

COURSE DESCRIPTION

ECE 655: Protocols, Software and Issues in Mobile Systems

Fall 2022

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DESCRIPTION: The course will focus on the various issues of wireless networks, particularly in the aspects of protocol, industry standard, and operations of modern mobile systems. The course will include:

- Review of Internet and wireless communications (2 lectures)
- GSM, GPRS, UMTS (3 lectures)
- Issues of resource allocation (1 lecture)
- Handover for System Integration and Roaming (1 lecture)
- 4G LTE (4 lectures)
- Issues of multicast/broadcast (1 lecture)
- Centralized Radio Access Network (RAN) and front-hauling techniques (2 lectures)
- 5G NR and mmWave Communication systems (3 lectures)
- Internet of things (IoT) and Indoor systems (2 lectures)
- Issues of TCP upon wireless links (provided with time)

OBJECTIVES: The students are expected to learn and be versed with the modern mobile systems in the aspect of protocol, standard, and operation. The students will gain knowledge on the design and supporting technologies of the mobile systems, along with the related research topics.

PREREQUISITES:

- Computer networks
- Wireless communications

DESIGN PROJECT: Students are grouped in 2 or 3 for a project on a selected topic related to the course material.

GRADING BASIS

- 4 in-class Quiz 20%
- Project & presentation 30%
- Final Examination 50%

TEXTBOOK

No textbook is required. The course material is based on the lecture slides.