UNIVERSITY OF SAINT THOMAS – SAINT PAUL – MN
Electrical and Computer Engineering

ENGR 432: REAL TIME SYSTEMS
LAB 1: WORKING WITH GPIOS - REVIEW.
Spring 2023

Individual work

The goal of this lab is to review some material from ENGR 331-Designing with Microprocessors and to get familiar with the Nucleo board.

Copy your C code from all 3 parts into a single word document and upload the document to Canvas. To receive FULL Credit your C code MUST include:

1. **Your name as the first comment in the code.**
2. **A header comment that describes what the code is supposed to do.**
3. **In line comments WHERE appropriate.**

The latest time to demo the following 3 parts is Tuesday February 14 during the class time.

Write C code for the following tasks:

A) **Lab1_1.c** : Light up LED LD1 on the board. You might have to press Reset after you download code to the board.

B) **Lab1_2.c**: Toggle all the LEDs with a delay of 1 sec.

C) **Lab1_3.c:** Design an up counter (0-7) and down counter (7-0) display on the 3 LEDs. Pressing the BLUE push button will start the up count. Pressing the push button again will start the down count from the point that the up count was stopped. Pressing the push button again will start the up count again and so on and so forth. The delay for up counting is 1 seconds and the delay for the down counting is 2 seconds.

(Hint: You need to enable the SYSFGEN clock for the interrupts to work:

RCC->APB2ENR |= RCC_APB2ENR_SYSCFGEN)