Microprocessors

Paper Code	**ECS-601**
Course Credits	4
Lectures/ Week	3
Tutorials/ Week	1

Course description

UNIT- I   INTRODUCTION AND ORGANIZATION
Evaluation of microprocessors, basic block of micro computer, typical micro computer architecture, single chip microprocessor, functional representation of simple and typical microprocessor, general purpose and dedicated registers, INTEL 8085 pin and functional block diagram, tristate concept, INTEL 8085 externally initiated signals, basic concepts of timing and control unit.

UNIT-II   PROGRAMMING OF MICROPROCESSORS
Data representation, instruction and data flow, addressing modes, instruction set of INTEL 8085 machine cycle, T-state and timing diagram, introduction to programming, use of mnemonics and assembly language, flowchart, assembler pseudo-instruction, flowchart and program writing techniques.

UNIT-III   INTERFACING MEMORY AND I/O DEVICES
Necessity of interfacing, address space partitioning, memory mapped I/O and I/O mapped I/O, hardware scheme of data transfer, various interrupt schemes and associated instructions of INTEL 8085, direct memory access data transfer. Review of semiconductor memories, timing operation, memory interfacing, programmable peripheral interfaces, 8255, 8253 programmable interrupt controller, enabling and disabling and masking of interrupts, particularly in 8085.

UNIT-IV   16-BIT MICROPROCESSOR AND ITS ARCHITECTURE
Intel 8086/8088 architecture, addressing modes, instructions set, assembler dependent instructions, 8086 I/O, I/O processor (IOP), Interrupts and DMA .

UNIT-V PENTIUM AND PENTIUM PRO MICROPROCESSOR
Serial I/O, Introduction to Pentium and Pentium pro microprocessor, special pentium registers.

Pre-requisite Course/Paper:	Computer Architecture
Text Book:	1. R. Goankar, "Microprocessor architecture", Penram International Publication, Fifth edition, 1989
	2. Rafiquzzaman, "Microprocessor and Microcomputer based System Design", CRC press, 1995
Reference Books:	B. B. Bray, "8086/8088/Intel Microprocessor", 8th Edition
Course Outcomes	**CO1:** Familiarity with the basic architecture of a well-known microprocessor 8085, awareness of the instruction set and instruction execution mechanism in 8085 microprocessor.
	CO2: An ability to learn the programming of 8085 microprocessor and its applications.
	CO3: Achieving the thorough knowledge of data transfer between the microprocessor and the peripherals, challenges in data transfer and the limitations of basic architecture regarding the data transfer.
	CO4: Learning how and why the microprocessor needs to be interrupted, how the software and hardware governs the interrupt process. The students will be introduced to high end processors.
	CO5: To know the challenges and architectural limitations of 8085, 8086/8088 microprocessors. To know how these challenges have been overcome in high end processors like Pentium processors.
Computer usage/ Software required:	1. Assembly Language Programming
2. Microprogramming

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