ME 3253 (Section 2): Linear Systems Theory

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Time and Place: M/W/F 12:00-12:50pm Mont 303

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Pre-requisite: ♦ CE 212 – Applied Mechanics ♦ MATH 211Q – Elementary Differential Equations


Grading:
10% Preliminary (3) and Exit Quizzes (7)
15% Homework
15% Midterm
25% Project
35% Final Exam

Syllabus

♦ Introduction and review/overview 1 wk
♦ Dynamic systems 2 wks
♦ MATLAB recitation 1 wk
♦ Laplace domain representation of dynamic systems 3 wks
♦ Mathematical modeling of dynamic systems 2 wks
  a) Linearization of nonlinear functions
  b) Modeling of
    o mechanical systems
    o electrical systems
    o fluid and thermal systems
♦ Time domain analysis of systems (Chapter 8) 3 wks
  a) Stability
  b) Root locus
♦ Frequency response of systems (i.e., the frequency domain analysis) (Chapter 9)
  a) Magnitude and phase concepts
  b) Bode and Nyquist plots 2 wks

Software: MATLAB and SIMULINK. They are available in the ENG II network. You can also purchase the student versions of the software which will be sufficient for this course.