

DURGAPUR INSTITUTE OF ADVANCED TECHNOLOGY AND MANAGEMENT

(Affiliated to MAKAUT and recognized by AICTE, New Delhi)

Subject Code: IT504E

Subject Name: Microprocessors & Microcontrollers

Semester : V

Year: 3RD

Session : 2018

Branch Name: Information Technology

Faculty Name: Amit Kumar Datta

Assistant Professor

IT Department

Syllabus

Module -1: [8L]

Introduction to Microcomputer based system. History of evolution of Microprocessor and Microcontrollers and their advantages and disadvantages. Architecture of 8085 Microprocessor, Pin description of 8085. Address/data bus Demultiplexing, Status Signals and the control signals. Instruction set of 8085 microprocessor, Addressing modes Timing diagram of the instructions (a few examples).

Module -2: [9L]

Assembly language programming with examples, Counter and Time Delays, Stack and Subroutine, Interrupts of 8085 processor (software and hardware), I/O Device Interfacing-I/O Mapped I/O and Memory Mapped I/O, Serial (using SID and SOD pins and RIM, SIM Instructions) and Parallel data transfer.

Module 3: [10L]

The 8086 microprocessor- Architecture, Addressing modes, Interrupts, Introduction to 8051 Microcontroller –Architecture, Pin Details. Addressing modes, Instruction set, Examples of Simple Assembly Language.

Module -4: [9L]

Memory interfacing with 8085, 8086, Support IC chips- 8255, 8251, 8237/8257, 8259, Interfacing of 8255 PPI with 8085 and Microcontroller 8051, Brief introduction to PIC microcontroller (16F877).

TEXT BOOK:

1. Microprocessors and microcontrollers - N. Senthil Kumar, M. Saravanan and Jeevananthan (Oxford University press)
2. MICROPROCESSOR architecture, programming and Application with 8085 - R. Gaonkar (Penram International Publishing LTD.)

REFERENCE BOOK:

1. 8086 Microprocessor –K Ayala (Cengage learning)
2. The 8085 Microprocessor, Architecture, Programming and Interfacing- K Uday Kumar, B.S Umashankar (Pearson)
3. The X-86 PC Assembly language, Design and Interfacing - Mazidi, Mazidi and Causey (PEARSON)
4. The 8051 microcontroller and Embedded systems - Mazidi, Mazidi and McKinley (PEARSON)

Course Outcomes:

- (1) Get the knowledge of Microcomputer based system
- (2) Get the knowledge of Microcontrollers and their advantages and disadvantages
- (3) Understand and apply the fundamentals of assembly level programming of microprocessors and microcontroller.
- (4) Get the knowledge of The 8085 and 8086 microprocessor with their peripheral.
- (5) Get the knowledge of Memory interfacing with 8085, 8086
- (6) Work with standard microprocessor real time interfaces including serial ports, digital-to-analog converters and analog-to-digital converters;
- (8) Analyze abstract problems and apply a combination of hardware and software to address the problem;

LESSION PLAN

Sr. No.	Day	Reference of the Syllabus	Remarks
1	Lecture 1	Introduction to Microcomputer based system. History of evolution of Microprocessor and Microcontrollers and their advantages and disadvantages.	
2	Lecture 2	Architecture of 8085 Microprocessor	
3	Lecture 3	Pin description of 8085.	
4	Lecture 4	Address/data bus Demultiplexing, Status Signals and the control signals.	
5	Lecture 5	Instruction set of 8085 microprocessor,	
6	Lecture 6	Instruction set of 8085 microprocessor,	
7	Lecture 7	Addressing modes,	
8	Lecture 8	Timing diagram of the instructions	
9	Lecture 9	Assembly language programming with examples	
10	Lecture 10	Assembly language programming with examples	
11	Lecture 11	Assembly language programming with examples	
12	Lecture 12	Assembly language programming with examples	
13	Lecture 13	Counter and Time Delays	
14	Lecture 14	Stack and Subroutine	
15	Lecture 15	Interrupts of 8085 processor(software and hardware)	
16	Lecture 16	I/O Device Interfacing-I/O Mapped I/O and Memory Mapped I/O	
17	Lecture 17	Serial (using SID and SOD pins and RIM, SIM Instructions) and Parallel data transfer	
18	Lecture 18	The 8086 microprocessor- Architecture	
19	Lecture 19	Addressing modes	
20	Lecture 20	Interrupts	
21	Lecture 21	Introduction to 8051 Microcontroller – Architecture	
22	Lecture 22	Introduction to 8051 Microcontroller – Architecture	

23	Lecture 23	Pin Details	
24	Lecture 24	Addressing modes	
25	Lecture 25	Instruction set	
26	Lecture 26	Examples of Simple Assembly Language	
27	Lecture 27	Examples of Simple Assembly Language	
28	Lecture 28	Memory interfacing with 8085	
29	Lecture 29	Memory interfacing with 8086	
30	Lecture 30	Support IC chips- 8255	
31	Lecture 31	Support IC chips- 8251	
32	Lecture 32	Support IC chips- 8237/8257	
33	Lecture 33	Support IC chips- 8259	
34	Lecture 34	Interfacing of 8255 PPI with 8085	
35		Interfacing of Microcontroller 8051 with 8085	
36		Introduction to PIC microcontroller (16F877)	



Signature of HOD

Signature of the faculty