III Year-II Semester

23EC6L08	MICROPROCESSOR AND MICROCONTROLLERS LAB	L	T	P	C
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S.NO	COURSE OUTCOME	BLOOM'S TAXONOMY LEVEL
CO1	Find how different instructions are affected before and after execution.	BL2
CO2	Experiment with various 8086 ALP microprocessor programs like arithmetic operations, sorting and factorial of given numbers using MASM Software	BL3
CO3	Demonstrate various interfacing modules of 8255PPI, ADC, DAC Keyboard/Display and generates different waveforms using ALPs with 8086 microprocessor	BL3
C04	Experiment with various assembly language programs of 8051 microcontroller using Keilµ Vision software	BL3
C05	Construct various interfacing modules using ALPs of 8051 microcontroller that operates LED display, Stepper motor and Traffic light controller	BL3
CO6	Experiment with various programs On ARM CORTEX M3 using ARM Kiel MDK software	BL3

List of Experiments:

PART- A: (Minimum of 5 Experiments has to be performed) 8086 Assembly Language Programming and Interfacing

1. Programs for 16 -bit arithmetic operations (using Various Addressing Modes).
   a. Addition and subtraction of n-BCD numbers.
   b. Multiplication and Division operations.
   c. Addition of an array of numbers with overflow detection.
2. Program for sorting an array.
3. Program for Factorial of given n-numbers.
4. Interfacing ADC to8086
5. Interfacing DAC to8086.
6. Interfacing stepper motor to8086.
7. Interfacing Seven-Segment display to 8086
8. Keyboard interface with 8086

PART-B: (Minimum of 5 Experiments has to be performed) 8051 Assembly Language Programming and Interfacing

1. Finding number of 1's and number of 0's in a given 8-bit number
2. Average of n-numbers.
3. Program and verify Timer/ Counter in8051.
4. Interfacing Traffic Light Controller to8051.
5. UART operation in8051

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6. Interfacing LCD to8051.
7. Interfacing temperature sensor (LM 35) with 8051
8. Stepper motor control with 8051

PART-C (Minimum of 2 Experiments has to be performed) Conduct the following experiments using ARM CORTEX M3 PROCESSOR USING KEIL MDK ARM
1. Write an assembly program to multiply of 2 16-bit binary numbers.
2. Write an assembly program to find the sum of first 10 integers numbers.
3. Write a program to toggle LED every second using timer interrupt.
4. PWM signal generation
5. Analog signal measurement (ADC)
6. Interfacing with serial communication (UART)

Equipment Required:
1. Regulated Power supplies
2. Analog/Digital Storage Oscilloscopes
3. 8086 Microprocessor kits
4. 8051 microcontroller kits
5. ADC module, DAC module
6. Stepper motor module
7. Key board module
8. LED, 7-SegemtUnits, LCD display modules
9. Temperature sensor module
10. Digital Multimeters
11. ROM/RAM Interface module
12. Bread Board etc.
13. ARM CORTEX M3
14. KEIL MDKARM, Digital Multi-meters

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