ECE 421– Communications Engineering, Fall 2002
MTh   9:50 – 11:10 SAC 216

Instructor: Predrag Spasojevic, WINLAB 111. **Office Hours**: MTh 11:30-12:30
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Course web page: http://www.winlab.rutgers.edu/~spasojev/courses/421

Course Textbook: *Communication Systems 4th edition,* Simon Haykin, Wiley
http://www.wiley.com/college/haykin

Suggested Readings:
   Digital Communications, Bernard Sklar, Prentice Hall
   Communications System Design Using DSP Algorithm, Steven Tretter, Plenum Press

Course Topical
  - Random process characterization, stationarity, and power spectral density
  - Baseband pulse and passband digital transmission
  - Coherent and non-coherent modulation, PSK, FSK, D-PSK, M-ary PAM
  - Matched filter, maximum-likelihood, linear, and correlation receivers.
  - Inter-symbol interference, Nyquist criterion, equalization, and eye pattern
  - Error-rate performance analysis
  - Geometric signal representation and vector channels
  - Synchronization, carrier and symbol timing recovery
  - Fading channels and characterization
  - Spread-spectrum modulation, direct sequence and frequency hopping
  - Adaptive antenna arrays
  - Discrete memoryless channel, mutual information, and capacity.

Grading and Percentage Breakdown:

	Percentage of Grade
Midterm Exam	30%
Final Exam	35%
Random Quizzes	10%
Homework	5%
Project	20%

*NOTE: One randomly selected homework will be graded.