

University of Wisconsin-Madison
Department of Electrical and Computer Engineering
ECE 332 - Feedback Control Systems, Fall Semester 1998
Problem Set #7

Distributed: Friday, October 23

Due: Friday, October 30

Reading: Note that the material we need from Chapter 6 is really quite brief; you should focus on sections 6.1-6.3. We will skip 6.4 (state space related material); 6.5 through 6.7 treat MATLAB computations and design examples. You should skim sections 6.5-6.7, but they are not mandatory. Finally, for this week's reading, you should cover sections 7.1 & 7.2, and begin 7.3. Note that 7.3 is a lengthy and complex section; but I hope to get you started on the root locus procedure with exercise E7.4. For this exercise, you will need to focus on pp. 346-349 of 7.3; I will also offer an alternative view on the approach of (7.43) and (7.44) in lecture.

Dorf, Chapter 6, **Problems & Advanced Problem**

P6.2 From the data given in 4.5, you need only construct the closed loop transfer function, leaving k_a as a free parameter.

P6.4 - Note that in (c)-(1), you are to approximately identify the relative stability by repeated applications of the Routh-Hurwitz test with shifted axis (using an *intelligent* trial and error search).

P6.13

AP6.3

Dorf, Chapter 7, **Exercise**

E7.4