

University of Wisconsin-Madison
Department of Electrical and Computer Engineering
ECE 332 - Feedback Control Systems, Fall Semester 1998
Problem Set #4

Distributed: Friday, September 25

Due: Friday, October 2

Reading: These problems will make use of material in Dorf, Chapter 4, and Chapter 5, through 5.3.

Dorf, Chapter 4, **Problems**

P4.12 recall that the sensitivity is essentially a normalized derivative, and hence must be evaluated about a nominal value (here $K_1 = 100$).

P4.15 To make part (b)'s question more specific: find a constant α , such that $R(s) = \alpha/s$ forces the steady state error in the output to be zero (i.e., the input $r(t)$ is a unit step scaled by α).

Dorf, Chapter 4, **MATLAB Problems**

MP4.7 - You will find it helpful to review the MATLAB functions discussed in Chapter 2, section 10, and particularly the **step** function described on page 92.

Dorf, Chapter 5, **Problems**

P5.4

P5.7 - You may skip (c), which will likely get ahead of our coverage in lecture. Note that the inertia value given describes the parameter "I" in the block diagram.