# Microcontroller Applications and System Programming Lab(304187)

**Teaching Scheme:**                                       **Examination Scheme:**

Practicals: 4 Hrs/week                                       PR: 50Marks

TW:50Marks

## Microcontroller Applications

### List of Practical:

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 modes and by varying clock frequency.

## System Programming

### List of Practical:

1. Write C Program to implement Lexical Analyzer for simple arithmetic operation which creates output tables (Uniform Symbol Table or  a. Identifier Table b. Literal Table c. Symbol Table)

2. Design of PASS I of two pass assembler for pseudo machine code.

3. Design of a MACRO PASS-I

4. Implement Job scheduling algorithms:  FCFS, SJF

5. Implement Bankers Algorithm for deadlock detection and avoidance

6. Implementation of page replacement algorithm: FIFO / LRU

7. Write an shell scripting on UNIX / LINUX

8. Case Study

    a.   Android mobile operating system

    b.   Study of System calls to list files, directories

    c.   Study of System calls to handles process

    d.   Basic Linux Commands