CMPE 567
Broadband Wireless Networks

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Class Hours:	ThThTh 678
Classroom:	B3

Note that CMPE591 is not a special topics course anymore. It is a permanent course with the new code as CMPE567.

Objective:

This course aims introducing concepts and research topics in emerging wireless broadband networks. We will cover wireless networks, starting briefly with WLANs and WiMAX, but focusing on Cognitive Radio techniques with the emphasis on sensing, mobility, and seamless operation. *The course has been slightly modified so that the students gain some practical experience with Raspberry-PI devices and USRPs.*

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
  McGraw Hill, **ISBN**: 0071406557
- *OFDM-Based Broadband Wireless Networks: Design and Optimization*
  Hui Liu and Guoqing Li
  Wiley-Interscience, **ISBN**: 0471723460
- *WirelessMAN: Inside the IEEE 802.16 Standard for Wireless Metropolian Area Network*
  Carl Eklund, Kenneth L. Stanwood, Nico J. M. Van Waes, Roger B. Marks and Subbu Ponnuswamy
  IEEE Press, **ISBN**: 0738148423
- *Wireless Communications and Networks*
  William Stallings
  Prentice Hall, **ISBN**: 0131918354

Grading:

Midterm	30%
Project	40%
Final	30%

Tentative Outline:

Week 1	Wireless LANs
Week 2	Wireless LANs, Wireless PANs
Week 3	Wireless MANs (General info & IEEE 802.16 PMP Mode)
Week 4	Wireless MANs (IEEE 802.16 PMP & Mesh Modes)
Week 5	Cognitive Radio Networks (General architecture)
Week 6	Cognitive Radio Networks (Spectrum Sensing)
Week 7	Cognitive Radio Networks (Spectrum Sensing)
Week 8	Cognitive Radio Networks (Spectrum Sensing)
Week 9	Midterm
Week 10	Hands-on experience
Week 11	Hands-on experience
Week 12	Hands-on experience
Week 13	Wireless WANs