

Brief Course Description

Course number: ECE 475	Course name: - Advanced Communications Lab
لغة تدريس المقرر: English	Pre-requisites: ECE 372, ECE 373
Credit hours: 2 (1+ 2+ 0)	Course level: Level 9- Fifth Year

Course Description

وصف المقرر :

This lab is mainly intended to strengthen the students' experience with digital and wireless communication systems. It provides practical hands-on experience with communication system building blocks and enables students to study the effects of noise and fading on the various digital communication schemes and wireless standards. The course instructor may design/select the proper set of experiments that satisfy the course objectives and outcomes.

Course objectives

أهداف المقرر :

- ✓ To provides the students with practical hands-on experience with the digital communication system building blocks and their functions.
- ✓ To enable both simulation and implementation of the various digital modulation schemes.
- ✓ To study the effects of fading and its mitigations techniques.
- ✓ To explore the design and the practical limitations of communications systems and standards.

Course Outcomes

مخرجات التعليم:

Upon completing the course, the student should be able to:

- Acquire hands-on experience with the digital communication systems
- Carry out both off-line simulations (using Matlab,..) and real-time implementation (using National Instruments, Keysight,.. platforms) of the various digital communication schemes
- Understand the effects of both AWGN and fading on the performance of these schemes.
- Understand the implementation constraints of the digital communication systems.
- Explore the basics of network planning and implement using related software tools.

Textbook and references

الكتاب المقرر والمراجع المساندة:

Book	Authors	Publisher	Publication year
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Simulation of Communication Systems: Modeling, Methodology and Techniques	Michel C. Jeruchim Philip Balaban K. Sam Shanmugan	KLUWER ACADEMIC PUBLISHERS	2000
Principles of Communication Systems Simulation with Wireless Applications	William H. Tranter K. Sam Shanmugan Theodore S. Rappaport Kurt L. Kosbar	PRENTICE HALL	2004
Digital Communication Systems Using MATLAB and Simulink	Dennis Silage	Bookstand Publishing	2016
Problem-Based Learning in Communication Systems Using MATLAB and Simulink	Kwonhue Choi Huaping Liu	Wiley-IEEE Press	2016
LabVIEW Digital Signal Processing: and Digital Communications	Cory Clark	McGraw Hill	2005