

INSTITUTE	FACULTY OF TECHNOLOGY
PROGRAM	BACHELOR OF TECHNOLOGY (COMPUTER ENGINEERING)
SEMESTER	5
COURSE TITLE	FUNDAMENTALS OF MICROPROCESSORS
COURSE CODE	01CE0509
COURSE CREDITS	4

Objective:

- 1 Students can learn the necessary knowledge and skills to work with microprocessors. They can also gain an understanding of the practical applications of microprocessors in various fields.

Course Outcomes: After completion of this course, student will be able to:

- 1 Understand the architecture of 8085 Microprocessor with other processors
- 2 Understand the architecture and operation of 8086 microprocessors
- 3 Apply the concept of Addressing mode and Instruction of 8086 microprocessors
- 4 Write, Debug & Simulate assembly language programs
- 5 Compare the architectural features of advance microprocessors to design and implement simple microprocessor-based systems

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Introduction to 8085 Introduction to Microprocessors, microcomputer and single chip microcomputer, Microprocessor Architecture, Pin Functions, De-multiplexing of Buses, Memory and I/O operation, Generation of Control Signals, Basic concepts of Instruction, Cycle, Machine Cycles,, T-States in 8085	8
2	Introduction to 8086 8086 Microprocessor, Pin Configuration of 8086, Memory organization of 8086, Minimum and Maximum Mode Configuration of 8086, Bus Cycle of 8086	7

Contents : Unit	Topics	Contact Hours
3	8086 Based System Addressing Mode of 8086, Instruction Format, Instruction Templates, Instruction Set of 8086, Assembly Language, Assembly Language , Program Development Tools, TASM Assembler, MASM Assembler, Assembler Directives	12
4	Programming of 8086 Flowchart, Programming Steps, Programming Examples, Programmable Peripheral IC: Intel 8255, Intel 8255A Pin Description, 8279 Keyboard and Display Controller, 8259A Programmable Interrupt Controller, DMA and 8237 DMA Controller	9
5	Advance Processor Comparative analysis of Architectural features of 80286, 80386, 80486, Pentium, ARM	6
Total Hours		42

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Practical – 1 Introduction to 8086 Micro Processor and simulation tools	2
2	Practical – 2 To perform Data Transfer Operations	2
3	Practical – 3 To perform Arithmetic Operations	2
4	Practical – 4 To perform Logical Operations	2
5	Practical – 5 To perform bit manipulation Operations	2
6	Practical – 6 To perform Branch Operations	2
7	Practical – 7 To perform Advance Arithmetic Operations	2
8	Practical – 8 To perform BCD Operations	2
9	Practical – 9 To perform String Operations	2
10	Practical – 10 To perform code conversion and sorting operations	2
11	Practical – 11 To Study 8279 Key board and Display Controller	2
12	Practical – 12 To Study 8255 Programmable Peripheral Interface	2

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
13	Practical – 13 To Study 8259 Programmable Interrupt Controller	2
14	Practical – 14 To Study Advance Processor	2
Total Hours		28

Textbook :

- 1 Microprocessor Architecture, Programming, and Applications with the 8085, Ramesh S. Gaonkar , Penram International, 2013

References:

- 1 Microprocessor & Interfacing , Microprocessor & Interfacing , Douglas Hall , Generic, 2021
- 2 Microprocessor 8086 architecture, programming and interfacing, Microprocessor 8086 architecture, programming and interfacing, Sunil Mathur , PHI Learning Private Limited, 2011

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
25.00	30.00	20.00	15.00	10.00	0.00

Instructional Method:

- 1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by blackboard, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- 4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.

Supplementary Resources:

- 1 <https://nptel.ac.in/courses/108107029>
- 2 <https://nptel.ac.in/courses/108105102>