Course Syllabus

EE-582WS: Wireless Networking: Architectures, Protocols, and Standards

Instructors: Prof. Yu-Dong Yao
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Textbook: No required textbook.

Other Recommended Readings:
[1] K. Pahlavan and P. Krishnamurthy, Principles of Wireless Networks, Prentice Hall, 2002. (ISBN: 0130930032)
[2] W. Stallings, Wireless Communications & Networks, Prentice Hall, 2001.
[3] Y. B. Lin and I. Chlamtac, Wireless and Mobile Network Architectures, John Wiley & Sons, 2001.
[4] G. Christensen, P. G. Florack, and R. Duncan, Wireless Intelligent Networking, Artech House, 2000.
[5] U. D. Black, Mobile and Wireless Networks, Prentice Hall, 1996.
[6] A. U. H. Sheikh, Wireless Communications: Theory and Techniques, Kluwer Academic Publishers, 2004.
[7] W. C. Y. Lee, Mobile Communications Engineering: Theory and Applications, 2nd edition, McGraw Hill, 1997.
[8] T. S. Rappaport, Wireless Communications: Principles and Practice, Prentice Hall, 1996.

Grading:

Homework 10%
Term paper 10%
Midterm (open book) 10%
Final (open book) 70%

About late HW: For late HW submission, you get 75% HW grade.

Course Description:

This course addresses the fundamentals of wireless networking, including architectures, protocols, and standards. It describes concepts, technology and applications of wireless networking as used in current and next-generation wireless networks. It explains the engineering aspects of network functions and designs. Issues such as mobility management, wireless enterprise networks, GSM, network signaling, WAP, mobile IP, and 3G systems are covered.

Course Objectives:

Upon completing this course student should be able to:
- Understand the architectures and elements of a wireless network
- Understand the use and process of mobility management
- Understand the signaling schemes used in wireless networks
- Understand the wireless protocols and standards
- Analyze the operation and performance of wireless protocols
- Capture most recent development in 3G wireless systems

Topical Outline:

Week	Topic
1	Lec.1: "Overview of Computer Networks and Wireless Networks"
2	Lec.2: "Cellular Concepts and Designs"
3	Lec.3: "Physical Layer Fundamentals"
4	Lec.4: "Data Link Control Protocols"
5	Lec.5: "Medium Access Control (MAC)"
6	Lec.6: "Radio Resource Management"
7	Midterm
8	Project assignment
	Lec.7: "Resource Allocation and Call Admission Control"
9	Lec.8: "Mobility Management"
10	Lec.9: "Wireless Networking"
11	Lec.10: "Cellular Systems"
12	Lec.11: "Mobile IP"
13	Lec.12: "Mobile IP: Registration and Tunneling"
	Final