



Philadelphia University

Faculty of Engineering and Technology,
Department of Mechatronics Engineering.
Course Syllabus, Second Semester, 2019/2020

Course Details:

Title: Signal Processing for Mechatronics(0640543).
Prerequisite: Digital Control(0640441).
Credit Hours: 3-credit hours (16 weeks per semester, approximately 45 contact hours).
Textbook: *Signals and Systems using MATLAB* by Luis Chaparro. Elsevier Publisher 2011.
Website: <http://www.philadelphia.edu.jo/academics/malkhawaldeh/>
Instructor: Dr. Mustafa Awwad Al-Khawaldeh
Email: malkhawaldeh@philadelphia.edu.jo
Office: Engineering building, room 6406. ext: 2540
Office hours: Sunday, Tuesday, and Thursday:10:10-11:00 ,
Monday, Wednesday: 11:30-12: 30

Course Outlines:

Week	Topic	Assignments
1	Introduction to Signal Processing	
2	SP for Mechatronics	
3	Signal Conditioning	Assignment .1
4	Continuous-Time Signals and Systems; Laplace Transforms.	
5,6	Frequency Analysis: Fourier Series and Transforms.	
7,8	Design and Analysis of Analog Filters.	Assignment .2
9	Data Acquisition: Sampling, A/D, and Quantization.	
10,11	Discrete-Time Signals and Z-Transform (Review).	
12,13	DFT and FFT: Introduction to Digital Filters: FIR and IIR	
14	Discussion and Review.	
15	Final Exams	

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understand the basic signal processing concepts and their applications	[1]
2.	Understand Data Acquisition Systems.	[1 , 2]
3.	Analyze signals and systems in time and frequency domain.	[1 , 5]
4.	Design and simulate analog and _ digital filters	[1 , 2, 6]

Assessment Guidance:

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

- Sub-Exams:** The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
- Quizzes:** 3-quizzes of 10-minutes will be conducted during the semester. The materials of the quizzes are set by the instructor.
- Homework and projects:** homework should be solved individually and submitted before or on a set due date.
- 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:

First Exam	20%
Second Exam	20%
Quizzes, projects and Homework	20%
Final Exam	40%
Total:	100%

Attendance policy:

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.