EE103   Signal and Systems   Spring 2016

UNIVERSITY OF CALIFORNIA, SANTA CRUZ
Department of Electrical Engineering

COURSE SYLLABUS

Course Description

The course will cover the following topics: Characterization and analysis of continuous-time signals and linear systems. Time domain analysis using convolution. Frequency domain analysis using the Fourier series and the Fourier transform. The Laplace transform, transfer functions and block diagrams. Continuous-time filters. Examples of applications to communications and control systems.

Course Outline

The following is a *tentative* course schedule. The corresponding textbook chapters are listed in the square brackets (for the Fourth Edition).

- Week 1: Introduction, Signals and Systems, Signal types and characteristics [2.1-2.5, 2.7, 3.4]

- Week 2: Impulse response and convolution [3.1, 3.2, 3.3]

- Week 3: The Fourier Series: definition, properties, applications [ch 4]

- Week 4: The Fourier Transform: definition, properties [5.1-5.3]

- Week 5: The frequency response of linear time-invariant systems [5.5-5.6]

- Week 6: The Fourier Transform: applications [6.1 - 6.3, 6.5 - 6.6]

- Week 7: Sampling and its applications [5.4]

- Week 8: The Laplace Transform [ch 7]

- Week 9: The Laplace Transform [ch 7]

- Week 10: Transfer functions and stability [ch 7]

Class Time and Location Lecture times: M W 5:00 - 6:45pm, Kresge Room 327.

First lecture: M 3/28/2016; Last lecture: W 6/1/2016.

Final exam: Wednesday, 6/8/2016, 7:30pm - 10:30pm.

No class on M 5/30/2016, Memorial day.

Text Book L. Phillips, J. Parr and E. Riskin "Signals, Systems and Transforms" (Fifth Edition) Prentice Hall, 2013, ISBN-10: 0133506479, ISBN-13: 978-0133506471. (Fourth Edition) Prentice Hall, 2007, ISBN-13: 978-0131989238, ISBN-10: 0131989235

Other books

G. E. Carlson, "Signal and linear system analysis," John Wiley and Sons Ltd., 1992, (Second Edition), ISBN 0-471-12465-6,

B. P. Lathi, "Linear Systems and Signals," Oxford University Press, 2004, (Second edition) ISBN-10: 0195158334, ISBN-13: 978-0195158335

A. V. Oppenheim, A.S. Wilsky, "Signals and Systems," 1996, (Second edition) ISBN-13: 978-0138147570 ISBN-10: 0138147574.

Schaum's Outline of Signals and Systems, (3rd Edition), Paperback, 2013 ISBN-13: 978-0071829465 ISBN-10: 0071829466

Grading Policy

Course grade will be based on weekly homework assignments (15% of the final grade), midterm examination (35% of the final grade) and a final examination (50% of the final grade). You must get a passing grade on the final to pass the course. The final examination will cover the material from the entire course.

Academic Dishonesty

Any confirmed academic dishonesty including but not limited to copying homeworks or cheating on exams, will result in a no-pass or failing grade. You are encouraged to read the campus policies regarding academic integrity. Examples of cheating include (but are not limited to): Sharing results or other information during an examination. Working on an exam before or after the official time allowed. Submitting homework that is not your own work. Reading another student's homework solution before it is due. Allowing someone else to read your homework solution before the assignment is due.

For more details see the Official UCSC Guideline on Academic Integrity.