

# Filter Design Handout

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In order to use your filter designed by FDATOOL, follow the following steps:

1. Design your filter according to your problem's requirements until you are satisfied with the design outcome.
2. From the **File** Menu, Select **Generate Matlab Code**. Choose a suitable name for your file when asked to. The outcome of this step will appear in the Matlab Editor as:

```
function Hd = myfilter1
%MYFILTER1 Returns a discrete-time filter object.

%
% MATLAB Code
% Generated by MATLAB(R) 7.13 and the Signal Processing Toolbox 6.16.
%
% Generated on: 09-Jul-2015 18:02:19
%

% Equiripple Lowpass filter designed using the FIRPM function.

% All frequency values are in Hz.
Fs = 48000; % Sampling Frequency

Fpass = 9600; % Passband Frequency
Fstop = 12000; % Stopband Frequency
Dpass = 0.057501127785; % Passband Ripple
Dstop = 0.0001; % Stopband Attenuation
dens = 20; % Density Factor

% Calculate the order from the parameters using FIRPMORD.
[N, Fo, Ao, W] = firpmord([Fpass, Fstop]/(Fs/2), [1 0], [Dpass,
Dstop]);

% Calculate the coefficients using the FIRPM function.
b = firpm(N, Fo, Ao, W, {dens});
Hd = dfilt.dffir(b);

% [EOF]
```

3. If you want to continue to do your signal filter in this same file, comment out the first line like this:

```
% function Hd = myfilter1
```

4. Now generate or load your signal and apply the designed filter to your signal using the following statement:

```
%%% This is the statement that filters signal "sig" with filter "Hd"
output= filter(Hd, sig)
```

5. Example modified demo code with a simple generated signal is given on the web site.