EL -501 **Microprocessors** **Total Periods: 48**

Unit-1 (P-12)

Introduction to 8085 – Basic/applications: 8086 Microprocessor: Internal architecture, Real mode memory addressing, Instruction Format. Addressing modes: Data-Addressing modes, Program Memory-Addressing modes, Stack Memory-Addressing modes.

Unit-2 (P-12)

Instruction Set: Programming 8086 using

Data movement instructions: MOV, PUSH/POP, Load-Effective Address, String data transfers, miscellaneous data transfer instructions,

Arithmetic and logic instructions: Addition, Subtraction and comparison, Multiplication and division, BCD and ASCII arithmetic, Basic logic instructions, Shift and Rotate, String comparisons,

Program control instructions: Jump group, controlling the flow of an assembly language program, procedures, Introduction to interrupts. Machine control and miscellaneous instructions.

Unit-3 (P-12)

Peripheral Devices: 8255-Programmable Peripheral Interface, 8254- Programmable interval Timer, 8259-Priority Interrupt Controller, 8251- USART,

Unit-4 (P-12)

Interrupts: Basic interrupt processing, Interrupt instructions, Operation of real mode interrupt, interrupt flag bits, Hardware interrupts.

DMA: Introduction to Direct memory Access.

Other Microprocessors: Introduction to 80486, Pentium and Pentium Pro Microprocessors. Introduction to protected mode memory addressing.

Essential Books:

Unit1:

Chapter 1

Advanced Microprocessors & Peripherals by A K Ray & K M Bhurchandi (Third Edition) McGraw Hill

Chapter 2,3,4

Microprocessor Architecture, Programming and Applications with the 8085 (5^{th} Edition, 2002) by Ramesh S. Gaonkar, Prentice Hall

Yu-Cheng Liu, Glenn A. Gibson- Microcomputer System: The 8086/8088 Family Architecture, Programming and Design(Second Edition) Prentice Hall of India Private Limited.

Unit 2:

Chapter 5,6.

Walter A. Triebel and Avtar Singh : The 8088and 8086 Microprocessors Programming, Interfacing, software,Hardware and Applications (Fourth Edition), Pearson.

Unit 3:

Chapter 11.

Walter A. Triebel and Avtar Singh : The 8088and 8086 Microprocessors Programming, Interfacing, software,Hardware and Applications (Fourth Edition), Pearson.

Chapter 6

Advanced Microprocessors & Peripherals by A K Ray & K M Bhurchandi (Third Edition) McGraw Hill

Unit 4:
Chapter 10.
Walter A. Triebel and Avtar Singh: The 8088and 8086 Microprocessors Programming, Interfacing, software,Hardware and Applications (Fourth Edition), Pearson (2012).
Chapter 5,6
Advanced Microprocessors & Peripherals by A K Ray & K M Bhurchandi (Third Edition) McGraw Hill (2009).
Chapter 2 (Section 2.3), 18 (Section 18.1 page734, Section 18.2,18.6)
B. Brey, The Intel Microprocessors- Architecture, Programming and Interfacing, Pearson Education (Eighth Edition).

Suggested Books:

1. D. V. Hall, Microprocessors and Interfacing- Programming and Hardware, Tata Mcgraw Hill(1999)
2. The x86 PC- Assembly Language, Design & Interfacing (5th Edn) by Mazidi, Mazidi & Causey (pearson Education)

Practical –Microprocessor

1. To write assembly language program to add two- 8bit, 16-bit and 32 bit hexadecimal numbers.
2. To write assembly language program to transfer and add a block of data.
3. To write assembly language program to multiply two 8-bit, 16- bit hexadecimal numbers.
4. To write assembly language program to convert a 16-bit hexadecimal number to Decimal number.
5. To write assembly language program to generate Fibonacci series.
6. To write assembly language program to sort hexadecimal numbers in ascending/descending order.
7. To find the square root of an integer.
8. To study working of IC 8255/8254/8259/8251 interfaced with the 8086 m