

CE 143 Laboratory Exercises

Lab 4. Interfacing with the PIC16F877 Microcontroller using the Microchip PIC Trainer

This exercise aims to familiarize the student with the PIC microcontroller.

The exercise consists of designing a microcontroller-based voltmeter. Using the PT-100 Microchip PIC trainer configure the PIC so that the ADC can be used to read analog signals and output the voltage reading using the three 7-segment display module. In addition to this PIC-based voltmeter, configure the LEDs so that when the reading is below 2.50V, turn on one of the left LED else if greater than 3.50 V, turn on one of the right LED.

OR

Lab 4. Using the PIC16F84A Microcontroller

This exercise aims to familiarize the student with the PIC microcontroller. Design a PIC16F84A microcontroller system that will enable you to control the sequence of the traffic lights (one-side only) in the following manner:

Input Sw = 0:

Green is on for 18 time units then Yellow is on for 2 time units

Red is on for 20 time units then (back to) Green is on for 18 time units and so on.

Input Sw = 1:

Green and Red are off, Yellow is blinking.