

Mechanical Vibrations

MKT4833 - Department of Mechatronics Engineering, YTU

Fall 2022

Instructor and Assistant Information

Instructor

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Office Location & Hours

Dean's Office / by appointment.
E2-204 / by appointment.

General Information

Prerequisite

Differential Equations.

Description

Fundamentals of vibration / Free vibration of single degree of freedom systems / Harmonically excited vibration / Vibration under general forcing conditions / Two degree of freedom systems / Vibration control.

Expectations

The lower bound of course attendance is 70% of whole semester.

Students, who are the both sides of cheating, fail the course with grade FF.

Students must register at the web group of the course.

MATLAB installation.

Course Learning Outcomes

1. Define the fundamental vibrations concepts (natural frequency, damping, etc.).
2. Solve free response of a vibrating system.
3. Solve harmonically excited vibrating system.
4. Solve the response of multiple degrees-of-freedom vibrating systems.
5. Be able to analyze and design of vibration absorbers.

Course Materials

Required Materials

- Rao, Singiresu S., Mechanical Vibrations 5th Ed., Pearson, 2011.

References

- Turhan, Özgür, Mekanik Titreşimler-1, Nobel, 2017.
- Inman, Daniel J., Engineering Vibration, 4th ed., Pearson, 2013.
- <http://ctms.engin.umich.edu/CTMS>

Course web group

Go to Google Classroom (classroom.google.com) and join the class with the code: **tx6athi**
<https://classroom.google.com/c/NTUwOTgwMDkzMDU5?cjc=tx6athi>

Course Schedule

- Fundamentals of Vibration
- Free Vibration of Single-Degree-of-Freedom Systems
- Harmonically Excited Vibration
- Vibration Under General Forcing Conditions
- Midterm Exam
- Two-Degree-of-Freedom Systems
- Multidegree-of-Freedom Systems
- Vibration Control
- Final Exam

Exam Schedule

Date	Subject
Week 8	Midterm

Additional Information and Resources

Make-up Exams

Students should act according to the [OIDB Mevzuat](#). Do not be surprised if you find that make-up exams are harder.

Tentative Grading

$0.4 \cdot \text{Final} + 0.2 \cdot \text{HWs/Project} + 0.4 \cdot \text{MT}$

* This syllabus is tentative and subject to changes. Announcements, updates and other information will be released either during live lecture or via e-mail.