

EC-504 Microprocessors and Microcontrollers

Unit I

Architecture of 8086 Microprocessor

BIU and EU, register organization, pin diagram, memory organization, clock generator 8284, buffers and latches, 8288 bus controller, maximum and minimum modes.

Unit II

Assembly Language Programming of 8086

Instruction formats, addressing modes, instruction set, assembly language programming, ALP tools- editor, assembler, linker, locator, debugger, emulator.

8086 based multiprocessor systems

Interconnection topologies, coprocessors 8087 NDP, I/O processors 8089 IOP, bus arbitration and control, lightly and tightly coupled systems.

Unit III

Peripheral devices and their interfacing

Memory interfacing, Programmable input/output ports 8255, Programmable interval timer 8253, keyboard/ display controller 8279, CRT controller 8275, Programmable communication interface 8251 USART.

Unit IV

Interrupts of 8086

Interrupts and interrupt service routine, interrupt cycle, maskable and non-maskable interrupts, interrupt programming. Programmable interrupt controller 8259.

DMA in 8086

Basic DMA operation, modes of DMA transfer, DMA controller 8257.

Unit V

8051 Microcontroller

Features, architecture, Pin Diagram, memory organization, external memory interfacing, instruction syntax, data types, subroutines, addressing Modes, instruction set, ALP of 8051. Applications of 8051.

References:

- 1.Ray and Bhurchandi: Advanced microprocessors and peripherals, TMH.
- 2.Brey: The Intel Microprocessors, Architecture, Programming and Interfacing, Pearson Education.
- 3.Senthil Kumar: Microprocessors and interfacing, Oxford University press.
- 4.Bahadure: Microprocessors 8086 and Pentium family, PHI Learning.
- 5.Udayashankara and Mallikarjunaswamy: 8051 Microcontroller, TMH.
- 6.Mazidi and Mazidi: The 8051 Microcontroller and Embedded Systems, Pearson Education
- 7.D. V. Hall: Microprocessors and Interfacing, TMH.

List of Experiments:

- 1.Assembly Language Programs of Microprocessor 8086.
- 2.Assembly Language Programs of Microcontroller 8051.
- 3.Assembly Language Programs for Interfacing Chips.