

ELEC 6110/6116 – WIRELESS NETWORKS

2002 Catalog Data: **ELEC6110/6116. WIRELESS NETWORKS (3). Pr., ELEC 6100.** Introduction to evolution of technologies from 2G to 3G wireless networks, wireless broadband, satellite communication, wireless local area networks, mobile Internet protocol, wireless network security, wireless network planning, design and management.

Textbook: *Wireless Information Networks*, Kaveh Pahlavan, et al. Wiley.

Coordinator: C. Wu, Professor of ECE

Goals: Radio access and core networks, 2G Networks (IS-95 and GSM), 2.5G networks (GPRS, IS 136), 3G networks (IMT-2000, WCDMA, CDMA 2000), wireless local area networks, mobile IP, wireless broadband access: multichannel multipoint distribution service (MMDS) and local multipoint distribution service (LMDS), satellite communication, wireless network security, wireless network planning, design and management.

Prerequisites by topic:

1. Computer organization
2. Basic communication theory
3. Wireless communication systems

Topics:

1. Radio access and core networks (3 classes)
2. 2G Networks (IS-95 and GSM) (3 classes)
3. 2.5G networks (GPRS, IS 136) (4 classes)
4. 3G networks (IMT-2000, WCDMA, CDMA 2000) (4 classes)
5. Wireless broadband access: Multichannel Multipoint Distribution Service (MMDS) and Local Multipoint Distribution Service (LMDS) (4 classes)
6. Wireless ATM (4 classes)
7. Satellite communication: VSAT (5 classes)
8. Wireless local area network standard (802.11) (5 classes)
9. Mobile Internet protocol (4 classes)
10. Wireless network security (4 classes)
11. Wireless network planning, design and management (3 classes)
12. Tests (2 classes)

Typical Methods for Evaluating Student Performance: Grading Scale:

- | | |
|---------------------------|------------|
| • Homework (10%) | A: 90-100% |
| • Project (30%) | B: 80-89% |
| • Two tests (30%) | C: 70-79% |
| • Final examination (30%) | D: 60-69% |
| | F: 0-59% |

Class attendance: Class attendance and its effect on course grade is the prerogative of the individual instructor and will be part of the course outline and announced the first day of class.

Policy on unannounced quizzes: Unannounced quizzes and their effect on course grade are the prerogative of the individual instructor and will be part of the course outline and announced the first day of class.

ABET category content as estimated by faculty member who prepared this course description:

Engineering science: 2 credits or 67%
Engineering design: 1 credit or 33%

Students who need special accommodations should make an appointment to discuss their needs as soon as possible.

Justification for Graduate Credit: This course builds on the material presented in the Wireless Communications Systems course, ELEC 6100. The material in this course is not typically taught in undergraduate electrical engineering programs, and would thus be appropriate for both incoming graduate students and advanced undergraduates.

Prepared by: C Wu Date: 11/11/2001