



Hashemite University
College of Engineering
Department of Electrical Engineering
EE 409325-Analog Communications (3 Credit Hours/Dept. Compulsory)

Instructor

Dr. Ali Hayajneh	
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Grading info

First	30%
Second	30%
Final	40%

Class Info

Days	
Time	
Location	

Course

Course Number:	110409325
Prerequisite:	Signals and systems (110409322);
Textbook:	“Modern Digital and Analog Communication Systems,” B. Lathi& Z Ding, 4 th edition, 2009, MGrav-Hill.
Course Description:	Review of continuous-time signals and systems, AM modulation and demodulation schemes, angle modulation (FM and PM) and demodulation, performance of analog communication systems under noise, sampling theorem, quantization, PCM and delta modulation systems, introduction to digital transmission.
Specific Outcomes of Instruction (Course Learning Outcomes):	<ol style="list-style-type: none"> 1. Understand the overall analog communication system and the basic signal transformation.(a) 2. Evaluate the spectral characterization of modulating and modulated signals. (a) 3. Demonstrate knowledge of the AM and its types. (e) 4. Demonstrate knowledge of the FM and PM systems.(e) 5. Understand PCM systems and their characteristics.(e) 6. Understand some of the new communication technologies (through a term project). (g,h,i)
Important material	<ul style="list-style-type: none"> - Lecture notes - References - Internet resources - YouTube lectures

References:

<p>1- “An Introduction to Analog and Digital Communications” Simon S. Haykin, Michael Moher, Wiley, 2nd edition, 2006.</p> <p>2- “Digital Communications and Applications,” B. Sklar, Prentice-Hall, 2nd edition, 2001,.</p>
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Major Topics Covered and Schedule in Weeks:

Topic	# Weeks	# Contact hours
Introduction to communications systems, components, signals, spectra, ...	2	6
Amplitude modulation	5	15
Angle modulation	5	15
Sampling and pulse code modulation	2	6
New communication technologies (term project)	1	3
Total	15	45

Course Policy

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Student Outcomes (SO) Addressed by the Course:

#	<i>Outcome Description</i>	<i>Contribution</i>
(a)	an ability to apply knowledge of mathematics, science, and engineering	<i>H</i>
(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	<i>H</i>
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	<i>L</i>
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	<i>L</i>
(i)	a recognition of the need for, and an ability to engage in life-long learning	<i>L</i>
(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