Low-Pass Filter GUI Assignment

The following exercises can be performed with the Low-Pass Filter MATLAB GUI, to help illustrate some of its main concepts.

1. Determine the amplitude and phase shift (in degrees) of the sine wave when the excitation and cut-off frequencies are equal.

2. A 10 Hz signal needs to be measured with at least 90% of its amplitude retained, while a 60 Hz signal needs to be filtered so that its amplitude is attenuated by at least 50%. Determine the optimum time constant and cutoff frequency to accomplish these desired filtering effects.

3. Refer to the RC filter tutorial for more information on the relationship between time constant and cut-off frequency.