

EC8691 MICROPROCESSORS AND MICROCONTROLLERS SYLLABUS

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OBJECTIVES:

- To understand the Architecture of 8086 microprocessor.
- To learn the design aspects of I/O and Memory Interfacing circuits.
- To interface microprocessors with supporting chips.
- To study the Architecture of 8051 microcontroller.
- To design a microcontroller-based system

UNIT I THE 8086 MICROPROCESSOR 9

Introduction to 8086 – Microprocessor architecture – Addressing modes - Instruction set and assembler directives – Assembly language programming – Modular Programming - Linking and Relocation - Stacks - Procedures – Macros – Interrupts and interrupt service routines – Byte and String Manipulation.

UNIT II 8086 SYSTEM BUS STRUCTURE 9

8086 signals – Basic configurations – System bus timing – System design using 8086 – I/O programming – Introduction to Multiprogramming – System Bus Structure – Multiprocessor configurations – Coprocessor, Closely coupled and loosely Coupled configurations – Introduction to advanced processors.

UNIT III I/O INTERFACING 9

Memory Interfacing and I/O interfacing - Parallel communication interface – Serial communication interface – D/A and A/D Interface - Timer – Keyboard /display controller – Interrupt controller – DMA controller – Programming and applications Case studies: Traffic Light control, LED display, LCD display, Keyboard display interface and Alarm Controller.

UNIT IV MICROCONTROLLER 9

Architecture of 8051 – Special Function Registers (SFRs) - I/O Pins Ports and Circuits – Instruction set - Addressing modes - Assembly language programming.

UNIT V INTERFACING MICROCONTROLLER 9

Programming 8051 Timers - Serial Port Programming - Interrupts Programming – LCD & Keyboard Interfacing - ADC, DAC & Sensor Interfacing - External Memory Interface- Stepper Motor and Waveform generation - Comparison of Microprocessor, Microcontroller, PIC and ARM processors

TEXT BOOKS:

1. Yu-Cheng Liu, Glenn A. Gibson, —Microcomputer Systems: The 8086 / 8088 Family - Architecture, Programming and DesignII, Second Edition, Prentice Hall of India, 2007. (UNIT I- III)

AllAbtEngg.com
For Questions, Notes, Syllabus & Results

2. Mohamed Ali Mazidi, Janice Gillispie Mazidi, Rolin McKinlay, —The 8051 Microcontroller and Embedded Systems: Using Assembly and CII, Second Edition, Pearson education, 2011.
(UNIT IV-V)

REFERENCES:

1. Douglas V. Hall, —Microprocessors and Interfacing, Programming and Hardware, TMH, 2012
2. A.K. Ray, K.M. Bhurchandi, Advanced Microprocessors and Peripherals —3rd edition, Tata McGrawHill, 2012