

İzmir Institute of Technology / Department of Civil Engineering
CE 122 Engineering Mechanics I - Statics / Spring 2026-27 - Course Outline

COURSE

INSTRUCTOR Dr. Korkut Kaynardag

Department of Civil Engineering

Office Hour: Thursday 3:00-5:30

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COURSE

ASSISTANT Uveys Gozun

Department of Civil Engineering

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COURSE

SCHEDULE Friday 13:30-17:15 Room: B212

COURSE PAGE

A course page (Teams, or an equivalent platform) will be activated at the start of the semester and used throughout for announcements, lecture material, and problem sets.

TEXTBOOK/REFERENCES

- Vector Mechanics for Engineers - Statics, F.P. Beer & E.R. Johnston, Jr., D.F. Mazurek, 11th Edition, McGraw Hill, 2016, (Textbook),
- Principles of Statics, R.C. Hibbeler, 10th Edition, metric version, Pearson-Prentice Hall, 2006,
- Engineering Mechanics. 1. Statics, J.L. Meriam, L.G. Kraige, 7th Edition, Wiley, 2012,
- Engineering Mechanics: Statics, A. Pytel & J. Kiusalaas, 4th Edition, Cengage Learning, 2016,
- Engineering Mechanics: Statics, A. Bedford & W. Fowler, 5th Edition, Pearson, 2008.
- Engineering Statics Open and Interactive, Daniel W. Baker, William Haynes, <https://engineeringstatics.org/>

OBJECTIVES

The objective is to learn the fundamental principles of statics and their use for analysis of engineering structures. By the end of the course, students should be able to:

- Represent forces, moments, and couples acting on particles and rigid bodies using vector methods,
- Reduce a general system of forces and couples to an equivalent force couple system,
- Apply the equations of equilibrium to particles and rigid bodies in two and three dimensions,
- Determine centroids, centers of gravity, and moments of inertia of areas,
- Analyze the internal forces in trusses, frames, and beams,
- Apply the laws of dry friction to simple engineering systems.

COURSE CONTENT

- Introduction
 - Review of Vector Algebra
- Statics of Particles
 - Forces in a Plane
 - Forces in Space
- Rigid Bodies: Equivalent System of Forces
 - Moments and Couples
 - Reduction of a Force System
- Equilibrium of Rigid Bodies
 - Equilibrium in Two Dimensions
 - Equilibrium in Three Dimensions
- Distributed Forces: Centroids and Center of Gravity
- Analysis of Structures
 - Trusses
 - Frames
- Forces in Beams
 - Shear and Bending Moment Diagrams
- Moments of Inertia of Areas
- Friction (If time permits)
 - Laws of Dry Friction

GRADING

The tentative overall grade constitution is as follows:

- Mid-term: 30% *Week 7, tentative*
- Quizzes: 20% *Throughout the semester*
- Homework: 10% *Throughout the semester*
- Final: 40% *University final exam period, tentative*

COURSE CONDUCT

Attendance to lectures is COMPULSORY as stated by the regulations of İzmir Institute of Technology.

Academic integrity is expected in accordance with İYTE's academic integrity and student conduct regulations.

A makeup examination is offered only with a documented excuse recognized by the university, arranged in advance whenever possible.