האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Wireless Communications - 67801

Last update 16-01-2014

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Computer Science

Academic year: 3

Semester: 2nd Semester

Teaching Languages: hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Dana Porrat

Coordinator Email: dana.porrat@huji.ac.il

Coordinator Office Hours: Contact teacher by phone / email

Teaching Staff:

Dr. Dana Porrat

Course/Module description:

This course focuses on the radio channel and its implications on system design. The course starts with models of the radio channel for systems in different environments, propagation in free space, multipath models, link budget, shadowing. Statistical descriptions of the (fading) channel for narrow band systems. Capacity of an AWGN channel and of fading channels. Diversity, methods to achieve it and the improvement it lends to signal quality. Capacity enhancement using multiple antennas (MIMO). Equalization.

Course/Module aims:

Familiarity with telephony systems, radio channel and online. Understanding randomness of the channel and its consequences on the rate of communication.

Learning outcomes - On successful completion of this module, students should be able to:

Familiarity with telephony systems, radio channel and online. Understanding randomness of the channel and its consequences on the rate of communication.

Attendance requirements(%):

0

Teaching arrangement and method of instruction: Lecture and review sessions

Course/Module Content:

Radio signal propagation
Models transmitted signal and the received signal
Frequency power density
Finite-time signals or generalized periodic deterministic signals
Random signals

Required Reading:

NA

Additional Reading Material:

Wireless Communications by Andrea Goldsmith, Cambridge University Press

Digital Communications Fundamentals and Applications by Bernard Sklar and Pabitra Kumar Ray, Peasrons, 2nd Edition

Course/Module evaluation:
End of year written/oral examination 80 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 20 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
NA