CMPE 591
Special Topics in CMPE:
Broadband Wireless Networks

Instructor: Tuna Tuğcu
Assistant: Birkan Yılmaz & Şükrü Kuran
e-mail: tugcu@boun.edu.tr
            yilmhuse@boun.edu.tr
            sukru.kuran@boun.edu.tr
Office: ETA 43, ETA 41
Phone: (212) 359 7611 - (212) 359 7686
Class Hours: ThThTh 234
Classroom: A3

Objective:

This course aims introducing concepts and research topics in emerging wireless broadband networks. We will cover wireless networks ranging from WLANs to WiMAX, Cognitive Radio with the emphasis on mobility, quality of service (QoS), and seamless operation. Most of the course will focus on Cognitive Radio Networks. We will also learn how such networks can be analytically modeled.

Textbook:

None. since the course aims mostly emerging technologies, we will use mostly new articles in the literature. You may refer to the following books as necessary.

Reference Books:

• *Wireless Network Performance Handbook*
  Clint Smith and Curt Gervelis

• *OFDM-Based Broadband Wireless Networks: Design and Optimization*
  Hui Liu and Guoqing Li

• *WirelessMAN: Inside the IEEE 802.16 Standard for Wireless Metropolitan Area Network*
  Carl Eklund, Kenneth L. Stanwood, Nico J. M. Van Waes, Roger B. Marks and Subbu PonnuSwamy

• *Wireless Communications and Networks*
  William Stallings
Prentice Hall, ISBN: 0131918354

Grading:

Midterm: 30%
Projects: 30%
Quizzes: 10%
Final: 30%

Tentative Outline:

Week 1  Wireless LANs
Week 2  Wireless LANs, Wireless PANs
Week 3  Wireless MANs (focus on WiMAX)
Week 4  Wireless MANs
Week 5  Wireless MANs
Week 6  Wireless Communication Networks
Week 7  Wireless Communication Networks
Week 8  Cognitive Networks
Week 9  Cognitive Networks
Week 10 Cognitive Networks
Week 11 Cognitive Networks
Week 12 Cognitive Networks
Week 13 Wireless WANs