



Cairo University – Faculty of Engineering
Department of Mechanical Power Engineering

MDP410_B6 – Mechanical Vibrations – Spring 2016

Lecture: Sunday 12:15 - 01:45 PM – **Location:** 3103

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Objectives: Students who completes this course should have a clear understanding of vibrations and modeling of mechanical systems. They will analyze free and forced vibrations and will develop mathematical techniques to model and design mechanical systems.

Tentative Schedule:

Week	Date	Topic
1	14/2	Introduction and Fundamentals of Vibrations
2	21/2	Single-Degree of Freedom Systems: Free Vibration
3	28/2	Single-Degree of Freedom Systems: Forced Vibration (Harmonic Force)
4	6/3	Single-Degree of Freedom Systems: Forced Vibration (Rotating Unbalance)
5	13/3	Single-Degree of Freedom Systems: Forced Vibration (Base Excitation)
6	20/3	Single-Degree of Freedom Systems: Forced Vibration (Whirling of Rotating Shafts)
7	27/3	Single-Degree of Freedom Systems: Vibration Isolation, Transmissibility, Vibration-Measuring Instruments
8	3/4	Midterm Week
9	10/4	Two Degree of Freedom Systems: Free Vibration
10	17/4	Two Degree of Freedom Systems: Free Vibration
11	24/4	Two Degree of Freedom Systems: Forced Vibration
12	1/5	Labor Day
13	8/5	Two Degree of Freedom Systems: Forced Vibration
14	15/5	Two Degree of Freedom Systems: Forced Vibration
15	22/5	Two Degree of Freedom Systems: Vibration Absorber
16	29/5	Revision

References:

1. Thompson, W. T., and Dahleh, M. D., “*Theory of Vibration with Applications*,” Prentice-Hall, Inc., 5th Ed., 1998.
2. Rao, S. S., “*Mechanical Vibrations*,” Prentice-Hall, Inc., 5th Ed., 2010.
3. Inman, D. J., “*Engineering Vibrations*,” Prentice-Hall, Inc., 3rd Ed., 2007.

Grading:

- Assignments (10) - Quizzes (5) - Midterm (15) – Final (70) - Total (100)

Attendance: Attendance at all lectures and exams is required.