

## **RO8001 ADVANCED MICROPROCESSORS AND MICROCONTROLLERS**

### DETAILED SYLLABUS

#### **OBJECTIVES:**

The student should be made to:

- Study the Architecture of 8085 microprocessor.
- Study the Architecture of 8086 microprocessor.
- Learn the design aspects of I/O and Memory Interfacing circuits.
- Study about communication and bus interfacing.
- Study the Architecture of 8051 microcontroller.

#### **UNIT I 8086 MICROPROCESSORS**

Architecture – Pin description – Operating modes – Registers – Interrupts – Bus cycle – Addressing modes – Typical configuration of 8086 system – Overview of Instruction set.

#### **UNIT II 80286 MICROPROCESSOR**

Functional block diagram - Modes of operation – Real and protected mode – Memory management and protection features.

#### **UNIT III 80386, 80486 PROCESSORS**

80386: Functional block diagram - Programming model - Addressing modes and instruction set overview – Address translation - Modes of operation - 80486 processor - Functional block diagram - Comparison of 80386 and 80486 processors.

#### **UNIT IV PENTIUM MICROPROCESSOR**

Introduction – Architecture – Special Pentium registers – Memory management.

#### **UNIT V PIC MICROCONTROLLER**

Architecture – Memory structure – Register File – Addressing modes – Interrupts – Timers: Modes of operation PIC PERIPHERAL FUNCTIONS AND SPECIAL FEATURES: PWM output – Analog to Digital converter – UART – Watchdog timer – RESET Alternatives – Power Down mode – I2C Bus operation

#### **TEXT BOOKS:**

1. Barry B Brey, "The Intel Microprocessor 8086/8088, 80186/80188, 80286, 80386, 80486 Pentium and Pentium processor, Pentium II, III, 4, Prentice Hall of India, New Delhi, 2005.
2. Douglas V Hall, "Microprocessors and Interfacing: Programming and Hardware", McGraw Hill, New Delhi, 2005.
3. John B Peatman, "Design with PIC Microcontroller, McGraw Hill, Singapore, 1st Reprint, 2001

**REFERENCES:**

1. Mohammed Rafiquzzaman, "Microprocessors and microcomputer-based system design", CRC Press, 2005.
2. Walter A Triebel, Avtar Singh. "The 8088 and 8086 microprocessors Programming Interfacing software, Hardware and Applications", Pearson Education ,2009
3. Myke Pred ko, "Programming and Customising the PIC Microcontroller, "McGraw Hill, USA, 1998