

Course No: MCA-1T1
Course Title: Microprocessor, ALP and its applications.

Unit I

IBM-compatible Personal Computer, Re-programmable. Microcomputers, General Architecture of Micro-computer, System Evaluation of Intel Microprocessor Architecture , Software Model of 8088 / 8086 Microprocessor , Memory Add. Space and Data Organization, Data Types, Segment Registers, Memory Segmentation Dedicated, reserved and General use of Memory, generating an Memory Address, Pin-out diagram of 8086 Microprocessor.

Unit II

The Microcomputer Organization, Assembly Language Programming Development on PC, Instruction Set, Addressing Modes, 8086 Instruction set, Using Trace & Go Commands. Integer Instructions and Computations, Data Transfer, Arithmetic, Logic Shift, Rotate Instruction, Flag Control, Compare, Control Flow & Jump, Subroutine & Subroutine Handling Instructions, Loop & Loop Handling, String & String Handling Instructions. Statement Syntax for a source Program, Assembler Directives, Assembling, Linking, Loading & executing a run Module.

Unit III

Core-Special purpose I / O Interfaces, Byte-only Input / Output ports using Isolated I / O, Input / Output handshaking & Parallel Printer Interfaces, Memory Mapped I/O, DMA Controller, Serial Communication Interface, Programming Communication Interfaces Controller. Interfacing I/O devices to microprocessor, programmable peripheral interface, programmable interrupt controller, Development of Monitor program. Sensors and transducers, analogue signal processing, multiplexes and demultiplexers, sample-and-hold circuits, ACD and DAC devices

Unit IV

Interrupt, Mechanism, Types & Priority, Interrupt Vector table, Interrupt Instruction, Enabling/Disabling of Interrupts, External Hardware-Interrupt Interface Signals/Interrupt Sequence. Software Interrupts, Non-Maskable Interrupts, Reset, Internal Interrupt, Real Mode.

8086 / 8088 Microprocessors & their I/P & O/P Interfaces, 8086 / 8088 Microprocessor's Minimum Mode, Maximum Mode Systems and Interface Signals, Electrical Characteristics, System Clock, Bus Cycle & Unit States, Hardware Organization of the memory address space, Address Bus Codes, Memory Control Signals, Read & Write Bus Cycles, Memory Interface Circuits, Transfers Types of I/O, Isolated I/O interfaces, I/O Data Transfers & Instruction, I/O Bus Cycles.

Reference Books:

1. DOUGLAS HALL "Microprocessors and Interfacing" Tata McGrawHill.
2. LIU, GIBSON et al "Microcomputer system The 8086/8088 Family" PHI.
3. PAL CHAUDHURI "Computer Organization and Designing" PHI.
4. MORRIS MANO "Computer System Architecture" Pearson Education.
5. GILMORE "Microprocessors" Wiley/ Tata McGraw Hill.