

4400: 457/557: Wireless Communications

Spring 2006

Catalog Description: **4400:457/557 Wireless Communications**
Theory and analysis of wireless communication systems, wireless propagation, multiple access, modulation, demodulation, multipath channel characterization, diversity, cellular, and PCS services and standards.

Prerequisite: 4400:549/449 - Digital Communications or Consent of Instructor

Textbook Info: Recommended:
Theodore S. Rappaport, *Wireless Communications – Principles & Practice*, 2nd ed., Prentice-Hall, Upper Saddle River, NJ, 2002. ISBN 0-13-042232-0

Reference:
Professors Lecture Guide

Class Schedule: M. W. F 11:00 ~ 11:50 am. ASEC 120

Instructor: Dr. Okechukwu C. Ugweje

Office/Office Hours: ASEC 254; MWF: 12 noon – 2:00 pm., (or by appointment)

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Goals: This course introduces the fundamentals of wireless communications including design and practical issues of personal communication services, mobile cellular systems and wireless networks. It focuses on principles, technologies, and standards for wireless radio systems. The high level of worldwide engineering activities in the areas of wireless communication reflects expanding customer demand. Wireless personal communications will be a major driving force in the development of new telecommunication systems and services and in the emerging information superhighway infrastructure.

Tentative Topics:

1. Introduction to Wireless Communication Systems
2. Wireless Channels and Mobile Radio Propagation Modeling
3. Digital Modulation Techniques for Mobile Communication
4. Multiple Access Techniques for Wireless Communication
5. Wireless Communication Techniques – Modem, Diversity, Coding, Equalization
6. The Cellular Concept – System Design Fundamentals
7. Cellular/PCS systems and Services – Case Study
8. Wireless Systems and Standards around the world

		Undergraduate	Graduate
Exams & Evaluation Criteria:	Attendance & participation	5 %	5 %
	2 Midterm Exams	50 %	40 %
	Final Exam	30 %	25%
	Homework	15 %	10%
	Project	-----	20%

Grading:

86-100	A, A-
76-85	B+, B, B-
60-75	C+, C, C-
46-60	D+, D, D-
≤ 45	F

Computer Skills: MATLAB, MATLAB SIMULINK with Communication Toolbox and SystemView

Homework & To be determined by the instructor

Project: