ECE 513 - Fall 2014 – Tentative Syllabus
Communication Engineering Fundamentals

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Text: Digital Communications, by John G. Proakis and M. Salehi, McGraw-Hill Book Company, 5th Edition.

References: Communications Systems Engineering, by J. G. Proakis and M. Salehi, Prentice Hall, Second Edition.
Digital Modulation and Coding by Stephen G. Wilson, Prentice Hall.
Error Control Coding, by Shu Lin and Daniel J. Costello, Jr., Prentice Hall, second edition, 2004.

Course Outline:

Introduction
Overview of a Communication System
Signals and Linear Systems
Random Processes

Analog Signal Transmission and Reception
Amplitude and Angle Modulation
Effect of Noise in Analog Communication Systems

Information Sources and Source Coding
Modeling of Information Sources
Source Coding Theorem and Algorithms
Rate-Distortion Theory
Quantization
Waveform Coding

Digital Transmission through an Additive Gaussian Noise Channel
Pulse Amplitude Modulation
Two-dimensional and Multi-dimensional
Signal waveforms
Optimum Receiver
Probability of Error

Channel Capacity and Coding
Channel Capacity
Linear Block Codes
Convolutional Codes
Trellis Modulation

Grading:

TBA

Grading:

90-100 - A
80-89 - B
65-79 - C
<65 -E