memory Mapping & I/O Mapping
	2 nd	Programmable peripheral interface Intel -8255, Functional block diagram and Operation of 8255, Programming of 8255
	3 rd	Application Using 8255: Seven Segment LED display
	4 th	Square Wave Generator
	5 th	Traffic light controller
13 th	1 st	Doubt Clearing Classes and Revision of Syllabus
	2 nd	
	3 rd	
	4 th	
	5 th	
14 th	1 st	Previous Five (05) Years Semester Question Answer Discussion
	2 nd	
	3 rd	
	4 th	
	5 th	

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Subject:- DIGITAL ELECTRONICS & MICROPROCESSOR LAB	No of Days/per Week Class Allotted :- 01	Semester From:- 15.09.2022 To:- 22.12.2022
Week	Class Day	LABORATORY
1 st	1 st	Verify truth tables of AND, OR, NOT, NOR, NAND, XOR, XNOR gates. Implement various gates by using universal properties of NAND & NOR gates and verify truth table.
2 nd	2 nd	Implement half adder and Full adder using logic gates. Implement hPalf subtractor and Full subtractor using logic gates.
3 rd	3 rd	Implement a 4-bit Binary to Gray code converter. Implement a Single bit digital comparator.
4 th	4 th	Study Multiplexer and de-multiplexer
5 th	5 th	Study of flip-flops. i) S-R flip flop ii) J-K flip flop iii) flip flop iv) T flip flop
6 th	6 th	Realize a 4-bit asynchronous UP/Down counter with a control for up/down counting..
7 th	7 th	Realize a 4-bit synchronous UP/Down counter with a control for up/down counting.
8 th	8 th	Implement Mode-10 asynchronous counters
9 th	9 th	Study shift registers.
10 th	10 th	General Programming using 8085A development board 1'S Complement, 2'S Complement
11 th	11 th	Addition of 8-bit number Subtraction of 8-bit number
12 th	12 th	Decimal Addition 8-bit number DecimalSubtraction 8-bit number.
13 th	13 th	Compare between two numbers Find the largest in an Array, Block Transfer
14 th	14 th	Traffic light control using 8255, Generation of square wave using 8255

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