Course Type	Course Code	Name of Course	L	T	P	Credit
OE	EEO301	Microprocessors and Microcontrollers	3	0	0	9

Course Objective

The objective of this course is to impart basic knowledge on architecture and the instruction set of an Intel microprocessor, assembly language programming and design of various types of digital and analog interfaces. The course will also discuss the architectures of 8085, 8086 and 8051.

Learning Outcomes

At the end of the course the students are expected to:

- Recall and apply a basic concept of digital fundamentals to Microprocessor based personal computer system.
- Identify a detailed s/w & h/w structure of the Microprocessor.
- Illustrate how the different peripherals are interfaced with Microprocessor and analyze the data transfer information through serial & parallel ports.
- Distinguish and analyze the properties of Microprocessors & Microcontrollers. Train their practical knowledge through laboratory experiments.

Unit No.	Topics to be Covered	(Lecture) Hours	Learning Outcome
1	Architecture and organization of 8085A Microprocessors: Memories and I/O: Various types, memory mapped and I/O mapped I/O, memory mapped memory	8	To familiarize with the different registers, data, address & control buses; Memory and I/O mapping with 8085 CPU.
2	8085 Instructions, Assembly language Programming, Software & Hardware interrupts	9	Developing programming skill using different kinds of instructions; basic idea of interrupts.
3	8255: PPI Chip & it's operation, 8259: Priority interrupt controller, interrupt driven I/O operation, 8257: DMA controller, 8279: key board interfacing, Interfacing of A/D and D/A converters etc.	8	Interfacing the CPU with various I/O chips and programing.
4	8086 Architecture, organization and pin out details, memory segmentation minimum mode and maximum mode of operation. Instruction sets of 8086	9	To familiarize with the different General purpose & Special purpose registers, Memory segmentation, Physical and actual addressing under different mode of operation.
5	Pin out descriptions of 8051, memory organization, register banks, special function registers, and external memory: external code memory access, external data memory access, address decoding, addressing modes of 8051, instruction types.	8	Acquaintance with the concept of 8051 Microcontroller: Register banks, Memory access and programming

Text Books

1. R.S. Ganorkar, Microprocessor Architecture, Programming, and Applications with the 8085, Sixth Edition, 2013
2. A. K. Ray and K. M. Bhurchandi, Advance Microprocessors and Peripherals, Third Edition, 2017.

Reference Books

1. D.V. Hall , Microprocessors and its Interfacing, Third Edition, 2017