EE 311 **April 15, 2018**
Assignment 8 **Due: April 25, 2018**
NOT ACCEPTED LATE

For this assignment you will design and implement an 8th order low pass filter which has the following design specifications:

```
%Pass band  0 to 1500Hz
%Pass band ripple   0.01
%Stop band  2300Hz to fs/2
%Stop band ripple   0.01
```

The filter type and the sampling frequency is given in the table below. When you design the filter using MATLAB you should override the filter order and set it to 8. All filters must be of order 8. The filter must be implemented as cascaded second order sections on the ARM board.

Your c-code should output a square wave on PA7 each cycle so that the sampling frequency can be easily verified.

Turn in the following:

1. Cover sheet with the assignment number, your name, the date turned in, your filter type and the sampling frequency.
2. A signed verification sheet showing that you implemented this filter correctly. The sheet must be signed by Dr. Blandford (only)
3. A listing of the filter coefficients for each section.
4. Your complete commented C code which implements the filter.
5. The frequency vs. amplitude plot for the filter over the whole frequency band.
6. The MATLAB code used to design the filter.

Name	Type	fs
AlHamada, Hassan A.	Butterworth	10 KHz
Almazrouei, Abdulla S.	Chebyshev	12 KHz
Almesmari, Hamad K.	Inverse Chebyshev	14 KHz
AlMjnaa, Muhannad I.	Elliptic	16 KHz
Bird, Alicia R.	Butterworth	18 KHz
Brummett, Austin	Chebyshev	20 KHz
Buxton, Damon B.	Inverse Chebyshev	10 KHz
Galbraith, Joseph M.	Ellipitc	12 KHz
Kharouta, Chadi	Inverse Chebyshev	14 KHz
Morris, Kelsie R.	Chebyshev	16 KHz
Sawad Alshehhi, Mohammed	Inverse Chebyshev	18 KHz
Sheets, Conner B.	Elliptic	20 KHz
Steele, Michael	Butterworth	10 KHz
Stoddard, David C.	Chebyshev	12 KHz
Sutphin, Jared W.	Inverse Chebyshev	14 KHz
Vibbert, Sean T.	Elliptic	16 KHz

Verification Sheet
EE 311 Assignment 10

I verify that _____implemented a low pass filter in second order

sections of type _____ with sample frequency of _____

```
%Pass band  0 to 1500Hz
%Pass band ripple   0.01
%Stop band  2300Hz to fs/2
%Stop band ripple   0.01
```

_____
Signed by Dr. Blandford

Note any exceptions:

_____
_____
_____
_____
_____
_____