

MEM 255 Introduction to Control Systems

MEM Department, Drexel University (Summer 2006)

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Textbook: Nise, Control Systems Engineering, 4th ed, Wiley, 2004

Week 1

Introduction to Control Systems (Chap 1)

Review of Complex variables, Laplace Transforms (2.1-2.2)

Weeks 2

Review of Linear Algebra (App B & E)

Models of linear dynamical systems, State space models, linearization (3.1-3.4)

Homework 1: Due: July 6

Weeks 3

Introduction to MATLAB (App F, Notes)

Homework 2: Due: July 13

Weeks 4

Transfer Function Models (2.3-2.8)

The Second Order System: Effect of Pole & Zero Locations (4.1-4.8)

Homework 3: Due: July 20

Week 5

Review & Midterm – July 27

Week 6

Frequency transfer function & Bode plots (10.1)

Week 7

Block Diagrams (5.1-5.3)

Homework 4: Due August 10

Week 8

Transfer functions to state space (3.5-3.6)

Take-home Project: Due August 31

Week 9

Modal analysis, similarity transformations, state transition matrix (5.8-5.12)

Weeks 10

Stability, Routh Table (3.6)