

Stevens Institute of Technology
Department of Electrical and Computer Engineering

COURSE OUTLINE

EE/CpE548 – Digital Signal Processing

- Text** Sanjit K. Mitra, *Digital Signal Processing: A Computer Based Approach*, 4th edition, McGraw Hill, 20011, ISBN 007736676X. (Note: **You shall get the 4th edition of this text.** Also download Lab Manual and Matlab M-files at http://highered.mcgraw-hill.com/sites/0072865466/student_view0/lab_manual.html)
- References** Alan V. Oppenheim and Ronald W. Schaffer, *Discrete-Time Signal Processing*, 3rd Edition, Prentice Hall, 2010.
- Instructor** Dr. Hongbin Li
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- Office Hours** See class website
- Grading**
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| Homework and projects | 15% |
| Quizzes | 15% |
| Midterm Exam: | 35% |
| Final Exam: | 35% |
- All assignments, projects and exams count; none will be dropped from your final grade.
- Contents** Basic sequences, operations, and properties; impulse response, linear convolution; DTFT, frequency response, phase and group delay; DFT, circular convolution; Z-transform, partial-fraction expansion, transfer functions, complementary transfer functions, algebraic stability test; linear phase, minimum phase filters, allpass filter; sampling of baseband and bandpass signals; Butterworth, Chebyshev, and elliptic approximations, analog filter design; digital filter structures, direct, cascade, parallel, and transposed forms, allpass structures, tunable IIR filters, IIR tapped cascade lattice structures, FIR cascade structures; IIR filter design, bilinear and spectral transformations; FIR filter design by windowing method, Remez algorithm; spectral analysis of sinusoidal and non-stationary signals, spectral resolution, short-time Fourier transform, spectrogram.
- Holidays** No class on Sept. 1 (Labor Day) and Oct. 13 (Fall Recess). Make-up class on Oct. 14 (Monday Schedule).
- Miscellaneous** Homework and computer projects will be assigned and collected on a regular basis; certain of these problems will be graded and/or discussed. **No late work will be accepted.** You are responsible for all assignments, changes of assignments, announcements of exam dates, and other course-related events announced in class or sent through e-mail.