

ENGR-355  
Lab # 5

The goal of lab today is to explore using a timer. We will create a program that uses a timer to create a periodic interrupt. The interrupt handler will increment a global variable we will call *count\_time*. *Count\_time* should increment 10 times a second.

The main program will repeatedly take the *count\_time* variable and display time in units of minutes, seconds, tenths of seconds. Pressing button one should start and stop the time display although *count\_time* will continue to increment. Pressing button one a second time will cause the current *count\_time* value to be displayed and resume updating repeatedly.

Use the interrupt Debug outputs from Lab 4 and monitor with the scope to confirm interrupt operation and interrupt rate.

Make sure you fill in the “header” information at the top of your source files (see the document named “Required source code formatting etc.” that is on the class webpage for particulars). AND, in addition to the normal “header” information in the main.c file please add a statement that defines the outcome of this lab, i.e. does your program do what the lab definition asks for? If not, detail what doesn’t work.

Also, when you create a function that will be called, either in our main.c file or in some other source file, please at the start of the function place text like this:

```
//*****  
// Function to display a number in hex                               Your name  
//*****
```

If you use a function written by someone else then the name of the person who created it should appear. And put what ever other information is useful to understanding the function there as well.

You can use the function(s) you created in lab 3 to place data on the LCD display.

Lab 5 turn-in

Turn two things in to a D2L dropbox for lab 5. First, a copy of your main.c file. Second, zip up your lab5 folder and submit it. Or if you just want to directly submit individually all the source files, .c and .h type (not the system supplied ones), that is ok.