ECE: Microprocessor and Interface LAB

Programme: B.Tech. (ECE)	Year: 3rd	Semester: V
Course : ECE331	Credits : 2	Hours : 30

Course Context and Overview (100 words):

To develop a working knowledge of microprocessors, their organization and architectures also to acquire knowledge how to interface memory and real I/O devices with Microprocessor. The course will help students to develop the programming skill in assembly language and skill to design/implement practical microprocessor/microcontroller based digital systems. Much of the experiments will be using a laboratory trainers based on the instructor choice of processor and I/O devices like stepper motor , traffic light controller etc.

Prerequisites Courses: Nil

Course outcomes (COs):

On completion of this course, the students will have the ability to:
CO1: Analyze basics of architecture of Microprocessors
CO2: To learn Assembly language programming and debugging techniques.
CO3: To understand the addressing modes and Instruction set
CO4: To understand the interfacing of programmable device with processor
CO5. To design and interface systems.

Course Topics:

Topics	Lecture Hours	
UNIT - I **1. Topic** Architecture of microprocessor	3	9
1.1 Assembly language program for addition of two 8-bit numbers and sum is 8 bit.	1	
1.2 To program using microprocessor kit and verify for subtraction of two 8-bit numbers. (Display of borrow).	1	
1.3 To program using microprocessor kit for multiplication and division of two 8-bit numbers.	1	
UNIT - II **2. Topic** Instruction Set	3	6
2.1 Assembly language program to find the largest number in an array of data using 8085 Microprocessor kit.	1	
2.2 Assembly language program to find a factorial (using subroutine) of a given number.	1	
UNIT - III **3. Topic** Addressing Modes	3	6
3.1 Write a program to interface stepper motor using 8085 for rotating stepper motor in clockwise direction.	1	

3.2 Write a program using 8085 Microprocessor and DAC training kit for positive and negative ramp generator.	1	
UNIT - IV **4. Topic** Interrupts and Programmable Interfaces	3	
4.1 Write a program using 8085 for traffic light control interface.	1	
4.2 To study of AT89S52 Ultra Development Kit with Development Tool of Kiel Software for Microcontroller programming.	1	9
4.3 Interfacing EEPROM with Microcomputer and to understand R/W Operations	1	

Textbook references (IEEE format):

Text Book:
1. Microprocessor Architecture, Programming and Application with the 8085, Ramesh Gaonkar, Penram publication Pvt. Ltd., 2011.
2. Patterson, D. A., and J. L. Hennessy. *Computer Organization and Design: The Hardware/Software Interface*, 3rd ed. San Mateo, CA: Morgan Kaufman, 2004. ISBN: 1558606041.
3. ARM Assembly language- An Introduction by JR Gibson ISBN1847536964

Evaluation Methods:

Item	Weightage
e-weekly Evaluation	30%
Lab Assignment	20%
Mid Term Exam.	20%
End Term Exam.	30%