MICROPROCESSOR AND MICROCONTROLLERS LAB

Course Code	20EC3453	**Year**	II	**Semester**	II
Course Category	Program Core	**Branch**	ECE	**Course Type**	Lab
Credits	1.5	**L-T-P**	0-0-3	**Prerequisites**	Nil
Continuous Internal Evaluation	15	**Semester End Evaluation**	35	**Total Marks**	50

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Develop assembly language programs for various applications using 8086 Microprocessor (L3)
CO2	Apply appropriate techniques, resources, and Code Composer Studio based IDE for modelling system designs with understanding of limitations. (L3)
CO3	Analyze usage of various resources like GPIO, Timers, Interrupts, ADC, UART, Comparator (L4)
CO4	Make an effective report based on experiments.

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)

Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation

* - Average value indicates course correlation strength with mapped PO

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO1 0**	**PO1 1**	**PO1 2**	**PSO 1**	**PSO 2**
CO1			3										3	
CO2	3												3	
CO3		3											3	
CO4										3			2	
Average* (Rounded to nearest integer)	3	3	3							3			3	3

Syllabus		
Expt. No.	**Contents**	**Mapped CO**
I	16-bit Signed and unsigned Arithmetic operations, ASCII – arithmetic operations	**CO1,CO4**
II	Arithmetic operations – Multi byte Addition and Subtraction	**CO1,CO4**
III	Logical operations, Sum of Squares, Sum of Cubes	**CO1,CO4**
IV	Write ALP to find smallest, largest number, arrange numbers in Ascending order, Descending order in a given series.	**CO1,CO4**
V	Using string operation and Instruction prefix: Move Block, Reverse string, String comparison	**CO1,CO4**

VI	Introduction to MSP430 launch pad and Programming Environment. (Study Experiment)	**CO2, CO4**
VII	Read input from switch and Automatic control/flash LED (soft-ware delay).	**CO2,CO3,CO4**
VIII	Read Temperature of MSP430 with the help of ADC.	**CO2, CO3,CO4**
IX	PWM Generator	**CO2, CO3, CO4**
X	Enabling serial communication with UART on Lunchbox	**CO2, CO3, CO4**

Learning Resources
Text Books
1. K. Uma Rao, Andhe Pallavi,"The 8051 and MSP430 Microcontrollers: Architecture, Programming and Applications", Wiley Publication, 2019 2. Advanced microprocessor and Peripherals - A.K.Ray and K.M.Bhurchandi, Tata Mc Hill, 2000. 4. Micro Controllers – Deshmukh, Tata McGraw Hill Edition.6th reprint, 2007.
Reference Books
1. Microprocessors & Interfacing, Douglas.V. Hall, 3 rd Edition, Pearson/ PHI. 2007
e- Resources & other digital material
1. http://freevideolectures.com/Course/3018/Microprocessors-and-Microcontrollers