The University of Jordan
College of Engineering
Department of Electrical Engineering
1st Semester – A.Y. 2018-2019

Course: Communication Systems -0903425 (3 Cr. – Elective Course)

Catalog Data: Generic Model of Communication Systems, History, Wireless Channel & Wireless System Types, Radio-Wave Propagation Models, Small Scale & Large Scale Fading, Link Budget Calculations, Multiplexing Techniques, Terrestrials (Microwave) Communication Systems & System Gain, Satellite Communication Systems (including uplink & downlink budget calculations), Narrowband & Wideband Communication Systems, Multiple Access Techniques, Introduction to Information Theory & Source Coding, Huffman Coding & Decoding, Modern Wireless Communication Technologies.

Prerequisites by Course: Basic Knowledge in Communications and Networking.

Prerequisites By topic: Students are assumed to have a background in the following topics:

- Computer and communication networks.
- Telecommunications.

Textbook and References:

- *Advanced Electronic Communications Systems* by Wayne Tomasi, McGraw-Hill, 6th Edition
- *Antenna and Radio wave Propagation* by Robert E. Collin, McGraw-Hill, 1987
- *Electronic Communications Systems* by Wayne Tomasi, McGraw-Hill, 3rd Edition
- *Electronic Communication Systems* by William Schweber, McGraw-Hill, 4thd Edition

Schedule & Duration: 16 Weeks, 48 lectures, 50 minutes each (including exams).

Minimum Student Material: Text book, class handouts, scientific calculator, and an access to a personal computer.

Minimum College Facilities: Classroom with whiteboard, library, and computational facilities.

Course Objectives:

The course objectives are

- Develop the basic concepts of communication systems and techniques at the undergraduate level.
- Develop an engineering sense about communication systems design requirements.
- Introduce different wireless technologies.

Course Outcomes and Relation to ABET Program Outcomes:

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

1. understand the fundamental and some advanced techniques used in communication systems.
2. realize the ongoing and expected services and technologies in communications.

Course Topics:

Topic	Description	Contact Hours
T.1.	Part1: Radio Wave Propagation.	6
T.2.	Part2: Multiplexing Techniques.	8
T.3.	Part3: Microwave Communication System and System Gain	8
T.4.	Part4: Satellite Communication.	7
T.5.	Part5: Multiple-Access Techniques	7
T.6.	Part6: Information Theory	4
T.7	Part7: Wireless Technologies (project)	5

Computer Usage: Course work may include assignments using software packages, especially Matlab.

Attendance: Class attendance will be randomly taken.

Assessments: Exams and Assignments.

Grading policy:

First Exam	30 %
Second Exam	30 %
Final Exam	40 %
Total	100%

Instructor:

Instructor Name	Office	Ext.	E-mail
Dr. Yazid Khattabi	EE Dep. 2nd floor (102)		y.khattabi@ju.edu.jo

Last Updated: Sep, 17, 2017