

Course Syllabus

Course Information

Fall 2016
MECH 4340 Mechanical Vibration
Room: MC 2.410
Time: Tues & Thurs : 4:00pm-5:15pm

Instructor Contact Information

Dr. Wooram Park
Office: ECSN 2.520
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Office Hours: 2:30pm-3:55pm Tuesdays or appointment by email

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Mahmoud Baniasadi
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Orod Kaveh
Office: ECSN 2.124
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Office Hours: Tuesday 11am to 12:30pm

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisites: ENGR 2300 and MATH 2420 and ENGR 3341 and MECH 2330

Course Description

This course covers harmonic and periodic motion including both damped and undamped free and forced vibration, single- and multi-degree-of-freedom systems and matrix techniques suitable for computer simulations.

Student Learning Objectives/Outcomes

1. Model real and physical dynamic systems in terms of mathematical models.
 2. Apply principles of mechanical vibrations such as Newton's second law, and the principle of conservation of energy to the mathematical models to obtain their governing equations of motion.
 3. Solve the obtained equations of motion to understand behavior of oscillatory systems to various excitations such as harmonic excitation, and impulse excitation.
 4. Develop basic numerical simulation skills using MATLAB to simulate the dynamic and oscillatory response of physical models.
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Required Textbook

Mechanical Vibrations, Singiresu S. Rao, Prentice Hall; 5th Edition (2011)

Suggested Materials

1. Engineering Vibration, Daniel J. Inman, 3rd Edition 2007, Prentice Hall
 2. Schaum's Outline of Mechanical Vibrations, S. Graham Kelly , McGraw-Hill; 1 edition (April 1, 1996)
 3. Theory of Vibration with Applications, William T. Thomson, Prentice Hall; 5 edition (August 17, 1997)
 4. Mechanical Vibrations, J.P. Den Hartog, Crastre Press (November 4, 2008)
 5. Fundamentals of Vibrations, Leonard Meirovitch, Waveland Pr Inc.; 1 edition (July 1, 2010)
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Grading Policy

Homework (30%) Quizzes (15%) Mid-term (20%) Final (35%)
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Multiple absences may result in an F grade.

The final grades will be assigned according to the following ranges. This guideline is subject to change at the discretion of the instructor.

A+	$97 \leq P$	C+	$77 \leq P < 80$
A	$93 \leq P < 97$	C	$73 \leq P < 77$
A-	$90 \leq P < 93$	C-	$70 \leq P < 73$
B+	$87 \leq P < 90$	D+	$67 \leq P < 70$
B	$83 \leq P < 87$	D	$63 \leq P < 67$
B-	$80 \leq P < 83$	D-	$60 \leq P < 63$
		F	60 and below

* Late homework will not be accepted, except for unusual circumstances, which should be comminuted with the instructor before the due date.

Policies and Procedures for Students

The University of Texas at Dallas provides a number of policies and procedures designed to provide students with a safe and supportive learning environment. Brief summaries of the policies and procedures are provided for you at <http://provost.utdallas.edu/home/index.php/syllabus-policies-and-procedures-text> and include information about technical support, field trip policies, off-campus activities, student conduct and discipline, academic integrity, copyright infringement, email use, withdrawal from class, student grievance procedures, incomplete grades, access to Disability Services, and religious holy days. You may also seek further information at these websites:

- http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm
 - <http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html>
 - <http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm>
 - <http://www.utdallas.edu/disability/documentation/index.html>
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The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.