MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering

Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401208	Signals and Systems	3	3 T

INSTRUCTOR/COORDINATOR	
Name	Dr. Amneh Al-Mbaideen
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Office Hours	

TEXTBOOK	
Title	Linear Systems and Signals,
Author/Year/Edition	B. P. Lathi, Second Edition, Oxford University Press 2005.
Other Supplemental Materials	
Title	1. "Signals, Systems, and Transforms," 4th Edition, Charles Phillips, John Parr, and Eve Riskin, Prentice-Hall, 2008. 2. "Fundamentals Of Signals And Systems," Benoit Boulet, Charles River Media Boston, Massachusetts 3. "Signals and Systems using MATLAB," L. Chaparro 1st ed., Nelson Education (2011) 4. "Signals and Systems," R. Zeimer, W. Trainter & D. Fannin (1998), 4th ed., Prentice Hall

SPECIFIC COURSE INFORMATION
A. Brief Description of the Content of the Course (Catalog Description)
The course provides the mathematical principles for describing, analyzing, and processing signals and systems with applications taken from engineering. Continuous and discrete signals/systems are discussed with emphasis on Laplace transform, convolution, Fourier series, Fourier transform, Laplace, and Z Transform
B. Pre-requisites (P) or Co-requisites (C)

Electric Circuits 1 (0401211) (P)
C. Course Type (Required or Elective)
Required
SPECIFIC GOALS
A. Course Learning Outcomes (CLOs)
By the end of this course, the student should be able to: **CLO1**: Classify signals and systems. Define basic operations for the signals and systems in the time domain. Use graphical and analytical methods to compute the outputs for the LTI systems [1]. **CLO2**: Calculate Fourier series expansions for periodic continuous-time signals and plot line spectra [1]. **CLO3**: Calculate the Fourier and inverse Fourier Transform. Using the properties of the Fourier transform. using the Fourier transform method for the analysis of linear systems [1]. **CLO4**: Perform Laplace transform and inverse Laplace transform. Using the properties of the Laplace transform. Use Laplace transform methods for the analysis of LTI systems and solving differential equations [1]. **CLO5:** Understand the basics of the Z-transform in signals and systems analysis**.** Use the forward Z-transform and inverse Z-transform to analyze LTI systems and solve differential equations [1].
B. Student Learning Outcomes (SOs) Addressed by the Course

1	2	3	4	5	6	7
✓						

BRIEF LIST OF TOPICS TO BE COVERED		
List of Topics	**No. of Weeks**	**Contact Hours**
Chapter 1: Introduction to Signals and Systems	1	1
Chapter 1: Complex Numbers	1	2
Chapter 2+3: Continuous and Discrete-Time Signals and Systems.	3	9
Chapter 2+3: Continuous and Discrete-Time Linear Time-Invariant Systems	2	6
Chapter 4: Laplace Transforms	2	6
Chapter 6; Fourier Series	2	6
Chapter 7: Fourier Transform	2	6
Chapter 5: The Z- Transform	2	6
Total	*12*	*42*

EVALUATION		
Assessment Tool	**Due Date**	**Weight (%)**
Mid Exam	According to the university calendar	30
Course Work (Homeworks, Quizzes, Projects, …etc.)	One week after being assigned	20
Final Exam	According to the university calendar	50

ABET's Students Learning Outcomes (Criterion # 3)

	Relationship to program outcomes	
ABET 1-7		**… Engineering Student Outcomes**
1.	√	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2.		an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic
3.		ability to communicate effectively with a range of audiences
4.		an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5.		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives..
6.		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7.		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies