

EEL 6591 Wireless Networks

Spring 2010

Course Description

In this course, we will discuss basic concepts and recent advances in the field of wireless communication networks. The course begins with an introduction to the fundamentals of wireless communication technology and continues with a discussion of selected topics for the following representative network types: cellular networks, WPANs, WLANs, ad-hoc wireless networks, and wireless sensor networks. Recent technologies presented include IEEE 802.11, IEEE 802.16 (WiMax), IEEE 802.15.4 (ZigBee), Bluetooth.

Textbook

"*Wireless Communications and Networks 2/E*", by William Stallings, Prentice Hall Publishing Company, 2004. ISBN 0-13-191835-4.

Instructor

Dr. Ionut Cardei, Assistant Professor of Computer Science & Eng.
Email: icardei@cse.fau.edu
Phone: (561) 297-3401

Goals

Understanding the fundamentals in wireless communication technology as well as basic features and recent advances in various wireless networks.

Class Time and Place

Wednesdays, 07:10PM – 10:00PM, room CM 130

Prerequisites

- Introduction to Data Communication or equivalent
- Basic knowledge of computer communication networks.

Tentative Topics

1. Introduction
2. The ns2 Network Simulator
3. Technical Background: Transmission Fundamentals, Communication Networks, Protocols and the TCP/IP Suite
4. Wireless Communication Technology: Antennas and Propagation, Signal Encoding Techniques, Spread Spectrum, Coding and Error Control
5. Cellular Wireless Networks
6. WLANs
7. Ad Hoc Wireless Networks
8. Wireless Sensor Networks
9. Other Topics

Evaluation

Assignments	30%
Midterm and final exams	45%
Project (simulation with <i>ns-2</i>) or survey paper	20%
Class Participation	5%

Lecture notes and all other references will be made available on *Blackboard*.