ADVANCED MICROPROCESSORS AND MICROCONTROLLERS
Code: EI 603
Contacts: 3L+1T
Credits : 4

Module I: [8]
Intel 8086/8088 Microprocessor: Architecture, Clock Generator, Resetting the microprocessor, Wait State Inserting, Bus Buffering, Interrupts, and Assembly Language Programming and Addressing Modes.

Module II: [6]
Interfacing Memory: Classification of Memory, Address decoding (using logic gates, decoders and PAL), Interfacing Static RAM (6116 – 2K, 6264 – 8K), Interfacing EPROM (2764 – 8K, 27256 – 32K), Designing Memory Modules (higher capacity say 512K) using memory chips (say 8K).
Interfacing I/O Devices.

Module III: [8]
Interfacing and assembly language monitor program for Key Board (one dimensional, two dimensional) and 7-segment display, Stepper Motor through 8255A, Data transfer between two microprocessor based systems through 8255.
8237 DMA controller and interfacing with 8086 up
Programmable communication interface- Intel 8251 USART. Programmable Interrupt Controller- 8259A.

Module IV: [14]
Introduction to single chip microcontrollers: Intel MCS-51 family features, 8051/8031 architecture, pin configuration, I/O ports and Memory organization. Instruction set and basic assembly language programming.
Interrupts, Timer/Counter and Serial Communication.
MCS-51 applications: Square wave and pulse wave generation, LED, A/D Converter and D/A Converter interfacing to 8051.
Introduction to PIC micro-controller

Books:
1. Douglas V. Hall – Microprocessors & Interfacing, Tata McGraw-Hill
2. Ray & Bhurchandi – Advanced Microprocessors & Peripherals, Tata McGraw-Hill
3. Walter A. Tribel – The 8088 and 8086 Microprocessors, Pearson Education
4. Barry B. Brey – The Intel Microprocessors, PHI/Pearson Ed. Asia
5. Muhammed Ali Mazidi and Janice Gillispie Mazidi – The 8051 Microcontroller and Embedded Systems, Pearson Education Inc.
6. Ajay V Deshmukh – Microcontrollers Theory and Applications, Tata McGraw-Hill
7. Kenneth J. Ayala – The 8086 Microprocessor, Cengage Learnin