

COURSE DESCRIPTION

Department and Course Number: COMP 6360

Course Title: Wireless and Mobile Networks

Total Credits: 3

Required: Yes (WIRS)

Prerequisites: COMP 4320

Class meetings per week: 3 hours

Lab meetings per week: 0 hours

Course Coordinator: Dr. Alvin Lim

Date Prepared: February 18, 2004

Current Catalog Description:

Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless, wireless TCP personal communication systems, and GSM.

Textbooks:

Imielinski, T., and Korth, H. F. (eds.). 1996. *Mobile Computing*. Kluwer Academic Publishers. ISBN 0-7923-9697-9.

References:

Selected current conference and journal articles, such as from the following references.

UBICOMP International Conference on Ubiquitous Computing

MOBICOM International Conference on Mobile Computing and Networks

MOBIHOC Symposium on Mobile Ad Hoc Networking

IEEE/ACM *Transactions on Networking*

UBIQUITY ACM *Journal of Ubiquitous Computing*

Course Objectives:

1. Develop advanced network building skills.
2. Gain an understanding of performance issues in advanced wireless and mobile networks.
3. Gain an understanding of issues related to supporting mobile distributed applications.

Prerequisites by Topic:

1. Familiarity with computer communication networks, particularly the TCP/IP Internet framework.

Topics Covered: (specify number of hours on each)

1. Introduction to wireless and mobile networks (1 hour)
2. Applications (2 hours)
 - a. Issues, problems, types and characteristics
 - b. Mobile wireless applications and fundamental issues
 - c. Performance requirements
3. Wireless network technology (1 hour)
4. Global System for Mobile Communication (GSM) (2 hours)

5. Wireless media access control protocols; Wireless LAN (5 hours)
 - a. TDMA
 - b. PRMA
 - c. CDMA, etc.
6. Routing in wireless networks (5 hours)
7. Location management (2 hours)
8. Transport protocols in mobile environments (5 hours)
 - a. I-TCP, snooping protocols, etc.
 - b. Multicast transport services
9. Services in wireless networks (5 hours)
 - a. Quality of service
 - b. Delays, error and packet loss
 - c. Error control schemes
10. Mobile distributed application support (5 hours)
 - a. Operating system support
 - b. Mobile middleware and object architecture
 - c. Mobile transaction
 - d. Remote execution and mobile RPC
 - e. Cache strategies for wireless networks
11. Wireless ATM (4 hours)
12. Wireless multimedia communication (2 hours)
13. Performance issues (4 hours)
14. Exams (2 hours)

Laboratory Projects: (specify number of weeks on each)

None.

Oral and Written Communications:

All students are required to apply their documentation skills as part of the course programming assignments.

Social and Ethical Issues:

None.

Theoretical Content:

None.

Problem Analysis and Solution Design:

None.