

# EE 4383/5371, FALL 2001 HOMEWORK/Proj. #4

ASSIGNED: 9/27/01 (Thursday)

DUE: **PART A: Wednesday Oct. 3 by 4:30 PM**

**PART B: Friday October 5, 2001 by 2:30 PM** in my office (Eng. 339A)

**ANNOUNCEMENT: EXAM 1 WILL COVER THROUGH HOMEWORK #4 AND #5** (next one to be assigned Oct. 4). TENTATIVE DATE IS TUESDAY **OCTOBER 16**. Let me know by Monday Oct 1 if there is a big conflict with this date.

**OFFICE HRS (through Oct 15):** Mon.,Tue.,Thur.: 1:30 – 2:30, F 11:00 – 12:00 noon

Handouts can be downloaded and printed from:

[http://www.ece.utep.edu/test/faculty/sergio\\_cabrera/ee4383.htm](http://www.ece.utep.edu/test/faculty/sergio_cabrera/ee4383.htm)

## TO-DO FOR THIS HOMEWORK:

### A. FROM PROAKIS-MANOLAKIS

Reading: Sections **2.5.1, 7.3.1 – 7.3.4, 7.2.1, 7.2.2**

Do Problems from Chapter 7:

EE4383 only: **2.49 b) (correction use Fig. P2.50)**

Both **2.48 c) find  $H(z)$  only;); 7.3; 7.9 c); 7.1 a), 7.55 a), b)**

EE5371 only **7.10; 7.12**

### B. FROM MATLAB BOOK (by McClellan et. al.) Read relevant background then do:

**BOTH GROUPS: Ex 1.1 a)-2 page 134.**

EE 5371 only: **Ex 1.1 b), page 134.**

**BOTH GROUPS: Ex 4.1 a), page 153.** Also, analyze the transfer function given using the interactive tool in Matlab called: *sptool* or the *Signal Processing Toolbox: Filter Design and Analysis Tool*. Note that you can choose the transfer function yourself by defining the a and b coefficient vectors and/or importing a filter. Try all options available for filter analysis. Give some examples of the most important useful outputs that you can get with this tool. Can you do design by manual pole/zero selection?

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### GUIDELINES FOR MATLAB WORK:

- Present solutions in the order in which the problems were assigned.
- Turn in plots (with labels INCLUDING YOUR NAME) to present as many of your exercise solutions as possible in a visual form. Providing a printout of the numbers should be a last resort. Stem plots (use “stem” command) are preferred for time-domain signals. Continuous curves are best for frequency domain plots. Unless otherwise noted, show only magnitude plots of complex functions. Don’t forget to include labels, titles AND YOUR NAME for the plots.
- Include a write-up with an explanation for each exercise and answers to the questions asked. Refer to figures by a number (numbering can be done by hand).
- Turn in a PRINTOUT of your MATLAB code (use comments).
- Keep everything SAFELY together.