

ASEN 2701 – Fall 2023

Introduction to Statics, Structures and Materials

Instructors:

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Class Website: log on to <https://canvas.colorado.edu>

Homework Site: Mastering Engineering, linked through Canvas!

Graded Exams Uploaded to: Gradescope, <https://gradescope.com>

Regrade requests: To be submitted to Canvas

Class Email List: This is automatically done through Canvas.

Texts: R.C. Hibbeler, *Statics and Mechanics of Materials* (5th ed.), Pearson, including Mastering Engineering site.

Prerequisites: APPM 1360 & PHYS 1110 or equivalent; CSCI 1300 or equivalent.

Corequisites: ASEN 2012; APPM 2350 or equivalent.

Course Objectives: Introduce the fundamental analytical tools for statics and structural analysis in the context of the physics of aerospace materials. Topics include force/moment equilibrium, truss analysis, beam theory, stress and strain, stiffness and strength of material, and aerospace structural design.

Major Course Topics

1. Introduction to basic concepts of structures and materials
2. Forces, moments, equilibrium
3. Internal loads, distributed loads
4. Stress and strain
5. Stiffness, strength, and failure of materials
6. Truss analysis, method of sections, method of joints
7. Beam analysis, shear force and bending moment diagrams
8. Centroids and moments of inertia
9. Deformation in bending, bending stress
10. Shear s

Exam Policies

Students will take 3 midterm exams during the semester. The exams may consist of work out, or computational problems, and/or conceptual questions (T/F, multiple choice, short answer). The final exam is comprehensive.

Tentative exam dates are as follows:

- Exam 1 (9/28/2023)
- Exam 2 (11/2/2023)
- Exam 3 (11/30/2023)

Final Exam

The final exam is comprehensive. As we near the end of the semester, more details on specific exam topics shall be given.

The final exam will take place during the university-scheduled final exam time, which is Monday, December 18th 2023 from 7:30 am – 10:00 am. **Please mark this date on your calendars and plan your winter travels accordingly.**

Lecture: Lecture will be in person in AERO 120.

Office Hours: Students can ask questions about concepts, example problems, and homework assignments during office hours. The office hour schedule will be posted to Canvas within a week of the course starting. Students are strongly encouraged to attend office hours if they have questions about the material or the homework.

Evaluated Outcomes

The Department of Aerospace Engineering Sciences has adopted a policy of assigning grades according to evaluated outcomes (Ox) in each course. Each assignment designed and graded to assess some combination of several or a few of the following outcomes:

- O1** Professional context and expectations (ethics, economics, etc.)
- O2** Historical perspective and vision
- O3** Multidisciplinary, system perspective
- O4** Written, oral, graphical communication ability
- O5** Knowledge of key scientific/engineering concepts
- O6** Ability to define and conduct experiments, use i2 0 TJET@EMC /Span #MCID 17/Lang (en-S)BDC

hours, i.e., Monday through Friday, 8:00 am – 5:00 pm. Any emails must include “ASEN 2701” on the Subject line. With respect to questions about the lecture material, homework problems, etc. students are encouraged to attend office hours in lieu of emails as it enables clarity and learning.

- Please note in case of a medical/family emergency, you should contact the office of Student Support and Case Management here: <https://www.colorado.edu/studentaffairs/sscm> They will help you coordinate across ALL of your courses and can put you in touch with a number of campus 1 kh

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation
