



EE455-Mobile Wireless Communications (Elective Course)

Code and Name: EE 455 Mobile Wireless Communications

Credit Hours: 3 (Lecture: 3, Tutorial: 1)

Textbook:

- Wireless Communications: Principles and Practice, T. S. Rappaport, second edition, Prentice Hall (Pearson Education Inc.), 2010.

Other References:

- Vijay Garg, Wireless Communications & Networking, 1st ed, Morgan Kaufmann, 2007.
- G. Giambene, Queuing Theory and Telecommunications: Networks and Applications, 2nd edition, Springer, 2013.
- T. L. Singal, Wireless communication systems, Tata McGraw-Hill Education, 2010
- T. S. Rappaport, Wireless Communications: Principles and Practice, Second edition, Prentice Hall (Pearson Education Inc.), 2002.

Course Description:

Introduce mobile and wireless networks, RF Propagation Models and fading channel models, Cellular Concept and Trunked Radio System; Performance of digital modulation techniques over fading channels, Multiple Access Techniques, Interference and capacity analysis, Link budget and system design, current applications and networks (2G-5G).

Pre-requisites: EE451.

Co-requisites: None

Course Learning Outcomes:

With relation to ABET Student Outcomes (SOs: 1-7)

1. Apply propagation models to estimate signal propagation losses in outdoor environment. (1)
2. Apply propagation models to estimate signal propagation losses in indoor environment. (1)
3. Design cellular mobile systems. (2)
4. Differentiate different wireless mobile systems (in terms of network and operation). (2)
5. Identify multiple access techniques. (2)
6. Use link budget for system design. (1)

Topics to be covered:

- Introduction: introduce mobile and wireless networks.
- RF Propagation and fading channels.
- Performance of digital modulation techniques over fading channels.
- cellular mobile systems and trunked radio system.
- Multiple Access Techniques.
- 2G-5G Wireless Networks.
- Link Budget and system design.

Grading Policy:

The grading for the course are 60% coursework and 40% Final Exam. The coursework consists of two Midterm Exams, where each midterm exam is worth 20%. It also includes quizzes, homework, and projects for the remaining 20% that is modified by the course instructor.

