



Philadelphia University

Faculty of Engineering - Department of Communications and
Electronics Engineering

Course Information

Title: Mobile Communications (0650520)

Prerequisite: Digital Communications (0650425)

Credit Hours: 3 credit hours (16 weeks per semester, approximately 44 contact hours)

Textbook: "Wireless Communications: Principles and practice", Theodore S. Rappaport
2nd edition, Prentice Hall, 2002.

Handout distributed in Class Material

References: "Communication Systems", Simon Haykin, John Wiley & Sons, Inc. 5th
edition 2010.

"Wireless Communications and Networks", William Stallings. Pearson
Education, 2nd edition 2004.

**Catalog
Description:**

The course is a requirement for Communication and Electronics engineering students. It introduces the principles of mobility, cellular planning and coverage. Common engineering problems related to cellular systems such as fading and interference and how to deal with them. It also introduces GSM, UMTS and LTE cellular systems architecture and operation

Course Topics

Week	Topic
1	Introduction to Mobility
2,3	Cellular concepts, coverage, and frequency reuse
4,5	Cell planning, Multichannel, and co-channel schemes
6,7	Adjacent and Co-channel Interference
8,9	Fading Models, path loss, and link budget
10	Modulation Schemes
11	GSM systems architecture and operational principles
12,13	UMTS system architecture and operational principles
14,15	LTE system architecture and operational principles
16	Review, and final exam

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should be able to:

1.	Understand fundamental knowledge related to mobility and cellular planning concepts	[e, j]
2.	Applying the fundamental concepts to design cellular systems	[c, e]
3.	Understand Interim Specification requirements for mobile generations and drivers for speech and data evolutions	[j]
4.	Apply knowledge to understand migrations from 2G to 4G systems	[j]
5.	Gain Knowledge of advanced system architecture and operations	[j]
6.	Evaluate and compare capabilities of different mobile generations	[h]

Assessment Instruments:

Evaluation of students' performance (final grade) will be based on the following categories:

Exams: Two written exams will be given. Each will cover about 3-weeks of lectures

Quizzes: 10-minute quizzes will be given to the students during the semester. These quizzes will cover material discussed during the previous lecture(s).

Homework: Problem sets will be given to students. Homework should be solved individually and submitted before the due date.

Copying homework is forbidden, any student caught copying the homework or any part of the homework will receive zero mark for that homework

Participation: Questions will be asked during lecture and the student is assessed based on his/her response

Final Exam: The final exam will cover all the class material.

Grading policy:

First Exam	20%
Second Exam	20%
Homework	
Quizzes and participation	20%
Final Exam	40%
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Total:	100%

Attendance policy:

Absence from classes and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse, acceptable to and approved by the Dean of the relevant college/faculty, shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.