

DREXEL UNIVERSITY

Department of Mechanical Engineering & Mechanics

MEM 423: MECHANICS OF VIBRATIONS – Fall 2018

General Information

Class hours: Tuesday and Thursday, 10:00-11:50 AM, Curtis 452, Web Site: [Drexel Learn](#)

Prerequisites

MEM 238 and ENGR 232 or MATH 210 or MATH 262

Instructor

Antonios Kontsos, antonios.kontsos@drexel.edu, (215) 895 2297

Office hours: Thursday 12:00-13:00, AEL 172A or by appointment

Teaching Assistant

Vignesh Perumal, vip23@drexel.edu, (215) 571 4539

Office hours: Tuesday 12:00-13:00 and Wednesday 17:00-18:00, AEL 174E or by appointment

Course Description: Covers free and forced vibrations of one-, two-, and multiple-degree-of-freedom systems; continuous systems; and transient and random vibration problems. Includes use of digital computer for homework and special class problems.

Textbook

Mechanical Vibrations, S.S. Rao, 5th edition, Prentice Hall, **ISBN-13:** 978-0132128193

Course Objectives

1. Understand the concept of mathematical modeling of mechanical and engineering linear and nonlinear systems
2. Determine the equation of motion for undamped and damped systems subjected to initial conditions and excitations
3. Derive mathematically and express the response of a vibrational single and multi-degree-of-freedom system
4. Extend these principles in the case of distributed systems using both exact and approximate methods
5. Become capable of applying these principles in the cases of periodic, non-periodic and random excitations

Grading

Quizzes	20%
Midterm Exam	30%
Final Exam	50%

Quizzes and Exams

Homework will be assigned after each class but will not be graded. Quizzes will take place during class. The midterm exam will also take place during a regular class meeting. The final exam will be take place according to the registrar's schedule for this class. This is a senior level course and students are expected to develop high professional ethics standards. Any indication of plagiarism or copying will automatically result to a failing grade.

Students with disabilities requesting accommodations and services at Drexel University need to present a current accommodation verification letter (AVL) to faculty before accommodations can be made. AVL's are issued by the Office of Disability Services (ODS). For additional information, contact ODS at www.drexel.edu/ods, 3201 Arch St., Street, Suite 210, Philadelphia, PA 19104, 215.895.1401 (V), or 215.895.2299 (TTY).