Subject Code : P8IE3

ADVANCED MICROPROCESSORS AND APPLICATIONS

Unit I: ARCHITECTURE:

Organization of the 8086 Microprocessor – Memory organization-Register structure-Addressing modes in 8086 – Minimum mode maximum mode-Exception handling in 8086 - Organization of 68000 microprocessor-Register structure –addressing modes in 68000 – Architecture of 80386 microprocessor.

Unit II

Instruction set (only for 8086)- Data transfer-Arithmetic –Branch-Loop - Flag manipulation-Logical –shift and rotate-instructions-Programming in 8086-Addition – Subtraction-Multiplication-Division BCD Arithmetic - Searching and array for a given number- choosing the biggest and smallest numbers from a list-arraganig a list of numbers in ascending or descending order – Time delay -Character manipulation.

Unit III:

Assembler and Multiprocessing-Assembler-Directives and operators- Data definition and storage allocation-structure - Records- Assigning names and expressions-Segment definition – program definition- Alignment directives-Assembly process-8086 based multiprocessing system-coprocessor configuration –closely coupled and Loosely coupled configuration-8087 numeric processor (architecture only)

Unit IV :

Interfacing memory and I/O devices-I/O Memory mapped I/O - Data Transfer –Parallel- programmed data transfer interrupt driven -Direct memory access data transfer-serial data transfer-Type of interfacing devices-8255 I/O Ports and Progamming-8251 Serial communication interface-8253 timer Interface –interfacing 8257 DMA controller – 8259 interrupt controller.

Unit V:

Application and development tools: A/D-D/A interfacing -stepper motor interfacing-interfacing seven segment display-Keyboard interface- traffic control -Data acquisition –Temperature measurement and control – Microprocessor based software development tools-In circuit emulator.

REFERENCE BOOKS:

1. Introduction to microprocessor-Aditya P. Mathur
2. Micro Computer System 8086-8088 Family- Yuchangliv and Clenn A. Gibson Prentice Hall- New Delhi 1986.
3. Microprocessors and interfacing-Programming and Hardware Douglas V. Hall
4. Microprocessor Architecture Programming and application-Goankar.