

# MICROPROCESSOR & MICROCONTROLLER (Th-3)

Discipline :- E.T.C	Semester :- 4th	Name of the Teaching faculty :- Er. J. Sand
Subject :- MP & MC (Th-3)	No. of Days/ Week classes allotted :- 5P	Semester from Date :- 15/1/21 TO Date :- 13/8/21
week	class Day	No. of Weeks :- Theory Topics
1st	1st	Unit-1: Microprocessors (Architecture & Programming - 8085 - 8 bit)
	2nd	1.1 -> Introduction to MP & MC & distinguish b/w them.
	3rd	1.2 -> Concept of Address Bus, Data bus, Control bus & System Bus.
	4th	1.3 -> General Bus structure Block diagram.
	1st	1.4 -> Basic Architecture of 8085 (8 bit) Microprocessor.
2nd	2nd	1.5 -> Signal Description of 8085 microprocessor.
	3rd	1.6 -> Register organization Distinguish b/w SP & GPR.
	4th	1.6 -> Timing & control module 1.7 -> Stack, S.P & S.T.
		1.8 -> Interrupt :- 8085 Interrupt, masking of interrupt.
3rd	1st	Unit :- Instruction Set and Assembly Language Programming.
	2nd	2.1 -> Addressing Data & Differentiate b/w one-byte, two byte & three byte instruction with examples.
		2.2 -> Addressing modes in instruction with suitable example.

Week	Class Day	Topics
4th	3rd	2.3 → Instruction set. of 8085 (Data Transfer, Arithmetic)
	4th	2.3 → Logical, Branching
	1st	2.3 → Arithmetic, Branching
	2nd	2.3 → Stack / IO
5th	3rd	2.3 → Machine Control
	4th	2.4.1 → Program on Simple Addition & Subtraction
	1st	2.4.2 → Logic op <sup>n</sup> (AND, OR, Complement 1's & 2's) & Masking of bits.
	2nd	2.4.3 → Counter & Time delay.
6th	3rd	2.4.4 → Looping, Counting & Indexing
	4th	2.4.5 → Stack & Subroutine Program.
	1st	2.4.6 → Code Conversion, BCD Arithmetic & 16 bit data operation, Block Transfer.
7th	2nd	2.4.7 → Compare b/w two numbers.
	3rd	2.4.8 → Array Handling (Largest Number & Smallest Number in the array)
8th	4th	2.5 → Memory & I/O Addressing
	1st	Unit: Timing Diagrams: 3.1 → Define opcode, operand, T-state, Fetch cycle
	2nd	3.1 → Define Machine cycle, "Instruction" cycle (discuss the concept of timing diagram)
	3rd	3.2 → Draw timing diagram of Mem. read, Mem. write, I/O read, I/O write machine cycle.
9th	4th	3.3 → Draw a neat sketch for the timing diagram for 8085 instruction (Mov, MVI, LDA instruction)

Week	Class Day	Theory Topics
8th	Tst	Unit-4 Microprocessor Based System Development Aids. 4.1 → Concept of interfacing 4.2 → Define mapping & Data Transfer Mechanism - memory mapping & I/O mapping 4.3 → Concept of memory interfacing 4.4 → Interfacing EPROM & RAM memory. 4.4 → Concept of Addressing decoding for I/O devices.
9th	1st	4.5 → P.P.I : 8255 4.6 → ADC & DAC with interfacing 4.7 → Interfacing Seven Segment Displays.
	2nd	4.8 → Generate Square wave on all lines of 8255
	3rd	4.9 → Design interface of parallel port Control System using 8255
10th	4th	4.10 → Design interface for stepper motor control using 8255.
	Tst	4.11 → Basic Concept of other Interfacing DMA Controller, USART.
	2nd	Unit-5 8086 - 16 bit Microprocessor. 5.1 → Register organization of 8086
	3rd	5.2 → Internal Architecture of 8086
11th	4th	5.3 → Signal description 8086.
	Tst	5.4 → General Bus operation & physical Memory organization.
	2nd	5.5 → Mem. Mode & Timing
	3rd	5.6 → Max. Mode & Timing
	4th	5.7 → Interrupt and Interrupt Service Routine, Interrupt cycle, Non-Maskable Interrupt, Maskable Interrupt

Week	Class Day	Theory Topics
12th	1st	5.8 → 8086 Instruction Set
	2nd	5.8 → Programming Using 8086 Instruction
	3rd	5.8 → Addressing modes, Instruction Set, Assembler Directives & Operations.
	4th	5.9 → Simpl. A.L.P 8086 instruction, Unit - 6 Microcontroller (8-bit)
13th	1st	6.1 → Distinguish b/w MP & MC
	2nd	6.2 → 8 bit & 16 bit Microcontroller
	3rd	6.3 → CISC & RISC Processors.
	4th	6.4 → Architecture of <del>8086</del> 8051 Microcontroller.
14th	1st	6.5 → Signal Descript <sup>n</sup> of 8051 M.C.
	2nd	6.6 → Memory organization - RAM & location, SFR.
	3rd	6.7 → Registers, timers, Interrupt of 8051 Microcontroller.
15th	4th	6.8 → Addressing modes of 8051.
	1st	6.9 → Simple 8051 A.L.P Arithmetic Logical Instruction, Jump, Loop, CALL instruction, For loop programming.
	2nd	6.10 → Interrupts, Timer & Counter.
	3rd	6.11 → Serial Communication.
15th	4th	6.12 → Microcontroller Interrupts and Interfacing to 8255.