EECE 731 **Spring 2016**

Lab 0: Using the Lab Setup

Due Date: January 29, 2016 20 Points

Objective: Learn to build circuits using the Quartus II software, simulate and implement them for the DE0 development board.

Tasks:
0) Install University Program web-edtion of Quartus II software.

1) Write verilog files for three functions, a) EncoderDecoder, b) Generic Up-Down Counter and c) an integrated system that employs the first two modules to create a system that counts the encoder pulses.

```
EncoderDecoder( input A, B, clk, output Change, Direction );
UpDwnCounter#(Width=8)( input Enable, Direction, clk, Reset, output reg [Width-1:0] Count );
Main#(Width=8)(input A, B, Reset, clk, output [Width-1:0] Count );
```

2) Compile and debug your verilog code.

3) Create a waveform file that will verify the functionality of your system.

4) Down load the design to a DE0 board and test it using the switches as encoder inputs, push button as a reset and LED's to show the count value.