

Vidyalankar

S.E. Sem. IV [INFT]
Microprocessors & Microcontrollers

SYLLABUS

Time : 3 Hrs.

Theory : 100 Marks
Term Work : 25 Marks

1. Introduction to 8086 Microprocessor & Architecture

Introduction to Microprocessors, Architecture of 8086 family, 8086 Hardware Design, Minimum mode & Maximum mode of Operation. Study of bus controller 8288 & its use in maximum mode. System Timing diagram.

2. 8086 Instruction Set & Programming :

Addressing modes, Instruction Set, Assembly Language Programming, Mixed Language Programming, Programs Based on Stacks, Strings, Procedures, Macros, Timers, Counters & delay

3. Introduction to 8051 Microcontrollers

Microprocessors vs microcontrollers. The 8051 microcontroller architecture, 8051 assembly language programming, jump, loop and call instructions, i/o port programming, 8051 addressing modes, arithmetic & logic instructions and programs, 8051 programming in c.

4. Hardware interfacing for microcontrollers

8051 hardware connection and Intel hex file, 8051 timer programming in assembly and c, 8051 serial port programming in assembly and c, interrupts programming in assembly and c, lcd and keyboard interfacing, adc, dac, and sensor interfacing, 8051 interfacing to external memory, 8051 interfacing with the 8255, DS12887 RTC interfacing and programming, motor control : relay, pwm, dc, and stepper motors.

5. Introduction to PIC microcontrollers

Introduction to Microchip PIC family of Microcontrollers and development tools. CPU architecture and instruction set, Harvard Architecture and Pipelining. Program memory considerations, Register file structure and addressing modes. CPU Registers, Instruction set.

References :

1. Microprocessors and Interfacing (*Douglas V. Hall*) Tata Mc Graw Hill
2. The 8051 Microcontroller and Embedded systems (*Muhammad Ali Mazidi*) Pearson Education Asia LPE.
3. 8051 Microcontrollers programming and practice (*Mike Predcko*)
4. Microchip Midrange Embedded Microcontrollers Handbook
5. Intel or Atmel MCS 51 Family Microcontrollers Data Sheets
6. Design with PIC Microcontrollers (*John B. Peatman*) Pearson Education Asia. LPE.
7. The 8086/8088 Family (*John Uffenbuck*) Pearson Media, LPE
8. The 8051 Microcontroller Architecture, Programming and application (*Kenneth Ayala*) Penram International.
9. Embedded Systems (*Rajkamal*) Tata McGraw Hill.

