

EE324: Signals and Systems II

Fall 2008

Instructor: Sang W. Kim, 3112 Coover, 294-2726, swkim@iastate.edu

Teaching Assistants: Jon R. Watson, jonwat@iastate.edu (lecture), ALC #7
Hakan Topakkaya, hakan@iastate.edu (labs), Coover 3101

Lectures: MWF 2:10-3:00 Hoover 1312

Labs: R 9:00-11:50, R 2:10-5:00

Office Hours: Instructor: W 3:00-4:30
TA: T,R 11-12 ALC#7

Course Description:

Laplace and z-Transforms, properties and inverses. Applications to LTI systems and analog/digital filters. Feedback systems and stability. State-space representation and analysis.

Prerequisite: EE224 (Signals and Systems I)

Text: S.Haykin and B. Van Veen, Signals and Systems, 2nd ed., John Wiley & Sons, 2005

Tentative Course Outline:

Review of 224 (Ch.1 and 2)

Elementary signals

System models: input-output, state space

Basic system properties: linearity, time-invariance, causality

Testing of linearity, time-invariance, causality

Response of LTI systems: Convolution and the impulse response

Differential/difference equations for LTI systems

Laplace transform, bilateral, unilateral (Ch.6)

Region of convergence.

Properties of Laplace transform

Transfer functions, poles and zeros, unit impulse response

Stability of transfer functions

Z-transform (Ch. 7)

Region of convergence

Properties of z-transform

Transfer functions, poles and zeros, unit impulse response

Stability of transfer functions

Filters (Ch. 8)

Design of filters

Feedback systems (Ch. 9)

Sensitivity, stabilization, disturbance rejection

Stability of feedback systems, simple controllers (PID), unstable pole/zero cancellation

Stability criterion

Homework:

Homework will be assigned approximately once a week, and is due a week later.
Late homework will not be accepted without prior permission.

Labs:

Labs are intended for providing you a place where you get hands on, practical experience, and more examples on the course material, which has a theoretical basis. With this objective in mind, the lab meeting time will include a review session that covers review of various topics covered in class and in the lab experiments, as well as guides solutions to typical HW and exams problems.

Grading:

Homeworks: 15%

Labs: 15%

Attendance, Participation, Short-Quizzes: 20% (sum of individual quiz scores - worst quiz score) / (number of quizzes - 1) normalized to 100

Midterm Exam: 20%

Final Exam: 30%

No make up exam/quizzes except for documented emergencies.

Disability Statement :

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me soon. Please request that a Disability Resources (DR) staff send a Student Academic Accommodation Request (SAAR) form verifying your disability and specifying the accommodations you will need. DR is located in Room 1076 of the Student Services Building.