



Department of Electrical and Computer Engineering

COURSE OUTLINE

ELEC 455 – Mobile Communications

Term - SPRING 2015 (201501)

Instructor

Dr. Hong-Chuan Yang
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Office Hours

Days: Wednesday
Time: 11:30–12:30 or by appointment
Location: EOW 421

Lectures

A-Section(s): A01/A02 CRN 21102/21103
Days: Tuesday, Wednesday, and Friday
Time: 10:30 ~ 11:30 am
Location: ECS 130

Labs

Location: ELW

B-Section(s) Days Time

Required Text

Title: Wireless Communications
Author: A. Goldsmith
Publisher: Cambridge
Year: 2005

Optional Text

Title:
Author:
Publisher:
Year:

References:

T. Rappaport, Wireless Communications, 2nd Ed, Prentice Hall, 2001
R. Yates and D. Goodman, Probability and Stochastic processes, Wiley, 1999.
M. Simon and M.-S. Alouini, Digital Communication over Fading Channels, Wiley, 2000.
J. Proakis, Digital Communications, 4th Ed, McGraw-Hill, 2000.

Assessment:

Assignments: 20 %
Quizzes 10 %
Mid-term 20 %
Final 50 %

Date: Tuesday, Feb. 24, 10:30~11:20am

Course Objective:

To introduce various fundamental topics of current and future wireless communication systems, including propagation channel modelling, digital communication over fading channel, fading mitigation techniques, multiple access techniques, spread spectrum techniques and system capacity analysis.

Prerequisites:

ELEC 350 required, ELEC 450 (basics of digital communications and probability theory) recommended.

The final grade obtained from the above marking scheme will be based on the following percentage-to-grade point conversion:

Passing Grades	Grade Point Value	Percentage for Instructor Use Only	
A+	9	90 – 100	
A	8	85 – 89	
A-	7	80 – 84	
B+	6	77 – 79	
B	5	73 – 76	
B-	4	70 – 72	
C+	3	65 – 69	
C	2	60 – 64	
D	1	50 – 59	
Failing Grades	Grade Point Value	Percentage for Instructor Use Only	Description
E	0	0 - 49	Fail, *Conditional supplemental exam. (For undergraduate courses only)
F	0	0 – 49	Fail, no supplemental.
N	0	0 – 49	Did not write examination, Lab or otherwise complete course requirements by the end of term or session; no supplemental exam.

**Assignment of E grade will be at the discretion of the Course Instructor.*

The rules for supplemental examinations are found on page 80 of the current 2014/15 Undergraduate Calendar.

Term in which E Grade Was Obtained	Application Deadline for Supplemental Exam	Supplemental Exam Date
First term of Winter Session (Sept – Dec)	February 28 in the following term	First week of following May
Second term of Winter Session (Jan – Apr)	June 30 in the following term	First week of following September
Summer Session (May – Aug)	October 31 in the following term	First week of following January

Deferred exams will normally be written at the start of the student's next academic term; i.e., approximately 4 months following the deferral of the exam.

Assignments:

The assignments are due before lecture on the due dates. Late assignment will not be accepted. The assignment with the lowest grade will not be counted. Some assignments may require the use of mathematical software (such as Matlab and Maple) for calculation and/or plotting.

Quizzes:

There will be two in-class quizzes. They will be closed book and closed note. One is on statistical fading channel model before the midterm. The other is on fading mitigation techniques after the midterm. Each quiz counts 4% to the final grade.

Exams:

There will be one midterm exam and a final exam. The midterm is tentatively scheduled in class on Tuesday, February 24. Both the midterm and the final will be close-book exams. One single-side formulae sheet is allowed for midterm and two single-side sheets for final.

Syllabus:

- Introduction to wireless communications.
- Wireless channel models: path loss, shadowing, and multi-path fading.
- Digital modulation techniques and their performance over fading channels.
- Fading mitigation techniques: diversity techniques and multicarrier modulation.
- Spread spectrum and multiple access techniques.
- Cellular concept and selected advanced topics.

Note to Students:

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the ECE Chair by email or the ECE Chair's Secretary eceasst@uvic.ca to set up an appointment.

Accommodation of Religious Observance

See <http://web.uvic.ca/calendar2014/GI/GUPo.html>

Policy on Inclusivity and Diversity

See <http://web.uvic.ca/calendar2014/GI/GUPo.html>

Standards of Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour at <http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf> which contains important information regarding conduct in courses, labs, and in the general use of facilities.

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult

<http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/PoAcI.html> for the UVic policy on academic integrity.