

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 - arranging 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 Programming-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:

Introduction to microprocessor-Aditya P. Mathur

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