Discipline: **ELECTRONICS** and Telecommunication Engineering SEMESTER: 4TH		Name of the Teaching Faculty: **Er. NIRMALA NANDA DHAL**	
Subject: - **TH – 3** **MICROPROCESSOR** **&** **MICROCONTROLLER**	No. of days per week class allotted: **05**	Semester From Date: **13.02.2023 To 23.05.2023** No. of Weeks: **15**	
Week	Class Day	Theory Topics	
1st		**Unit-1: Microprocessor (Architecture and Programming-8085-8-bit)**	
	1st	Introduction to Microprocessor and Microcomputer & distinguish between them	
	2nd	Concept of Address bus, Data bus, Control bus & System Bus General Bus structure Block diagram.	
	3rd	Basic Architecture of 8085 (8 bit) Microprocessor	
	4th	Basic Architecture of 8085 (8 bit) Microprocessor	
	5th	Basic Architecture of 8085 (8 bit) Microprocessor	
2nd	1st	Signal Description (Pin diagram) of 8085 Microprocessor	
	2nd	Signal Description (Pin diagram) of 8085 Microprocessor	
	3rd	Signal Description (Pin diagram) of 8085 Microprocessor	
	4th	Register Organizations, Distinguish between SPR & GPR, Timing & Control Module	
	5th	Stack, Stack pointer &Stack top.	
3rd	1st	Interrupts:-8085 Interrupts, Masking of Interrupt(SIM,RIM)	
	2nd	Revision of Unit-1	
	3rd	Class Test on Unit-1	

		4th	Analysis of Class Test
	Unit-2: Instruction Set and Assembly Language Programming		
		5th	Addressing data & Differentiate between one-byte, two-byte &three-byte instructions with examples
4th		1st	Addressing modes in instructions with suitable examples.
		2nd	Instruction Set of 8085(Data Transfer, Arithmetic, Logical, Branching, Stack& I/O , Machine Control)
		3rd	Instruction Set of 8085(Data Transfer, Arithmetic, Logical, Branching, Stack& I/O , Machine Control)
		4th	**Simple Assembly Language Programming of 8085:** Simple Addition & Subtraction
		5th	Logic Operations (AND, OR, Complement 1's & 2's) & Masking of bits
5th		1st	Counters & Time delay (Single Register, Register Pair, More than Two Register)
		2nd	Looping, Counting & Indexing (Call/JMP etc).
		3rd	Stack & Subroutine programes
		4th	Code conversion, BCD Arithmetic & 16 Bit data Operation, Block Transfer
		5th	Code conversion, BCD Arithmetic & 16 Bit data Operation, Block Transfer
6th		1st	Compare between two numbers
		2nd	Array Handling (Largest number in the array)
		3rd	Array Handling (smallest number in the array)
		4th	Memory & I/O Addressing
		5th	Revision of Unit-2

7th	1st	Class Test on Unit-2	
	2nd	Analysis of Class Test	
	Unit-3: TIMING DIAGRAMS		
	3rd	Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle, Discuss the concept of timing diagram.	
	4th	Draw timing diagram for memory read machine cycle.	
	5th	Draw timing diagram for memory write machine cycle.	
8th	1st	Draw timing diagram for I/O read machine cycle.	
	2nd	Draw timing diagram for I/O write machine cycle.	
	3rd	Revision of Unit-3	
	4th	Class Test on Unit-3	
	5th	Analysis of Class Test	
9th	**Unit-4: Microprocessor Based System Development Aids**		
	1st	Concept of interfacing	
	2nd	Define Mapping & Data transfer mechanisms - Memory mapping & I/O Mapping	
	3rd	Concept of Memory Interfacing:- Interfacing EPROM & RAM Memories	
	4th	Concept of Address decoding for I/O devices	
	5th	Programmable Peripheral Interface: 8255	
10th	1st	ADC & DAC with Interfacing.	
	2nd	Interfacing Seven Segment Displays	

	3rd	Generate square waves on all lines of 8255	
	4th	Design Interface a traffic light control system using 8255.	
	5th	Design interface for stepper motor control using 8255.	
11th	1st	Basic concept of other Interfacing DMA controller, USART	
	2nd	**UNIT:5** (**Microprocessor (Architecture and Programming-8086-16 bit)** Register Organisation of 8086	
	3rd	Internal architecture of 8086	
	4th	Signal Description of 8086	
	5th	General Bus Operation& Physical Memory Organisation	
12th	1st	Minimum Mode &Timings	
	2nd	Maximum Mode &Timings	
	3rd	Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-Maskable Interrupt, Maskable Interrupt	
	4th	8086 Instruction Set & Programming: Addressing Modes, Instruction Set, Assembler Directives and Operators,	
	5th	8086 Instruction Set & Programming: Addressing Modes, Instruction Set, Assembler Directives and Operators,	
13th	1st	Simple Assembly language programming using 8086 instructions.	
	2nd	Simple Assembly language programming using 8086 instructions.	
	3rd	Class Test	
	Unit-6 Microcontroller (Architecture and Programming-8 bit):-		
	4th	Distinguish between Microprocessor & Microcontroller	
	5th	8 bit & 16 bit microcontroller	
14th	1st	CISC & RISC processor	
	2nd	Architecture of 8051 Microcontroller	

	3rd	Signal Description of 8051 Microcontrollers	
	4th	Memory Organisation-RAM structure, SFR	
	5th	Registers, timers, interrupts of 8051 Microcontrollers	
15th	1st	Addressing Modes of 8051	
	2nd	Simple 8051 Assembly Language Programming Arithmetic & Logic Instructions , JUMP, LOOP, CALL Instructions, I/O Port Programming	
	3rd	Interrupts, Timer & Counters	
	4th	Serial Communication	
	5th	Microcontroller Interrupts and Interfacing to 8255	