

COURSE DESCRIPTION

Department and Course Number: COMP 6380

Course Title: Personal Area Networks

Total Credits: 3

Required: No

Prerequisites: COMP 4320 or ELEC 6220

Class meetings per week: 3 hours

Lab meetings per week: 0 hours

Course Coordinator: Dr. Richard Chapman

Date Prepared: February 18, 2004

Current Catalog Description:

Fundamentals of very low power, short range, high bandwidth personal network technologies such as Bluetooth and direct diffusion.

Textbooks:

Miller, Brent, and Chatschik Bisdikian. 2001. *Bluetooth Revealed*. Prentice Hall. ISBN 0-13-090294-2.

References:

Students will be assigned a number of classic and recent conference and journal papers that may change from semester to semester.

Course Objectives:

This is a course on the concepts, architecture, design, and performance evaluation of personal area networks protocols and applications. At the conclusion of this course the student will have an understanding of these principles and be capable of implementing network protocols and applications for personal pervasive systems.

Prerequisites by Topic:

1. TCP/IP networking
2. Principles of computer and communication networks

Topics Covered: (specify number of hours on each)

1. Wireless Information devices and wearable computers (2 hours)
2. PAN applications (2 hours)
3. PAN issues and challenges (2 hours)
4. Wireless PAN technology (3 hours)
5. PAN models and architectures (3 hours)
6. Wireless technologies (3 hours)
7. Wireless LANs (3 hours)
8. IEEE 802.15, 805.11 standards (2 hours)
9. Bluetooth technology (2 hours)
10. Wireless access protocol - WAP (2 hours)
11. HomeRF protocol (2 hours)

12. Ad-hoc network protocols (5 hours)
13. Mobile and wireless networking (4 hours)
14. PAN middleware and agent architecture (4 hours)
15. Personal information system (4 hours)
16. Exams (2 hours)

Laboratory Projects: (specify number of weeks on each)

One large design project requiring approximately 5 weeks to complete.

Oral and Written Communications:

Students orally present their final project, and prepare a written report consisting of requirements specification, design description, and user and administrator documentation.

Social and Ethical Issues:

The social and ethical implications related to privacy and information assurance are discussed in the course.

Theoretical Content:

None.

Problem Analysis and Solution Design:

All students design and implement a final project related to PAN. The student is responsible for specifying the problem his/her project solves, identifying constraints and design trade-offs, justifying design decisions, and discussing lessons learned.