

# Vidyalankar

T.E. Sem. VI [EXTC]

## Microprocessors & Microcontrollers-II

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### SYLLABUS

Time : 3 Hrs.

Theory : 100 Marks

Term Work : 25 Marks

Practical : 25 Marks

**1. 8086 and 8088 Microprocessors :**

Architecture and organization of 8086/8088 microprocessors family, bus interface unit, 8086/8088 hardware pin signals, timing diagram of 8086 family microprocessors, simplified read/ write bus cycles, 8086 minimum and maximum modes of operation, 8086/8088 memory addressing, address decoding, memory system design of 8086 family, timing considerations for memory interfacing, input/output port addressing and decoding, introduction to 8087 floating point coprocessor and its connection to host 8086.

**2. 8086 assembly language programming :**

Addressing modes, 8086 instruction formats and instruction set, data transfer, arithmetic, bit manipulation, string, program execution transfer and program control instructions, machine codes of 8086 instructions, assemble language syntax, assembler directives, initialization instructions, simple sequential and looping programs in assemble language, debugging assembly language programs.

**3. Programmable Interface and peripheral devices :**

Interfacing of 8155, 8255 and 8259 with 8086 and study and interfacing of 8257 DMA controller with 8086. Comparative study of salient features of 8086, 80196, 80296, 80386, 80486 and Pentium.

**4. PIC Controllers (PIC 18) :**

PIC 18 memory organization, CPU registers, Pipelining, Instruction format, Addressing modes, Sample of PIC 18 Instructions. Overview of 8-bit MCU Market.

**5. PIC 18 Assembly language Programming :**

Assembly language programme structure. Assembler directives. Writing programmes to perform arithmetic computations. Programme loops. Reading and writing data in programme memory. Logic Instructions. Using programme loop to create time delays. Rotate instructions. Using rotate instructions to perform multiplications and divisions.

**6. Parallel Ports :**

Input/Output Addressing. Synchronization. Overview of the PIC 18 Parallel ports. Interfacing with simple output devices.

**Reference :**

1. Microprocessors and Interfacing (*Douglas V. Hall*) Tata McGraw Hill.
2. PIC Microcontroller (*Han Way Huang*) Cengage learning.
3. Design with PIC Microcontrollers (*John B. Peatman*) Pearson Education Asia LPE.
4. The 8086/8088 Family (*John Uffenbuck*) Pearson Media, LPF.
5. 8085–86 Microprocessors Architecture Programming and Interfaces (*DV Kodavade, S. Narvadkar*) Wiley.
6. Microcontrollers (*Ajay Deshmukh*) TMH.
7. Programming The PIC Microcontoller with Mbasic (CD) (*Smith*) Elsevier.
8. Fundamentals of Microcontrollers and Applications in embedded Systems (*Gaonkar Ramesh*) Penram International Publishing.
9. PIC Microcontrollers (*Martin Bates*) Elsevier (2<sup>nd</sup> Edition)

