MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering

Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401554	Acoustics Engineering	3	3 T

INSTRUCTOR/COORDINATOR	
Name	Dr. Saif Alnawayseh
Email	saif982@mutah.edu.jo Saif982@yahoo.com
Office Hours	13:00-14:00 (Sun, Tues, Thur)

TEXTBOOK	
Title	Fundamentals of Acoustics
Author/Year/Edition	Kinsler, Lawrence E., Frey, Austin R., Coppens, Alan B., and Sanders, James V/1999/4th Edition
Other Supplemental Materials	
Title	Handbook of Recording Engineering
Author/Year/Edition	Eargle, John M/2002/4th Edition

SPECIFIC COURSE INFORMATION
A. Brief Description of the Content of the Course (Catalog Description)
The absorption of sound. Microphones. Acoustic equipment performances. Recording studio design. Power measurements, reflection and attenuation. voice levels and noise
B. Pre-requisites (P) or Co-requisites (C)
Communications (2) (0401422)
C. Course Type (Required or Elective)
Elective

SPECIFIC GOALS

A. Course Learning Outcomes (CLOs)

By the end of this course, the student should be able to:

CLO 1: **Understand** the linear acoustic wave equation and explain the relationship between pressure and particle velocity for plane waves and spherical waves [1]

CLO 2: **Understand** and explain the basic operation of dynamic (moving-coil) loudspeakers and condenser (capacitive) microphones. [1].

CLO 3: **Understand** the principles of recording studio signal flow [1].

CLO 4: **Understand** the attributes of CD, DVD, and DAT storage media [1].

B. Student Learning Outcomes (SLOs) Addressed by the Course

1	2	3	4	5	6	7
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BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Intro, audio and acoustics sub disciplines, Fourier review, mass and vibration Damping, complex exponential solutions, forced oscillation	3	9
Resonance, electrical circuit analogies, Acoustic wave equation	2	6
Harmonic plane waves, intensity, impedance Spherical waves, sound level, dB examples Radiation from small sources	2	6
Baffled simple source, piston radiation, Near field, far field, Radiation impedance	2	6
sound power measurement techniques	1	3
sound in enclosed spaces, sound transmission loss, acoustic enclosures, acoustic barriers	2	6
Microphones Studio electronics	1	3
Studio electronics Analog storage (tape, LP disc history) Loudspeakers	1	3
Total	*14*	*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 factors.
3		an 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.