
University of New Mexico, Albuquerque
Department of Electrical and Computer Engineering
EECE-495: Signal Processing Using MATLAB
Spring Semester 2001, 3 Credit Hours

COURSE INFORMATION:

Course Instructor	Prof. Balu Santhanam
Office Location	Room 326A, EECE Bldg.
Contact Info	Email: bsanthan@eece.unm.edu Tel: (505) 277-1611 , Fax: (505) 277-1439
Prerequisites	EECE-314, Math 314, EECE-340 recommended.
Location	DSH-141
Lectures	MWF: 10:00 - 10:50 AM
Textbook	Optional: J.H. McClellan et. al., Computer Based Exercises for Signal Processing Using MATLAB 5.0, Prentice Hall Inc, 1998

GRADING SCHEME:

Problem Sets/Computer Projects : 40%
Midterm : 30%
Final Exam : Monday, May 7, 10:00 - 12:00, 30%

REFERENCES:

- A. V. Oppenheim, R. W. Schaffer and J. R. Buck, "Discrete-Time Signal Processing," Second Edition, Prentice Hall Inc., Upper Saddle River, New Jersey, 1999.
- J. G. Proakis and D. G. Manolakis, "Digital Signal Processing: Principles, Algorithms, and Applications," Third Edition, Prentice Hall Inc., Upper Saddle River, New Jersey, 1996.
- A. V. Oppenheim, A. S. Wilsky and S. H. Nawab, "Signals and Systems," Second Edition, Prentice Hall Inc., Upper Saddle River, New Jersey, 1997.

- J. G. Proakis and M. Salehi, “Contemporary Communication Systems,” using MATLAB, Brooks/Cole Publishing Company, Pacific Grove, CA, 2000.
 - J. G. Proakis and V. Ingle, “Digital Signal Processing Using MATLAB, Brooks/Cole Publishing Company, Pacific Grove, CA, 2000.
 - D. M. Etter, “Engineering Problem Solving With MATLAB,” Second edition, Prentice Hall Inc., Upper Saddle River, New Jersey, 1997.
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COURSE OBJECTIVES/OUTLINE:

This course is a introductory course in signal processing and computing using MATLAB. The student is expected to have had a undergraduate course in signal processing and a linear algebra course. This objectives of this course are three-fold:

- Introduction to the computing/programming and GUI environment of MATLAB 5.3:
 1. Mathematical, logical operations.
 2. Programming, control flow, error control.
 3. Built-in functions, mfiles.
 4. 2D and 3D graphics, demo environment.
- Introduction to the signal processing, matrix, and the communication toolboxes of MATLAB 5.3:
 1. Functions pertaining to filtering, convolution, FFT and other DSP operations.
 2. Functions in the linear algebra package.
 3. Functions in the statistics toolbox.
 4. Functions in the Communications toolbox.
- Introduction to signal processing problems from :
 1. Speech processing
 2. Image processing,
 3. Biomedical applications,
 4. Random signal processing,
 5. Digital communicationsand problem solving using MATLAB 5.3.

NOTE:

- Make sure that you have an EECE computer account as soon as possible.
- Homework assignments are meant to strengthen your conceptual understanding in the course.
- It is assumed that the students understand the university attendance policy. In any case if you do not attend class it is your money going down the drain.