1. **Subject Code: EP 206**   **Course Title: Microprocessor and Interfacing**
2. **Contact Hours:**   **L: 3   T: 0   P: 2**
3. **Examination Duration (Hrs.)   Theory: 3   Practical: 0**
4. **Relative Weight: CWS: 15 PRS:15   MTE: 30 ETE: 40 PRE: 0**
5. **Credits: 4**
6. **Semester: EVEN**
7. **Subject Area: DCC**
8. **Pre-requisite: NIL**
9. **Objective: To familiarize the student with the concept of Microprocessors, memory organization, addressing modes and programing.**

10. **Details of Course:**

S. No.	Contents	LECTURE Contact Hours
1.	Basic Concepts of Microprocessors, Introduction to 8086 Microprocessor	2
2.	Internal architecture, Concept of address, data and control buses	2
3.	8086 hardware specifications: pin-outs and the pin-functions	2
4.	Real Mode Memory Addressing, Introduction to protected mode memory addressing	2
5.	Memory Address Space Organization.	2
6.	Programming model of 8086-general purpose registers, special purpose registers and segment registers	2
7.	Physical address generation, data addressing modes, program memory addressing modes, stack memory addressing modes	3
8.	data transfer instructions, arithmetic and logic instructions, flag control instructions, program control instructions	2
9.	Input/Output instructions	3
10.	Types of Interrupts, interrupt instructions, hardware interrupt interface, software interrupts, NMI interrupt	2
11.	Bus Cycle Timing Diagrams.	3
12.	Minimum and Maximum mode	1
13.	Subroutines: Call and Return Functions.	1
14.	Programmable Interrupt Controller – 8259	2
15.	Programmable Peripheral Interface (PPI) 8255	2
16.	Programmable Direct Memory Access (DMA) Controller - 8237/8257,	2
17.	Programmable Interval Timer - 8253.	2
18.	Introduction to PIC Microcontrollers, PIC microcontroller overview and features, PIC 16F877: ALU, CPU registers, pin diagram	2
19.	PIC reset actions, PIC oscillator connections, PIC memory organization,	2
20.	PIC 16F877 instructions, Addressing modes, I/O ports.	1
21.	Interfacing applications of Microcontroller-interfacing of 7 segment display, LCD interfacing, ADC and DAC interfacing.	2
	Total	42

Text Books/Reference Books

1. Y. Liu and G. A. Gibson, Microcomputer Systems: The 8086/8088 Family, 2nd Ed., Prentice Hall of India.

2. Douglas Hall, Microprocessors Interfacing, Tata McGraw Hill.

3. Barry B. Brey, The Intel Microprocessors, 7th Ed., Prentice Hall of India.

4. Walter A. Treibel and Avtar Singh, The 8088 and 8086 Microprocessors, Prentice Hall of India.

5. Rafiquzzaman, Microprocessors, Prentice Hall of India.

6. A.K.Ray, K.M.Bhurchandi, Advanced Microprocessors and Peripherals (Second edition), TMH.

7. Microcontroller and Embedded systems- M.A.Mazadi, J.G.Mazadi &   R.D.McKinlay - Pearson PHI.

8. Embedded Design with Microcontrollers by Martin Bates.

LIST OF EXPERIMENTS: MICROPROCESSORS AND INTERFACING LAB

Assembly Language Programming Based on 8086

1. Addition of two 64- bit numbers
2. Multiplication of two 16-bit numbers
3. Division of two 8-bit numbers
4. Generate Fibonacci Series less than FF
5. Generate an Arithmetic Progression (AP) Series
6. Generate a Geometric Progression (GP) Series
7. Arrange the given numbers of series in order of increasing and decreasing magnitude of numbers
8. Find the following summation: $\sum x_j^{2} / n$, where x is an 8-bit number.
9. Find the factorial of an 8-bit number
10. Find the largest number in a set of 16, 8 bit numbers