University of Alabama in Huntsville
Department of Electrical and Computer Engineering

EE 748 Digital Signal Processing
Algorithms and Applications

Spring 1996

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Textbook: J. R. Deller, J.G. Proakis, and J.H.L. Hansen, *Discrete-time Processing of Speech Signals*, Macmillan: New York, 1993.

Course Outline: The following topics will be covered in class:

- Speech Production and Mathematical Modeling (Chapters 2 and 3)
- Short-term Processing of Speech (Chapter 4)
- Linear Prediction Analysis (Chapter 5)
- Cepstral Analysis (Chapter 6)
- Speech Recognition (Chapters 10-12)

Prerequisite: EE 648 (Discrete-time Signal Processing), and EE 420/500 (Probability and Stochastic Processes) or equivalent.

Grading:

Computer Projects	40%
Homework	20%
Final	40%

Notes:

1. Computer projects will be carried out in MATLAB, which is installed on the Pentiums in the PC Lab and the DSP Laboratory (Room 262). The entrance code for the room is 24816.
2. The final will be a comprehensive, take home exam.

References:

1. L. Rabiner and B-H. Juang, *Fundamentals of Speech Recognition*, Prentice-Hall: Englewood Cliffs, NJ, 1993.
2. S. Haykin, *Adaptive Filter Theory*. Prentice-Hall: Englewood Cliffs, NJ, 1991.
3. A.V. Oppenheim, and R.W. Schafer, *Discrete-time Signal Processing*. Prentice-Hall: Englewood Cliffs, NJ, 1991.
4. L.L. Scharf, *Statistical Signal Processing*. Addison Wesley: Reading, MA, 1991.
5. A. Papoulis, *Signal Analysis*. McGraw-Hill: New York, 1977.
6. A. Papoulis, *Probability, Random Variables, and Stochastic Processes*. McGraw-Hill: New York, 1991.