

EE 555 – Wireless and Mobile Networks

Spring 2024

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, WiFi, 5G and Beyond.

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Class Hours: Mondays 12:40 – 14:30 (FMAN G062)
Wednesdays 11:40 – 12:30 (FASS 1080)

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	35%
	Homeworks	15%
	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
Weeks 10-11: Wireless Local Area Networks: WiFi Technology and Enhancements
Week 12: Wireless Ad Hoc Networks: Wireless Sensor Networks, Wireless Mesh Networks and Applications
Weeks 13-14: 5G and Beyond