



Hashemite University
College of Engineering
Department of Mechatronics Engineering
MEC 110405426 Signals and Systems (3 Credit Hours/Dept. Compl.)
Spring (2nd) Semester, Academic Year 2018-2019

Instructor		Grading Info		Class Meeting Info	
Dr. Sa'ed Alajlouni (د. سعد العجلوني)		1 st Test	In-class Monday February 18 (25%)	Days	Mon/Wed
Email:	saed@hu.edu.jo	2 nd Test	In-class Wednesday April 03 (25%)	Time	12:30-2:00 PM
Office:	E 3093	Other	10% (attendance/ participation/ quizzes/ homeworks)	Location	E2022
Office hours:	10:30-11:30 (Monday) 09:30-10:30 (Thursday)	Final	40%		

Course

Course Number:	110405426
Prerequisite:	Applied math (110406260), covering the following topics: <ul style="list-style-type: none"> - Complex numbers analysis. - Linear algebra. - Laplace transform. - Integration techniques.
Main Textbook:	Oppenheim, Alan V., Alan S. Willsky, and Syed Hamid Nawab. "Signals and systems 2nd ed." New Jersey: Prentice Hall (1997).
Additional Text References:	<ol style="list-style-type: none"> 1. Phillips, Charles, et. al. "Signals, Systems, and Transforms", 5th edition, prentice hall, 2014. 2. Chaparro, Luis. "Signals and Systems using MATLAB", Second Edition, 2014. 3. Yang, Won Young, et. al. "Signals and Systems with MATLAB", Springer Science & Business Media, 2009.
Course Description:	Course introduces basic concepts in signals and systems (continuous and discrete), types and examples of signals and systems, signal transformations, Linear Time Invariant (LTI) system properties, Fourier transform, Z-transform.
Specific Outcomes of Instruction (Course Learning Outcomes):	At the end of the course, students shall be able to: <ol style="list-style-type: none"> 1. Classify continuous and discrete-time signals and systems. 2. Understand the differences between continuous and discrete signals. 3. Compute fundamental signal and system parameters, such as energy, power. 4. Perform Fourier transform and Z-transform and understand their benefits in system analysis. 5. Analyze discrete and continuous L.T.I. system.
Important material:	<ul style="list-style-type: none"> - <u>The SYLLABYS is very important. Study it. It is a contract between the two of us.</u> - <u>The main textbook listed above is your main study reference. Get the book, and start reading. My class notes are only to help you understand the book.</u> - Moodle website will be used for sharing important material and posting announcements (always check the Moodle site for updates. <u>Also each student must update his/her Moodle email address</u>).

Major Topics Covered, and Anticipated Contact Hours per Topic:

Topic	Book Chapters	Anticipated Contact Hours
Introduction to signals and systems (continuous and discrete)	1	9
Continuous and Discrete LTI Systems, their representation, and their properties	2	13
Fourier series representation of periodic signals	3	6
The continuous-time Fourier transform	4	5
[time-permitting] The discrete-time Fourier transform	5	3
[time-permitting] Time and frequency characterization of signals and systems (including filters and bode plots)	6	2
Exams (first and second)		2
Total		40

Course Policy (IMPORTANT!!!)

- ***The main textbook listed above is your main study reference. Get the book, and start reading. My class notes are only to help you understand the book.***
- **Late show-up to class is not tolerated. Be in class on time (or before class start time)!**
- If you miss class, there will not be a makeup test, quiz, etc. and you will get a zero unless you have a valid excuse.
- Cheating and plagiarism are prohibited. If you are caught, the consequences will be severe (up to expulsion from university)!
- Cameras, phones, laptops, ipods, and tablets are not permitted into the classroom; however, these devices may be turned off and stowed in the student's bag before the start of class session).
- **Have a question? Ask it in class, or pay me a visit to my office during office hours.**
- If office hours does not suit your schedule, then shoot me an email to either discuss your matter or schedule a special meeting time outside office hours.
- **University policy dictates that if a student is absent 15% of classes, then he/she will be automatically dropped from class (without refund).**
- An absence is excused if:
 - You are required to participate in an official University activity (documentation required)
 - You are under a doctor's care (documentation required)

You can expect me:

- To treat you professionally and equally.
- To assign homeworks/quizzes that adequately covers the material and meets the learning objectives of the course while adhering to the time expectations for the course.
- To give exams that accurately reflect the material covered in class and homeworks/quizzes.

I can expect you:

- To treat me professionally.
- To come to class on time.
- To be attentive and engaged in class.
- To refrain from using laptops, cell phones and other electronic devices during class.
- To spend an adequate amount of time on the homework each week, making an effort to solve and understand each problem.
- To engage with both the abstract and computational sides of the material.
- To seek help when appropriate.
- *No student may record any classroom activity without express written consent from me.*

student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	An ability to apply knowledge of mathematics, science, and engineering	H
(b)	An ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
(d)	An ability to function on multidisciplinary teams	
(e)	An ability to identify, formulate, and solve engineering problems	H
(f)	An understanding of professional and ethical responsibility	
(g)	An ability to communicate effectively	
(h)	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	L
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	A knowledge of contemporary issues	
(k)	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	

H=High, M= Medium, L=Low