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2.004 Dynamics and Control II
Spring 2008

Massachusetts Institute of Technology
Department of Mechanical Engineering

2.004 *Dynamics and Control II*
Spring Term 2008

Problem Set 8

Assigned: April 11, 2008   Due: April 18, 2008

Reading:

- Nise: 7.1 – 7.6 (Steady-state errors)

- Nise: Ch. 6 (Stability)

Problem 1:   Nise Problem 7-1 (p. 357 5th Ed., p. 405 4th Ed.).

Problem 2:   Nise Problem 7-15 (p. 358 5th Ed.).
This is the same as Problem 7-14 in the 4th Ed. (p. 407)

Problem 3:   Nise Problem 7-59 (p. 365 5th Ed.).
This is the same as Problem 7-50 in the 4th Ed. (p. 419)

Problem 4:   Nise Problem 7-60 (p. 365 5th Ed.).
This is the same as Problem 7-51 in the 4th Ed. (p. 419)

Problem 5:   Nise Problem 6-33 (p. 314 5th Ed.)
This is the same as Problem 6-30 in the 4th Ed. (p. 358)
Note: Do not use the Routh-Hurwitz criterion. Assume a pole-zero plot form for the characteristic polynomial for marginal (oscillatory) stability, and compare coefficients with the closed-loop characteristic equation.

Problem 6:   Nise Problem 6-26 (p. 314 5th Ed.).
This is the same as Problem 6-23 in the 4th Ed. (p. 357)
Comment on whether this system can ever be *truly* stable.