

# **Microcontroller Applications and Data Communication Lab (304207)**

**Teaching Scheme:**  
Practicals:4 Hrs/week

**Examination Scheme:**  
PR: 50Marks  
TW:50Marks

## **Microcontroller Applications Lab**

### **List of Practicals:**

- 1) 1 write a program for interfacing button, LED, relay & buzzer as follows  
A when button 1 is pressed relay and buzzer is turned ON and LED's start chasing from left to right  
B when button 2 is pressed relay and buzzer is turned OFF and Led start chasing from right to left
- 2) To display message on LCD without using any standard library function
- 3) Interfacing 4X4 keypad and displaying key pressed on LCD OR on HyperTerminal.
- 4) Generate square wave using timer with interrupt
- 5) Interfacing serial port with PC both side communication.
- 6) Interfacing DS1307 RTC chip using I2C and display date and time on LCD
- 7) Interfacing EEPROM 24C128 using SPI to store and retrieve data
- 8) Interface analog voltage 0-5V to internal ADC and display value on LCD
- 9) Generation of PWM signal for DC Motor control.
- 10) Observing supply current of PIC18F controller in various power saving mode and by varying clock frequency.

## **Data Communication Lab**

### **List of Practicals:(Any Six from 1 to 8):**

- 1) Differential Pulse Code Modulation or delta modulation and signal reconstruction
- 2) Basicline codes and Multi level line codes
- 3) Matched filter receiver
- 4) ASK, PSK, FSK and comparison
- 5) QPSK and OQPSK modulation and demodulation
- 6) Design of PN sequence generator
- 7) Spread Spectrum System (DSSS)
- 8) Orthogonal Frequency Division Multiplexing

Software Assignments: (Any Two from 9 to 11):

- 9) Implementation of linear block code
- 10) Implementation of Convolution code and Viterbi algorithm
- 11) Implementation of Shannon Fano and Huffman codes