**LAB 4: ACTIVE BAND-PASS FILTER PROJECT**

**ELEC3509 A-L6**

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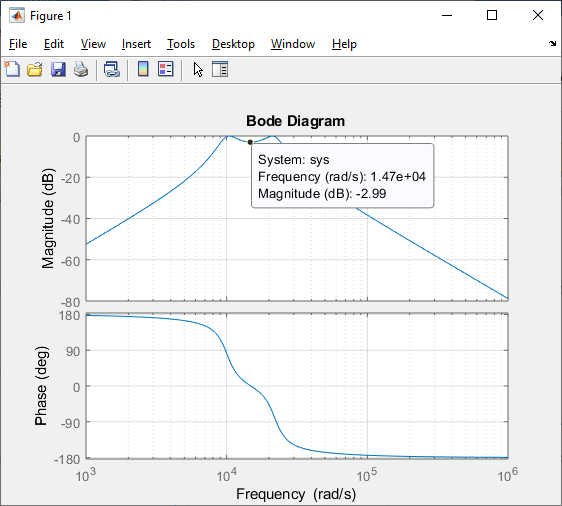
**Student #:**101103080

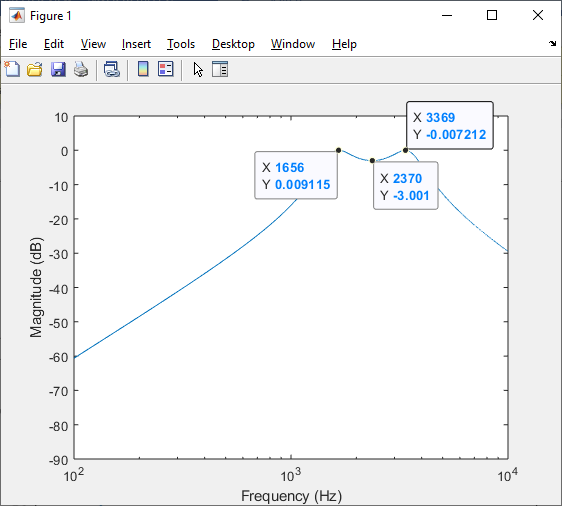
**Instructor:** Qi-Jun Zhang

**INTODUCTION**

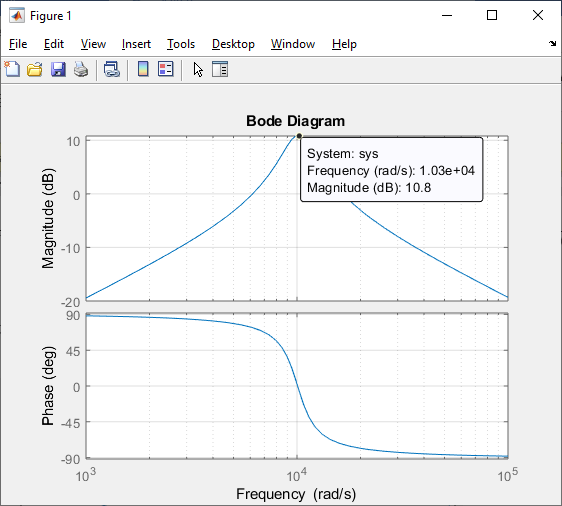
**THEORY AND DESIGN**

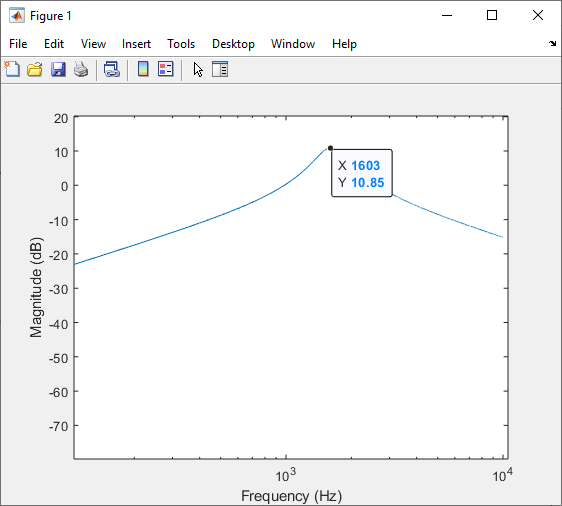
By substituting this equation into the previous one we get



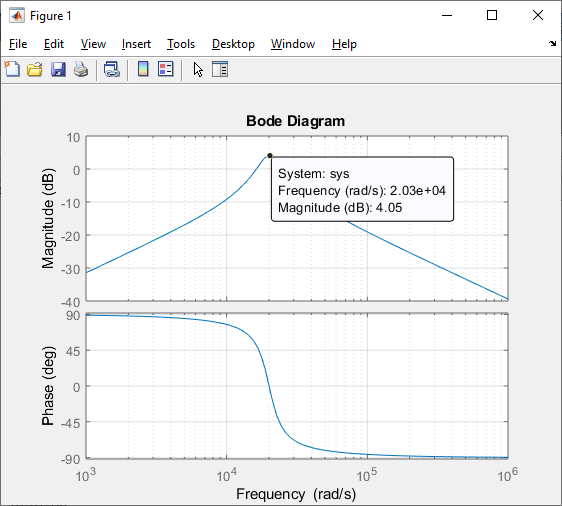


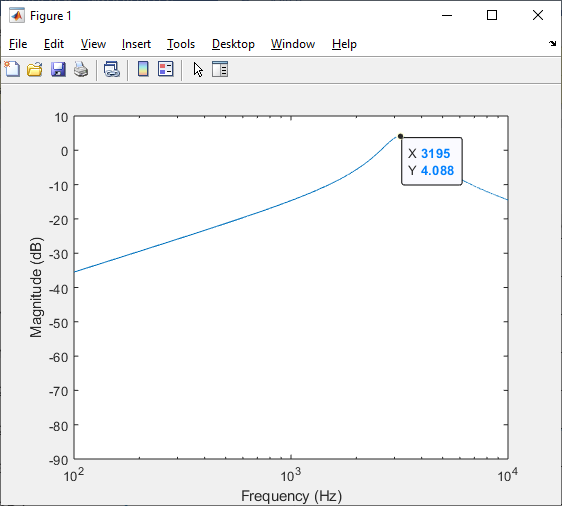
HA graph below





HB graph below





Corner Frequency

Bandwidth

Quality Factor

Gain from plot is

Capacitance Value

Resistance Values

Assume

Corner Frequency

Bandwidth

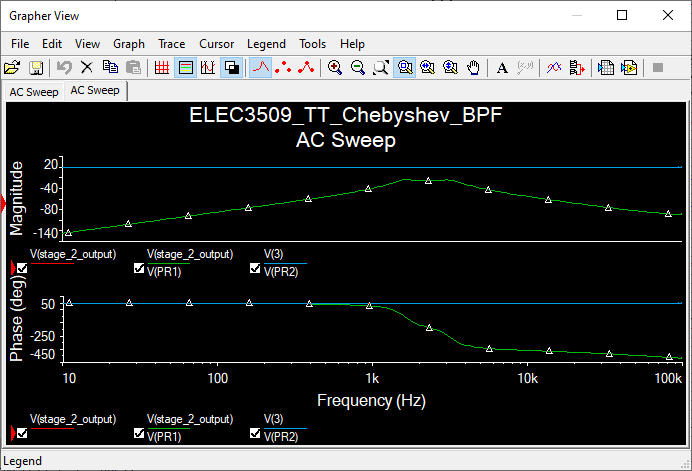
Quality Factor

Gain from plot

Capacitance Value

Resistance Values

**SIMULATION**



**RESULTS AND ANALYSIS**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Theoretical** | **Simulated** | **Simulated Standard** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**CONCLUSION**

|  |
| --- |
| % Set the numerator and denominator of the TF.  % In this case numerator is a constant.  Num = [(3.9476e7)^2] ;  % Denominator = sˆ4 + 16419\*sˆ3 + 134787490\*sˆ2 + 648191274000\*s + 1558473004000000  Dem = [1 16419 134787490 648191274000 1558473004000000];  % Set the frequency range to plot and the value of s.  f = 100:1:1e4;  s = 2\*pi\*f\*j;  % Determine the magnitude of the frequency response in dB.  FR = 20\*log10(abs(polyval(Num,s) ./ polyval(Dem,s)));  % Plot the result.  semilogx(f,FR)  xlabel ('Frequency (Hz)')  ylabel ('Amplitude (dB)')  axis ([0 1e4 -90 10]) |

