

Colorado State University, Ft. Collins, Fall Semester 2008

ECE421: Telecommunications I, 3cr

Time & Location: TR 2:00pm-3:15pm, Engr B103

Prerequisites: ECE303 or STAT303, and ECE312

Instructor: Prof. Ali Pezeshki

Contact Info: Engr C103J, Tel. 970-491-3242, pezeshki@engr.colostate.edu

Office Hours: TR 1:00pm-2:00pm

Course Description:

This course introduces the students to the theory and basic principles used in the design and analysis of communication systems. The material covered in this course are fundamental to the analysis and design of every modern communication system, including AM and FM radio, digital audio and video, wireless communication, modems, TV broadcast, optical communication, etc.

Textbook:

B. P. Lathi, Modern Digital and Analog Communication Systems, 3rd edition, Oxford University Press, 1998.

References:

Simon Haykin and Michael Moher, *Introduction to Analog and Digital Communications*, 2nd edition, John Wiley & Sons, Inc., 2007.

J. Proakis and M. Salehi, *Communication Systems Engineering*, 2nd edition, Prentice Hall, 2002.

Course Outline:

1. Introduction
2. Review of Signals and Systems
3. Linear Modulation
4. Exponential Modulation
5. Sampling and Pulse Modulation
6. Review of Probability, Random Variables, and Random Processes
7. Behavior of Analog Communications in the Presence of Noise
8. Principles of Digital Data Transmission
9. Behavior of Digital Communication Systems in the Presence of Noise
10. Selected Topics from Chapters 14 and 15: Optimum Receiver, Source Coding, and Channel Capacity (if time permits)

Evaluation and Grading:

Homework	20%
Midterm	40%
Final	40%

Note: Regular attendance in class is required. Homework are assigned every week and are due at the start of the class a week from the assignment date. Homework turned in after the due date will not receive credit.