Wireless Communications Technologies

Course No: 16:332:546

Class Hours: Mon-Wed. 3:20-4:40 PM (Room: SEC 212)

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Course Description :

This graduate course in wireless communications will cover topics including propagation modeling for wireless, cochannel interference, bandwidth efficiency and power efficiency in wireless channels, diversity in wireless systems, performance analysis of TDMA and CDMA cellular systems, multiuser detection, radio resource management.

Topical Outline:

1. Mobile Radio Propagation Modeling
2. Cochannel Interference Evaluation
3. Bandwidth Efficiency of Wireless Communications
4. Power Efficiency of Wireless Communications
5. Diversity in Wireless Systems
6. Multiple Antenna Techniques
7. Performance of TDMA and CDMA Cellular Systems
8. Multiuser Detection
9. Radio Resource Management in Cellular Systems : Power Control, Handoffs and Channel Allocation Algorithms

Course Requirements:

Weekly Assignments, 2 Midterm Exams (40% + 40%) & Special Project (20%)

Reference Books :

1. "Principles of Mobile Communication", Gordon L. Stüber, Kluwer Academic Publishers, Boston, 1996
2. "Principles of Wireless Communications", Lars Ahlin and Jens Zander, Studentlitteratur, Sweden, 1998
3. "Digital Communications", John G. Proakis, Mcgraw-Hill, 1995
4. "Wireless Communications: Principles and Practice", Theodore Rappaport, Prentice Hall, NJ, 1996
5. "Wireless Personal Communications Systems" David Goodman, Addison Wesley, 1997
6. "Wireless Communications", Andrea Goldsmith, Cambridge University Press, 2005