CS-601 – Micro Processor and Interfacing

RATIONALE:

The purpose of this subject is to cover the underlying concepts and techniques used in Micro Processor and Interfacing. In this subject we cover the unique issues associated with designing, testing, integrating, and implementing microcontroller/microprocessor-based embedded systems.

PREREQUISITE

The students should have acquired fundamental microcontroller-associated programming skills using both the C programming language and assembly language

Unit-I

Microprocessor and Microprocessor Development Systems: Evolution of Microprocessor, Microprocessor architecture and its operations, memory, inputs-outputs (I/Os), data transfer schemes interfacing devices, architecture advancements of microprocessors, Typical microprocessor development system.

Unit-II

8085 Mirprocessor : Architetcure of 8085 microprocessor ,Instruction set and Adressing modes of 8085 microprocessor,Assembly language programs of 8085 microprocessor, Stack, Subroutines, Time-Delay loops, Modular programming, Macro .

Unit-III

8086 Microprocessor : Architecture , Registers ,Memory Segmentation ,8086 Memory Addressing , memory Read and Write Bus Cycle of 8086,Demultiplexing of the system Bus in 8086 and 8088 microprocessors, Instruction set and Addressing modes of 8086 microprocessor,Assembly language programs of 8086 miroprocessor.

Unit-IV

I/O and Memory Interfacing Using 8085/8086: memory interfacing, Interrupts of 8085/8086 Microprocessors, 8259A Programmable Interrupt Controller, Programmable peripheral Interface, 8253 Programmable Counter/Interval Timer.
Communication and Bus Interfacing with 8085/8086 Microprocessor :Serial Communication Interface, DMA Controller 8257, 8279-Programmable Keyboard and Display I/O Interface, Bus Interface,8089 I/O processor

Unit-V

8051 Microcontroller: Architetcure of 8051 microcontroller**,** Memory organization, Timers/Counters, Interrupts, Addressing modes, 8051 Instruction set , Assembly language Programs, Applications of microcontrollers.

Suggested Reading:

1. Douglas V Hall, "Microprocessors and interfacing – Programming & Hardware" TMH

2. Gaonkar, "Microprocessor Architecture, Programming & Applications with 8085", TMH

3. Rafiquzzaman, "Microprocessors-Theory & Applications", PHI

4. Savaliya, "8086 Programming & Advance Processor Architecture", Wiley India

5. Ray, Bhurchandi, "Advanced Microprocessor and peripherals" TMH Pub

6. Soumitra Kumar Mandal, "Microprocessors and Microcontroller" TMH Pub

List of Experiments

1. To study 8085 based microprocessor system

2. To study 8086 based microprocessor system

3. To develop and run a program for finding out the largest/smallest number from a given set of numbers.

4. To develop and run a program for arranging in ascending/descending order of a set of numbers

5. To perform multiplication/division of given numbers

6. To perform conversion of temperature from 0F to 0C and vice-versa

7. To perform computation of square root of a given number

8. To perform floating point mathematical operations (Addition, Subtraction, Multiplication and Division)

9. To obtain interfacing of RAM chip to 8085/8086 based system

10. To obtain interfacing of keyboard controller

11. To obtain interfacing of DMA controller

12. To obtain interfacing of PPI

13. To perform microprocessor based temperature control of hot water