

**The University of Jordan
School of Engineering**



Department	Course Name	Course Number	Semester
Mechanical Engineering	Vibration and Noise Control	0944582	Fall 2023

2005 Course Catalog Description

Nature and propagation of sound, Measurement of sound, Sound Absorption, Room acoustics, Sound Isolation and Design of Enclosures, Sources of Vibrations in Machinery, Vibrations Measurements, Vibration Isolation, Control of Vibrations in Machines. Design of Vibration Absorbers.

Instructors

Name	E-mail	Sec	Office Hours	Lecture Time
Ahmad Al-Qaisia	alqaisia@ju.edu.jo	1		8:30-9:30

Text Books

	Text book 1	Text book 2
Title	Mechanical Vibrations	Handouts and Tables
Author(s)	Singiresu, S. Rao	
Publisher, Year, Edition	Addison-Wesley 5th Edition.	

References

Books	Malcolm J. Crocker (<i>Editor</i>) (2007), Handbook of noise and vibration control, John Wiley& Sons.
Journals	Journal of Sound and Vibration
Internet links	

Prerequisites

Prerequisites by topic	
Prerequisites by course	Mechanical Vibrations 0904411
Co-requisites by course	
Prerequisite for	

Topics Covered

Week	Topics	Chapter in Text	Sections
1	Fundamentals of Acoustics, Nature of Sound and Propagation		
2	Noise and Sound		
2	Measurements of Sound and Sound Levels		
3	Acoustics of Rooms and Sound Enclosures		
3	Case Studies in Noise Control		
4	Sources of Vibrations in Machinery		
5	Vibration Control and Vibration Isolation		
6	Design of Vibration Absorbers		

Mapping of Course Outcomes to ABET Student Outcomes

SOs	Course Outcomes
1	1. Understand the concept of sound pressure and sound power levels. 2. Design of vibration absorbers
2	3. Selection of acoustical materials based on their absorption and transmission coefficients 4. Use sound standards to design workshops and rooms based on the recommended sound level
4	5. Calculate the forced response of single multi degree of freedom systems

Evaluation							
Assessment Tools		Expected Due Date					Weight
Quizzes (written and Oral)		During the semester					20%
Midterm Exam		According to the department schedule					30%
Final Exam		According to the University final examination schedule					50%
Contribution of Course to Meet the Professional Components							
Relationship to Student Outcomes							
SOs	1	2	3	4	5	6	7
Availability	X	X		X			
Relationship to Mechanical Engineering Program Objectives (MEPOs)							
MEPO1		MEPO2		MEPO3		MEPO4	
ABET Student Outcomes (SOs)							
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						
Updated by Prof. Ahmad Qaisia, October, 2023							