

# **MScIT-05 Computer Organization and Architecture**

## **Unit 1: Input-Output Organization**

Accessing Input/Output devices; Interrupts; Data transfer schemes - programmed I/O and DMA transfer; data transfer schemes for microprocessors.

## **Unit 2: Memory Unit**

Memory Hierarchy; Primary memory, Secondary Memory : Magnetic Tape, Magnetic Disk, Optical disk, Magneto-Optical Disk; Concepts of auxiliary, Associative, Cache And Virtual Memory, DMA, DMA Transfer modes , sequential access, direct access storage devices.

## **Unit 3: CPU Organization**

CPU Building Blocks, CPU Registers and BUS Characteristics, Registers and System Bus Characteristics; Instruction Format; Addressing Modes; Interrupts: Concepts and types; Instruction and Execution Interrupt cycle; Hardwired and Micro Program control; Introduction to RISC and CISC

## **Unit 4: Multi-Processor Organization**

Parallel Processing, Concept and Block Diagram, Types (SISD, SIMD, Interconnect network, MIMD, MISD), Future Directions for Parallel Processors, Performance of Processors

## **Unit 5: Pipelining**

Data Path, Time Space Diagram, Hazards. Instruction Pipelining, Arithmetic Pipelining

## **Suggested Readings:**

1. Computer System Architecture- M.Moris Mano ( PHI publication)
2. Computer Organisation and architecture- Pal Chaudhary
3. Structured computer organization- Tanenbaum