EE 555 – Wireless and Mobile Networks

Course Objective: This course covers fundamentals, principles as well as evolving research on wireless networks. Emphasis will be on the networking aspects (layer 2 and up), with examples from state-of-the-art wireless technologies and systems such as wireless mesh networks, wireless sensor networks, LTE, WiMax, WiFi etc.

Instructor: Özgür Gürbüz, Room #1109
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Class Hours: (can be changed)

Mondays	11:40 – 13:30	(FMAN G056)
Thursdays	12:40 – 13:30	(FMAN G056)

Course Text:

Wireless Communications and Networking, Vijay Garg, Morgan Kaufmann, 2010

Wireless Communications and Networking, William Stallings, Prentice Hall, 2005

Principles of Wireless Networks, Kaveh Pahlavan & Prashant Krishnamurthy, Prentice Hall, 2002.

Ad Hoc Wireless Networks, Architectures and Protocols, C. Siva Ram Murthy & B. S. Manoj, Prentice Hall, 2004

Wireless Communications, Andrea Goldsmith, Cambridge University Press, 2005.

We will also be reading journal articles on relevant topics.

Grading:

Midterm	25%
Final	40%
Homework	10%
Project	25%

Topics to be covered:

Week 1:	Overview of Wireless Systems/Networks
Weeks 2-4:	Wireless Channel Characteristics: Radio Propagation and Path Loss Models
Weeks 3-4:	Wireless Multiple Access Techniques
Weeks 5-6:	Principles of Cellular Design
Weeks 7-9:	Wide Area Wireless Networks Planning and Design of Wide Area Wireless Networks Mobility Management in Wireless Networks
Week 10:	Wireless Local Area Networks: WiFi Technology and Enhancements
Week 11:	Wireless Personal Area Networks: Low Rate & High Rate
Weeks 12-13:	Wireless Ad Hoc Networks: Wireless Sensor Networks, Wireless Mesh Networks and Applications
Week 14:	5G and Beyond