ENEE 420 Communication Systems, Spring 2000

Textbook: *Communication Systems*, S. Haykin 3rd edition.

Instructor: Leandros Tassiulas, Room 2261 (A.V. Williams Bldg.), Ext. 56620, email: leandros@eng.umd.edu, URL: http://www.ee.umd.edu/ leandros

Office Hours: Mon.-Wed. 2.00-3.30pm

Exams: Final and 2 midterms. Tentative midterm schedule: February 23 and April 5.

Grading: Final 40%, 2 midterms 30% each, homework (8-9 assignments) does not count on the grade.

Time: Mon.-Wed.. 3.30-5.00pm

Outline

- Course overview. Review of signals and systems. Review of probability. Stochastic signals and noise.
- Analog modulation: Amplitude modulation (AM); Phase and Frequency modulation (FM); Spectral characteristics; Performance in noise; system realizations.
- Sampling and and quantization: Sampling theorem; Quantizer design.
- Pulse modulation: Pulse Amplitude Modulation (PAM); Delta Modulation (DM); Pulse Code Modulation (PCM); Differential Pulse Code Modulation (DPCM);
- Digital base band transmission: Optimum receiver design; Matched filter; Bit Error Rate performance.
- Digital transmission over bandlimited channels: Pulse shaping intersymbol interference; equalization; synchronization.
- Digital transmission via carrier modulation: Amplitude Shift Keying (ASK); Frequency Shift Keying (FSK); Phase Shift Keying (PSK); Quadrature Phase Shift Keying (QPSK); coherent and non-coherent demodulation.

References

Proakis and Salehi “Communications Systems Engineering” Prentice Hall 1994.