

ENGR-355
Lab 6

The goal of this lab is to create two waveforms using a DAC:

- a) A sawtooth waveform
- b) A sine wave

Write a routine that will create a triangular waveform with magnitude that goes from zero to maximum DAC output and 100Hz rate or a sine wave. Pressing button one will select between the two. The DAC has 12-bit resolution.

Here is example code for initializing the DAC. Note that DAC_POS should have a value of 30 since Port E pin 30 is being used for DAC output.

```
/*-----*/  
/* DAC initialization, non-buffered operation */  
/*-----*/  
void Init_DAC(void) {  
    // Set pin signal type to analog  
    PORTE->PCR[DAC_POS] &= ~PORT_PCR_MUX_MASK;  
    PORTE->PCR[DAC_POS] |= PORT_PCR_MUX(0);  
  
    // Disable buffer mode  
    DAC0->C1 = 0;  
    DAC0->C2 = 0;  
  
    // Enable DAC, select VDDA as reference voltage  
    DAC0->C0 = DAC_C0_DACEN_MASK | DAC_C0_DACRFS_MASK;  
}
```

Use the PIT timer to cause an interrupt and on each interrupt output a new value from the DAC.

Use a debug output pin to show entering and leaving the interrupt handler. Measure the time spent in the interrupt handler with a scope.

To Turn In

In the header of your main file clearly state the results of your program.
Turn in your .c and .h files to the D2L drop box.