MEM 355 Performance Enhancement of Dynamic Systems
MEM Department, Drexel University, Fall 2014

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Textbook & Software:

Nise, Control Systems Engineering, 5th ed., J. Wiley & Sons, 2008.

The MathWorks, Inc. The Student Edition of MATLAB, with Control Toolbox.

MATLAB Tutorial: http://www.engin.umich.edu/group/ctm/basic/basic.html

Week 1 Introduction Homework 1 (Due-Thurs, Oct 2)

Review: Laplace Transforms & Transfer Functions (N-2.2), Block Diagrams (N-5.2)
Time Domain Analysis: poles & zeros (N-4.2-4.8), stability (N-6.1-6.2)

Week 2 Homework 2 (Due- Thurs, Oct 9)

Intro to Frequency Domain Design

Steady-State Errors (N-7.1-7.2)

Week 3 Homework 3 (Due- Thurs, Oct 16)

Design via Root Locus (N-9.1-9.5)

Week 4 Homework 4, (Due – Tues, Oct 21)

Frequency response & Bode Plots (N-10.1-10.2)

Week 5

Review, Tues, Oct 21

Exam – Thurs, Oct 23

Week 6 Homework 5, (Due – Thurs, Nov 6)

Analysis of State Equations (N-7.1, 7.2)

Week 7

State Space Design: Controllability (N-12.1-12.3)

State Space Design: Observability (N-12.5-12.6)

Week 8

State Space Design: Canonical Forms

Week 9 Take home project (Due Thurs, Dec 5)

State Space Design: Pole Placement (N-12.4)

Week 10

State Space Design: Observability (N-12.5-12.6)

Week 11

State Space Design: Using Observers (N-12.7)