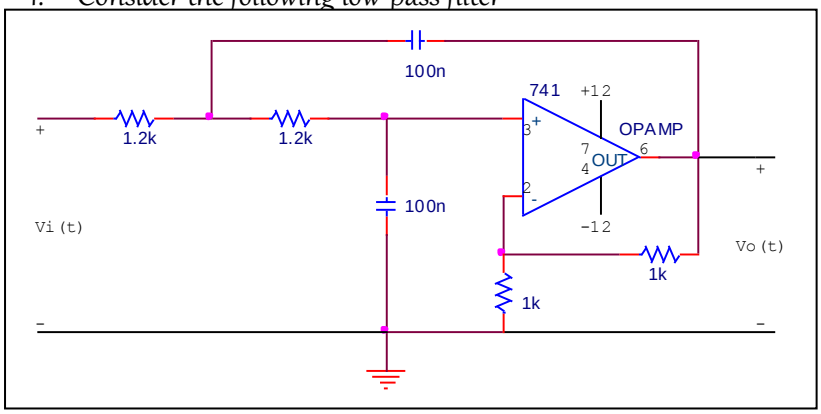
ECE 232- Advanced Circuit Analysis

Lab6

Active RC Filters 1

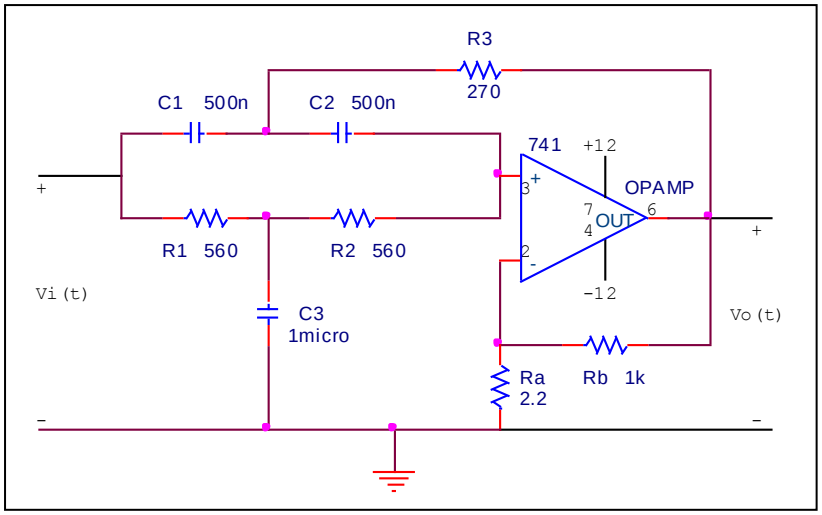
Preliminary work:

1. Consider the following low-pass filter



Determine and sketch the magnitude and the phase of the response function H(jw)=Vo(jw)/V(jw). Indicate the half-power frequency w_c.

2. Consider the following band-stop (notch) filter



Sketch the magnitude and the phase of the response function H(j)=Vo(jw)/Vi(jw). Indicate half-power angular frequency values w_{c1}, w_{c2}, the angular frequency w_o where minimum of response is attained, and the stop-band bandwidth, Δw.

Experimental procedure:

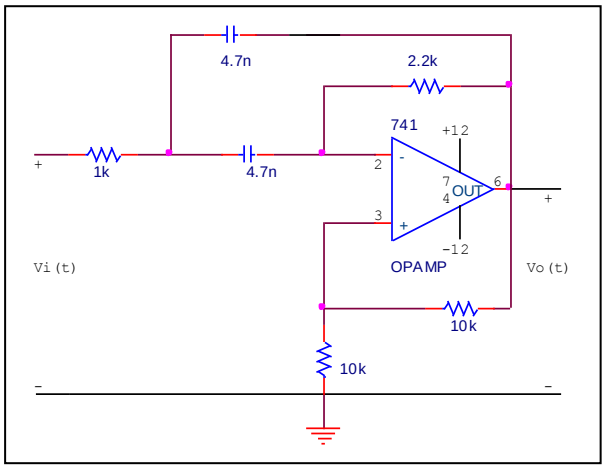
Set up the circuits in parts 1 and 2 of the preliminary work. Plot the magnitude and phase of the frequency response function and compare the outputs with the theoretical results.

Hint: Use 2*1μF capacitors instead of using 1*0.5μF capacitors

Active RC Filters 2

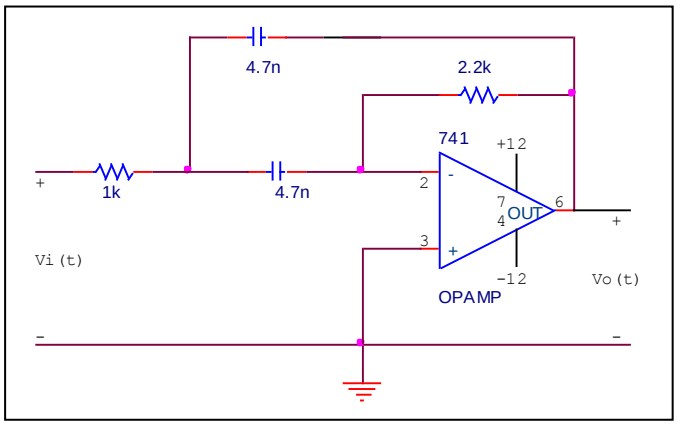
Preliminary work:

1. Consider the following band-pass filter



Determine and sketch the magnitude and the phase of the response function H(jw)=Vo(jw)/V(jw). Indicate the half-power angular frequencies w_{c1}, w_{c2}, and center frequency w_o, and bandwidth, Δw.

3. Consider the following circuit



Sketch the magnitude and the phase of the response function H(j)=Vo(jw)/Vi(jw). Indicate half-power angular frequency values w_{c1}, w_{c2}, the angular frequency w_o, and the pass-band bandwidth, Δw.

Experimental procedure:

Set up the circuits in parts 1 and 2 of the preliminary work. Plot the magnitude and phase of the frequency response function and compare the outputs with the theoretical results.