Philadelphia University

Faculty of Engineering - Department of Communication and Electronics Engineering - First Semester 2024/2025

Course Details:

Title: Analog Communications (610420) Section 1
Communication for Mechatronics (640313) Section 1

Lecture Time: Sun, Tue: 09:45 – 10:35

Prerequisite: Signals and Systems (650364) (0650320)

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

Textbook: "Communication Systems," Simon Haykin, 5 th Ed., John Wiley, 2010".
"Fieldbus and Networking in Process Automation" 1st Edition, by Sunit Kumar, 2014

References: "Modern Digital and Analog Communication Systems," B.P. Lathi & Zhi Ding, 5th Edition Oxford, 2019, ISBN: 978-0-19-538493-2.

- "Digital and Analog Communication Systems " L. Couch, 6th Ed., Prentice-Hall, 2002.

Course Description: Spectral analysis and signal transmission channel design; amplitude, frequency, phase, and pulse modulation systems; frequency - division and time -division multiplexes systems; noise and its effects in modulation systems.

Website: Through Moodle platform

Instructor: Dr.Nasser Dardas
Email: ndardas@philadelphia.edu.jo nq2600@gmail.com
Office hour:
Sun, Tue: 10:40 – 11:40

Course Topics:

Topic	# Weeks
General review of telecommunications systems classifications	1
Revision of continuous-time signals and systems	1
Analysis and transmission of signals	1
Amplitude modulation and demodulation techniques	3
Angle modulation and demodulation techniques	3
Sampling and pulse modulation techniques	3
Time and frequency division multiplexing	1
Introduction to digital data transmission	2
Total	15

Course Learning Outcomes with reference to ABET Outcomes:

Upon successful completion of this course, the student should:

1	Describe the fundamental structure of communication systems	**(e)**
2	Revise the characteristics of signals and systems	**(a, e)**
3	Analyze and implement the AM (DSB, SSB…) , FM and PM analogue systems	**(a, e)**
4	Design components and processes serving in analog communication systems	**(c, d, g)**
5	Investigate PCM and differential pulse code modulation (DPCM) techniques	**(a, e)**
6	Recognize the concepts of time and frequency-division multiplexing	**(e)**
7	Quantify and analyze the noise in communication systems	**(a, e)**

Assessment Guidelines:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Exams: The students will take a scheduled midterm written exam during the semester. The midterm will cover material given in lectures in the previous 6-7 weeks.

Quizzes: Quizzes of (10-15) minutes will be conducted during the semester.

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

Cheating by copying homework or project from others is strictly forbidden and punishable by awarding the work with zero mark.

In Class Participation: Discussions will be carried out during lectures. Individual students will be assessed accordingly.

Final Exam: The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading Policy:

Midterm	30%
Quizzes, Homework, Class Discussions	30%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

October, 2024