

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**  
**M.Sc. (I.T.) [Five Year Integrated Course]**  
**B.Sc. (Information Technology)**  
**Semester IV**

**Paper No : 403**

**L: 4, T:0, P:0 Hrs**

**Paper Title : Microprocessor & Assembly Language**

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**1. Introduction to Microprocessors.**

Typical requirements of architecture: Batch Processing , Multiprogramming , Time sharing & Multitasking Systems ; Intel 8086 architecture , Internal Operation , Addressing Modes , Intel 8086 Configurations-Minimum Mode and brief introduction of Maximum Mode , Intel 8086 System Connections , System Bus Timing

**2. Intel 8086 Family assembly Language Programming**

Program Development Stage , Programming with the use of Assembler and other Development Tools like Loader , Compiler , Locator , debugger , Assemble Instruction Format , Practice with Simple sequence Programs , Flags , jumps , etc . Implementation of Decision making, Multiple Branching and Iterative Looping Controls with Assembly Language instructions, String Instructions, Stack manipulation. Writing & Using Procedures, Macros & Debugging of Assembly Language Programs, Assembly Directives. Use of DOS / BIOS interrupts. Using C with Assembly language Programming.

**3. Programmable Peripherals Devices**

Memory and I/O Addressing for Microcomputer Systems. Overview of Intel 8255 Programmable Peripheral Interface, Programmable Timer/Counter & Clock Generator - INTEL's 8253/8254, Programmable keyboard/Display 8279, Programmable Interrupt Controller 8259, DMA Controller 8257

**4. Interrupts Management**

Intel 8086 interrupts, IVT, acknowledgment cycle, typical 8086 response. Different types of Interrupts, Interrupt Service Routines, TDR's, Block transfers and Interfacing DMAC - IC 8237.

**5. Advanced Microprocessors**

Overview of 80286, 80386, 80486, Pentium architectures.

**6. Bus Standards**

Overview study of the PC, PC - AT, ISA, EISA, IEEE -488 Bus, IDE, EIDE, SCSI, VESA, PCI, PC Card ( PC MCIA ) Bus .

**Main Readings:**

1 Microprocessor & Interfacing: Douglas Hall, McGraw Hill

2 8086/8088 family architecture, programming & design : Yu Chang Liu & Gibson, PHI

3 Programming & Interfacing, J Uffenbech, PHI

**Supplementary Readings:**

1 Advance MS-DOS Programming – Ray Duncan

2. The Intel Microprocessors – Fourth Edition – Barry B. Brey – PHI

3. IBM PC and its Clones: Govind Rajalu: TMH Publication , 1994.