ECE331(L): Microprocessor and Interface Lab

Programme: B. Tech. (ECE) Year: 3rd Semester: I
Course: Core for ECE 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 8085 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: Learn Assembly language programming and debugging techniques
CO3: Understand the addressing modes and Instruction set
CO4: Understand the interfacing of programmable device with processor
CO5. Analyze the ADC functions using CRO.

Course Topics:

Topics	Lecture Hours	
UNIT - I **1. Topic** Architecture of 8085 microprocessor	3	
1.1 8085 assembly language program for addition of two 8-bit numbers and sum is 8 bit.	1	
1.2 To program using 8085 & verify for subtraction of two 8-bit numbers. (display of borrow).	1	9
1.3 To program using 8085 for multiplication of two 8-bit numbers by repeated addition method check minimum number of addition & test for typical data.	1	
UNIT - II **2. Topic** Addressing Modes and Instruction Set of 8085	3	
2.1 Program using 8085 for division of two 8-bit numbers by repeated subtraction method & test for typical data.	1	
2.2 8085 assembly language program to find out square root of 0, 1, 4, 9, 16, 25, 36, 49, 64 and 81 using look up table.	1	9
2.3 Write a program using 8085 for rotate stepper motor in clockwise direction.	1	
UNIT - III	4	

3. Topic Interrupts and Programmable Interfaces		12
3.1 A program using 8085 for traffic light control interface.	1	
3.2 A program using 8085 for positive and negative ramp generator.	1	
3.3 A program using 8085 for positive staircase and negative staircase signal.	1	
3.4 A program using 8085 for generating a triangle wave signal and square wave signal	1	

Text Books:

1. Microprocessor Architecture, Programming and Application with the 8085, Ramesh Gaonkar, Penram publication Pvt. Ltd., 2011.
2. Microprocessors and Interfacing, Douglas V. Hall, Tata McGraw Hill Publication.
3. Fundamentals of Microprocessors and Microcomputers, B. Ram, Dhanpat Rai Publications, NewDelhi.

Evaluation Methods:

Item	Weightage
Lab Evaluations	30
Viva	20
Final Examination	50