

Microprocessor and Interfacing (ICE-3101)

❖ Chapter Zero (Computer number system, codes and Digital Devices)

- ❖ Hexadecimal conversion
- ❖ BCD
- ❖ Table (ASCII Code)

❖ Silde-1(History of Microprocessor)

- Von Neumann Architecture (self study)
- Harvard Architecture(self study)
- Risc and cisc(difference)
- Defination and theory (year wise)

❖ Slide-2(8086 Internal Architecture)

❖ Silde-3 (Pin diagram of 8086)

- Memory Banking

• Chapter-8(Semiconductor and interfacing)

- Types of memory
- Types of ROM and its characteristics
- Types of RAM and its characteristics
- Error detection and correction(Hamming code)

• Chapter-9(I/O Modes and Interfacing)

- I/O device
- Peripheral device
- Controllers
- Device
- I/O modes
- I/O mapped
- Memory mapped
- Programmable I/O modes, advantages, disadvantages
- Interrupt mode, advantages, disadvantages
- 8086 interrupts and interrupt responses
- 8086 interrupt types(0-5)

- Priority of 8086 interrupt
- Basic 8253 and 8254 operation
- Initialization of an 8254 programmable peripheral device
- 8259A overview and system connection
- Initialization of an 8259A
- 8254 counter mode and application
- Difference between 8254 and 8253
- **Chapter-1 (marut)**
 - Adv of high level language
 - Adv of assembly language
- **Chapter 3 – (Marut)**
 - Organization of pc (3.3)
 - The operating system(3.3.1)
 - Start up operation(3.3.4)
- **Chapter 4 – (Marut)**
 - Assembly Language Syntax (4.1,,,4.1.1 to 4.1.4)
 - Program Data (4.2)
 - Variables (4.3,,,4.3.1,4.3.2,4.3.3(character strings))
 - Named Constants (EQU)(4.4)
 - A Few Basic Instructions (4.5)
 - MOV(4.5.1)
 - ADD, SUB, INC, and DEC(4.5.2)
 - Translation High-Level Language to Assembly Language(4.6)
 - Memory Models(4.7.1)
 - Data Segment(4.7.2)
 - Stack Segment(4.7.3)

- Code Segment(4.7.4)
- Input and Output Instructions (4.8)
- INT 21h(4.8.1)
- A First Program (1.9)
- FIG-4.8
- Displaying a String(4.11)
- A Case Conversion
- Program(4.12)
- Exercises(LAB)

- **Chapter 6 – (Marut)**
 - An Example of Jump(6.1)
 - Conditional Jumps (6.2)
 - The JMP Instruction (6.3)
 - Branching Structure-s(6.4.1)
 - Looping Structure(6.4.2)[FOR LOOP, WHILE LOOP]
 - Exercises(LAB)

- **Chapter 7 – (Marut)**
 - Logic Instructions (7.1)
 - AND, OR, and XOR Instructions (7.1.1)
 - NOT Instruction(7.1.2)
 - TEST Instruction(7.1.3)
 - Shift Instructions(7.2)
 - Left Shift Instructions(7.2.1)
 - Right Shift Instructions(7.2.2)
 - Rotate Instructions(7.3)

- **Chapter 10 - Marut**
 - Addressing modes(10.2)
 - Register indirect mode(10.2.1)
 - Based and index (10.2.2)
 - Based index addressing mode(10.5)

DMA(Direct Memory Accesss) (Both MP and interfacing and embedded)

❖ Chapter-9[Hall Book]

- DMA definition
- DMA operation
- Block diagram of DMA controllers
- DMA transfer
- Non burst mode
- Burst mode
- Adv. And disadv.
- Case study of 8237 dma controllers
- Independent auto initialization of all channels
- Working of dma controller
- Interfacing a floppy disk to 8086 through 8237 dma controller
- i/o channels
- dma vs i/o channel
- limitation
- i/o processor

Chap-13(dma,dma controlled i/o)(barrey b. brey)

- Basic dma operation(fig-13.1)
- 8237 dma controller(fig-13.3)
- Disk memory system
- Floppy disk memory(self study)