

# CSE 3442/5442: Embedded Systems

## Lab 2: LCD Peripheral Control

### Objective:

The purpose of this lab assignment is to familiarize with programming peripherals such as an LCD display.

### Problem Statement:

#### Part 1:

Write a program that will display all the characters supported by the LCD in the QwikFlash board. The program should display the characters starting from the first location of line 1; the next character will be displayed in the second location of line 1 and so on until the first line is full then start displaying the characters in line 2, once line 2 is full clear the contents of line 1 and continue displaying the rest of the characters on the same way till it is full then move on to line 2. Repeat this process until all the characters are displayed. You are not allowed to create an array (or arrays) for the character set supported by the LCD, instead use the character's ASCII code.

#### Part 2:

Write a function to display the following equations on a continuous loop.

$$X = \alpha * \Sigma \beta * Y$$

$$Y = \sin(\Omega * t)$$

#### Part 3:

Create a function to define and add the character '~' to the character set as part of the user-defined characters. Then display the new character in the center of line 1.

#### Part 4:

During the lab session a new character will be assigned to you in order to add it to the user-defined characters. Write a function that will continuously display the new character in the center of line 1 for 1 sec then in the center of line 2 for 1 sec.