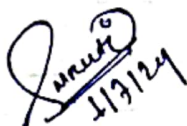


Discipline :-	Semester:-	Name of the Teaching Faculty:-
ELECTRICAL Subject:-	5 <sup>th</sup>	SMRUTIREKHA MOHANTY
DIGITAL ELECTRONICS & MICROPROCESSOR (TH-3)	No of Days/per Week Class Allotted :-  05	Semester From:- 01.07.2024 To:- 16.12.2024
Week	Class Day	Theory
1 <sup>st</sup>	1 <sup>st</sup>	Introduction to DIGITAL ELECTRONICS
	2 <sup>nd</sup>	NUMBER SYSTEMS AND CODES
	3 <sup>rd</sup>	List different number system & their relevance: binary, octal, decimal, Hexadecimal, Study the Conversion from one number system to another
	4 <sup>th</sup>	Perform Arithmetic operations of binary number systems.
	5 <sup>th</sup>	1's & 2's complement of Binary numbers., Perform Subtraction of binary numbers using complementary numbers. Perform multiplication and division of binary numbers.
2 <sup>nd</sup>	1 <sup>st</sup>	Define concept of Digital Code & its application. Distinguish between weighted & non-weight Code
	2 <sup>nd</sup>	Study Codes: definition, relevance
	3 <sup>rd</sup>	Types of code (8-4-2-1, Gray, Excess-3 and importance of parity bit.
	4 <sup>th</sup>	LOGIC GATES
	5 <sup>th</sup>	Discuss the Basic Logic & representation using electric signals
3 <sup>rd</sup>	1 <sup>st</sup>	Learn the Basic Logic gates (NOT, OR, AND, NOR, NAND, EX-OR & EXNOR) – Symbol, function, expression, truth table & example IC nos.
	2 <sup>nd</sup>	Define Universal Gates with examples & realization of other gates
	3 <sup>rd</sup>	BOOLEAN ALGEBRA
	4 <sup>th</sup>	Understand Boolean : constants, variables & functions. Comprehend the Laws of Boolean algebra
	5 <sup>th</sup>	State and prove Demorgan's Theorems. Represent Logic Expression : SOP & POS forms & conversion
4 <sup>th</sup>	1 <sup>st</sup>	Simplify the Logic Expression/Functions (Maximum of 4 variables) : using Boolean algebra and Karnaugh's map methods
	2 <sup>nd</sup>	What is don't care conditions? Realisation of simplified logic expression using K-Map
	3 <sup>rd</sup>	Realisation of simplified logic expression using gates. Illustrate with examples the above.
	4 <sup>th</sup>	COMBINATIONAL CIRCUITS
	5 <sup>th</sup>	Define a Combinational Circuit and explain with examples. Arithmetic Circuits (Binary)

5 <sup>th</sup>	1 <sup>st</sup>	Realise function, functional expression, logic circuit, gate level circuit, truth table & applications of Half-adders.
	2 <sup>nd</sup>	Full-adder & full-Subtractor. Explain Serial & Parallel address: concept comparison & application
	3 <sup>rd</sup>	Discuss Multiplexers: definition, relevance, gate level circuit of simple. De-multiplexers (1:4) logic circuit with truth Table
	4 <sup>th</sup>	Explain the working of Binary-Decimal Encoder & Decoder.
	5 <sup>th</sup>	Working of 2-bit Magnitude Comparator: logic expression, truth table
6 <sup>th</sup>	1 <sup>st</sup>	<b>SEQUENTIAL CIRCUITS</b>
	2 <sup>nd</sup>	Define Sequential Circuit : Explain with examples.
	3 <sup>rd</sup>	Know the Clock-definition characteristics, types of triggering & waveform.
	4 <sup>th</sup>	Define Flip-Flop, Study RS, Clocked RS, D, T, JK, MS-JK flip-flop with logic Circuit and truth tables.
	5 <sup>th</sup>	Concept of Racing and how it can be avoided.
7 <sup>th</sup>	1 <sup>st</sup>	Applications of flip-flops & its conversion.
	2 <sup>nd</sup>	<b>COUNTERS</b>
	3 <sup>rd</sup>	List the different types of counters-Synchronous and Asynchronous.
	4 <sup>th</sup>	Explain the modulus of a counter
	5 <sup>th</sup>	<b>COUNTERS</b>
8 <sup>th</sup>	1 <sup>st</sup>	List the different types of counters-Synchronous and Asynchronous. Explain the modulus of a counter 4-bit asynchronous counter with timing diagram
	2 <sup>nd</sup>	Asynchronous decade counter
	3 <sup>rd</sup>	4-bit synchronous counter
	4 <sup>th</sup>	Compare Synchronous and Asynchronous counters and know their ICs nos.
	5 <sup>th</sup>	<b>REGISTERS</b>
9 <sup>th</sup>	1 <sup>st</sup>	Explain the working of various types of shift registers – SISO
	2 <sup>nd</sup>	SIPO
	3 <sup>rd</sup>	PISO
	4 <sup>th</sup>	PIPO, with truth table using flip flop.
	5 <sup>th</sup>	<b>8085 MICRO PROCESSOR</b>
10 <sup>th</sup>	1 <sup>st</sup>	Introduction to microprocessor, Micro computers
	2 <sup>nd</sup>	Architecture of intel 8085A Microprocessor
	3 <sup>rd</sup>	, Functional Block diagram and Description of each block.
	4 <sup>th</sup>	Pin diagram and description.
	5 <sup>th</sup>	Stack, Stack Pointer, Stack Top
11 <sup>th</sup>	1 <sup>st</sup>	Interrupts, Op-code & Operands
	2 <sup>nd</sup>	Grouping and Explanation of different group instructions with examples
	3 <sup>rd</sup>	Instruction sets & Addressing modes
	4 <sup>th</sup>	Instruction fetching and execution, Timing diagram of different machine cycle.
	5 <sup>th</sup>	Timing diagram of different machine cycle. 8085A timing states.

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

  
11/3/24

Teaching Faculty

  
HOD, EE