Microprocessor
BEG231EC

Year: II Semester: IV

Teaching Schedule Hours/Week			Examination Scheme				
Theory	Tutorial	Practical	Internal Assessment		Final		Total
			Theory	Practical	Theory	Practical	
3	1	3	20	50	80	-	150

Course Objective: The objective of this course is to provide fundamental knowledge to understand the operation, programming and application of 8085 and 8086 microprocessor.

Course Contents:

1. Introduction **2 hrs**

1.1 Evolution of microprocessor
1.2 Block diagram of Microcomputer System
1.3 Application of microprocessors

2. Intel 8085 Microprocessor **8 hrs**

2.1 Internal Architecture
2.2 Pin diagram and pin function
2.3 Addressing modes
2.4 Instruction Set
2.5 Timing diagram for I/O read write and memory read write

3. Intel 8086/8088 Microprocessor **8 hrs**

3.1 Internal Architecture
3.2 Pin diagram and pin function
3.3 Addressing modes
3.4 Instruction Set
3.5 Timing diagram for I/O read write and memory read write

4. Assembly Language Programming **10 hrs**

4.1 Introduction to assembly language programming
4.2 Assembler instruction format: Opcodes, mnemonics and operands
4.3 Assembler operation: Sample assembly language program and code generation, assembler directives
4.4 One pass and two pass assembly
4.5 Macro assemblers, linking
4.6 Programs using 8085 and 8086

5. I/O Interface **8 hrs**

5.1 Introduction to I/O Port Addressing and Decoding
5.2 Serial interface device: RS-232 serial data standard and interface
5.3 Simplex, half duplex and full duplex operation using RS-232 Port
5.4 Connection to printer and null modem
5.5 Parallel communication
5.6 8255 Programmable Peripheral Interface and Interface Device: block diagram, internal structures, and modes of initialization, and interfacing to a microprocessor
5.7 Programmable Communication Interface 8251

6. Interrupts **3 hrs**

6.1 Introduction Basic Interrupt Processing

6.2 Different types of Interrupts of 8085/8086/8088

7. Memory Interface **4 hrs**

7.1 Introduction to Memory Devices

7.2 Address Decoding

7.3 8085 Memory Interface

7.4 8086 Memory Interface

8. Comparative Study of higher series of Intel Microprocessor **2 hrs**

Laboratory

1. Familiarization with 8085 microprocessor trainer kit, simulator
2. Data transfer instructions
3. Arithmetic and logical instructions
4. Subroutine and branching instructions
5. Stack operations
6. Timers and delay
7. Code conversion
8. Familiarization with assembly language program, assembling and micro assembler (MASM)
9. Operations related to data transfer, arithmetic and logical instruction in 8086
10. Operation related to case conversion (Upper case to lower case and vice-versa)

Reference Books:

1. Douglas V. Hall, "Microprocessors & Interfacing: Programming & Hardware", 2nd Ed., Tata McGraw Hill, 2006
2. Peter Abel, "IBM PC Assembly Language & Programming", 5th Ed., Pearson Education / Prentice Hall of India Pvt. Ltd, 2007
3. Ramesh S. Gaonkar, "Microprocessor – Architecture, Programming & Applications with the 8085", Penram International Publisher, 5th Ed., 2006