EE5141w: Introduction to Wireless and Cellular Communication

Instructor: Dr. Srikrishna Bhashyam

Pre-requisites: Digital Signal Processing

Course Contents:
1) Wireless channel modelling: Physical Modelling, Input-output model, Time and Frequency coherence, Statistical models

2) Point-to-point communication: Detection in Rayleigh fading, Time, Frequency and Antenna Diversity

3) Cellular systems: Multiple access and interference management, Frequency planning, CDMA-based multiple access, OFDM-based multiple access

4) Capacity of wireless channels: AWGN channel capacity, Fading channel capacity -- Ergodic capacity, Outage capacity, Parallel AWGN channels

5) Other topics from (depending on availability of time): Multiple access capacity, MIMO channel modelling

Reference Material:

D. Tse, P. Viswanath, "Fundamentals of Wireless Communication," Cambridge University Press, 2005. (Chapters 1-5)