MICROPROCESSORS AND MICROCONTROLLERS 3 0 0 3

OBJECTIVE

Gives an understanding of functional blocks of a Microprocessor and programming in 8085 and 8086. It also explains the functions of common programmable peripheral controllers and interface a processor with another processor/co-processor and other peripheral devices. At the end, the students will be capable of building a Microprocessor/ Microcontroller based system for a given control application.

UNIT – I THE 8085 MICROPROCESSOR 9

Introduction to 8085 – Microprocessor architecture – Instruction set – Programming the 8085.

UNIT – II 8086 SOFTWARE ASPECTS 9

Intel 8086 microprocessor – Architecture – Instruction set and assembler directives – Addressing modes – Assembly language programming – Procedures – Macros – Interrupts and interrupt service routines.

UNIT – III 8086 SYSTEM DESIGN 9

8086 signals – Basic configurations – System bus timing –System design using 8086 – Multiprocessor configurations – Coprocessor, Closely coupled and loosely Coupled configurations – Introduction to advanced processors.

UNIT – IV I/O INTERFACING 9

Memory Interfacing and I/O interfacing - Parallel communication interface – Serial communication interface – Timer – Keyboard /display controller – Interrupt controller – DMA controller – Programming and applications.

UNIT – V MICROCONTROLLERS 9

Architecture of 8051 – Signals – Operational features – Memory and I/O addressing – Interrupts – Instruction set – Applications.

TOTAL: 45

TEXT BOOKS:

1. Ramesh S.Gaonkar, “Microprocessor - Architecture, Programming and Applications with the 8085”, Fifth edition, Penram International Publishing Private Limited, 2002.

2. Yu-cheng Liu, Glenn A.Gibson, “Microcomputer Systems: The 8086 / 8088 Family - Architecture, Programming and Design”, Second Edition, Prentice Hall of India, 2007.
3. A. K. Ray & K. M. Bhurchandi, “Advanced Microprocessors and Peripherals- Architectures, Programming and Interfacing”, Tata McGraw Hill, Second Edition, 2006.

REFERENCES:

1. Soumitra Kumar Mandal, “ Microprocessors and Microcontrollers: Architecture, Programming and Interfacing using 8085, 8086 and 8051”, Tata McGraw Hill, 2011.
2. Barry B. Brey, “The Intel Microprocessors, 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, PentiumPro Processor, PentiumII, PentiumIII, Pentium IV, Architecture, Programming & Interfacing”, Eighth Edition, Pearson Prentice Hall, 2009.
3. Peter Abel, “IBM PC Assembly language and programming”, Fifh Edition, Prentice Hall of India Pvt. Ltd., 2007.
4. Mohamed Ali Mazidi, Janice Gillispie Mazidi, Rolin McKinlay, “The 8051 Microcontroller and Embedded Systems: Using Assembly and C”, Second Edition, Pearson education, 2011.