III B.Tech – I Semester
(20EE5109) MICRO PROCESSORS AND MICRO CONTROLLERS LAB

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
15	35	50	-	-	3	1.5

Pre-Requisites: Micro Processors & Micro Controllers

Course Objectives:

- To study and apply assembly language programming for 8086 microprocessor and 8051 microcontroller for solving simple problems.
- To study and apply instruction set and addressing modes for 8086 microprocessor and 8051 microcontroller
- To study and interface devices with 8051 microcontrollers

S. No List of Experiments

1. Write an8086 assembly language program to add two 16bit numbers and also store the carry value. (UsingEmu8086)
2. Write an 8086 assembly language program to multiply two 16 bit numbers. (Using Emu 8086)
3. Write an 8086 program to divide a 16 bit number by 8 bit number. (Using Emu 8086)
4. Write an 8086 assembly language program for Multi byte addition &Substraction of 8 bit numbers. (Using Emu 8086)
5. Write an 8086 assembly language program to find the Sum of Squares &Cubes of a given N-numbers. (Using Emu 8086)
6. Write an 8086 assembly language program to sort the given numbers in ascending order. (Using Emu 8086)
7. Write an 8086 assembly language program to sort the given numbers in Decending order. (Using Emu 8086)
8. Write an 8086 assembly language program to move block of 8 bit numbers or a string. (Using Emu 8086)
9. Write an 8086 assembly language program to reverse the given 8 bit numbers or a string. (Using Emu 8086)

Programming 8051 Microcontroller using Keil IDE and 8051 IDE (Any four from the set)

10. Write an 8051 assembly language program Finding number of 1's and number of 0's in a given 8-bit number (Using IDE 8051).
11. Write an 8051 assembly language program for Addition of even numbers from a given array(Using IDE 8051).
12. Write an 8051 assembly language program sort the given numbers in Ascending / Descending order(Using IDE 8051).
13. Write an 8051 assembly language program to find the Average of n-numbers(Using IDE 8051).
14. Write an 8051 assembly language program for Generating delays using timers.
15. Write an 8051 assembly language program for Serial data transmission and reception

Interfacing with 8051 microcontroller using Keil IDE, Proteus/ 8051 kits(Any four from the set)

16. Interfacing 8051 to LED's, Push button, Relay's
17. Interfacing Seven Segment Display
18. Interfacing DC Motor I

19. Interfacing 16x2 Liquid crystal Display
20. Interfacing 4x4 matrix Keyboard
21. Interfacing ADC/ DAC

Course Outcomes:

After successful completion of the course, the students will be able to:

S.No	Course Outcome	BTL
1.	Apply addressing modes and instruction set for 8086 microprocessor.	L3
2.	Apply addressing modes and instruction set for 8051 microcontroller.	L3
3.	Write assembly language programs using 8086 microprocessor.	L1
4.	Write assembly Language Programs using 8051 micro controller	L1
5.	Interface devices with 8051 microcontroller.	L5

Correlation of COs with POs& PSOs:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	1	2				1	1	1	2	2	3
CO2	2	2	2	1	2				1	1	1	2	2	3
CO3	2	2	2	1	2				1	1	1	2	2	3
CO4	2	2	2	1	2				1	1	1	2	2	3
CO5	2	2	2	1	2				1	1	1	2	2	3

Text Books:

1. Introduction To 80X86 Assembly Language And Computer Architecture (English, Paperback, Detmer Richard C.)
2. 8086 Assembly Language Programming by Bhupendra Singh Chabra

Reference Books:

1. Introduction to Microprocessors 8085 and 8086 by Rachpal Singh, Ikvinderpal Singh, Jagbir Singh.
2. Assembly Programming and the 8086 Microprocessor by Jones,D.S