

MEEG 112-080, Statics (Honors)  
Spring 2009  
J.L. Hertz

## I. Course Objectives

Upon successful completion of this course, you will be able to:

- Formulate appropriate strategies for solving problems in engineering statics;
- Combine principles of mathematics and mechanics to formulate relevant models;
- Apply methods of mathematics to solve engineering problems of bodies in static equilibrium;
- Show appropriate engineering interpretation of terms used in the physical models; and
- Translate mathematics-based theory into engineering applications and recognize limitations of models of physical reality.

## II. Instructors

Professor Joshua Hertz  
Spencer Labs 329; 302-831-2778  
hertz@udel.edu; profhertzud (AIM)  
Office/AIM hours: M, W 10 – 11; other times by appointment; “open door policy”

(main TA) Adithya Boddu  
Spencer Labs 131; 302-831-4078  
adithyab@udel.edu  
Office hours for Adithya and the other TAs are posted at [www.me.udel.edu/meeg112](http://www.me.udel.edu/meeg112)

## III. Class Sessions

Tuesdays and Thursdays from 2:00 – 3:15 in Brown Lab Room 116  
Sessions are highly recommended and will include lecture and group work.

*Special Sessions:* *Thursday, 2/19 – MATLAB session in e-CALC I (Colburn 046)*  
*Thursday, 3/12 – Exam 1*  
*Thursday, 4/16 – Exam 2*  
*Thursday, 5/28 (1 – 3 pm) – Final Exam (Location TBD)*

## IV. Communications

A class email list and website is set up using Sakai. You must log in to the course site to gain access. Official announcements, including homework and reading assignments, will be communicated using these tools. In-person and electronic communication with the instructors is strongly encouraged (email replies from Prof. Hertz are guaranteed within 48 hours, but not necessarily sooner).

## V. Grades

### Problem Sets (10 \* 2%):

Individually worked problem sets will be assigned each Thursday, posted on the course's Sakai website, and due **at the beginning of the following Thursday's class**. Submission **before class** to Prof. Hertz's mailbox in Spencer Labs 126 is acceptable. Complete, correct answers earn 4 points. Complete, incorrect answers earn 3 points. Incomplete answers earn 2 or 1 point. Late or missing answers earn 0 points.

### Wiki (10 \* 1%):

In addition to the problem sets, we will be building an online Statics study guide. The goal is to create a resource for studying for the final exam and will consist mainly of fully solved Statics problems. Each week, randomly chosen groups will be assigned one problem each. The group is then responsible for uploading the problem and its solution, which must include a graphic, a plain-text explanation, a computational (algebraic) solution, and a MATLAB program. On a wiki, contributions are stamped with a time and username. Therefore, please upload your own contributions. This will allow us to determine if anyone did not contribute significantly to the group effort and thus should not receive the same grade as other group members. Correct solutions that are understandable to a general audience earn full credit. Contribution to a "glossary" and a "tool-box" section of tips and tricks is strongly encouraged.

### Mid-term Exams (2 \* 20%):

Two closed-book, in-class exams on March 12 and April 16.

### Final Exam (30%):

Closed-book final exam on May 28, 1 – 3 pm. Location TBD.

## VI. Academic Honesty

Other than during the exams, I strongly encourage discussions between classmates about class work; however, all work (besides the wiki) is to be solved and will be graded individually. Assigned problems will be good practice for the exams. Cheating is absolutely prohibited. Suspected instances of cheating will be dealt with strictly according to UD policy (see <http://www.udel.edu/judicialaffairs/ai.html>). If you are struggling with course material, please see the instructors as soon as possible.

## VII. Texts

Engineering Mechanics – Statics, 11<sup>th</sup> ed., R.C. Hibbeler (ISBN 0-13-221500-4)

⇒ Statics Study Pack, P. Schiavone (ISBN 0-13-221501-2)

Regrettably, on February 3, we were informed that this edition was being pulled out of press, effective immediately, in favor of the 12<sup>th</sup> edition. We have been assured by the publisher that enough copies of the 11<sup>th</sup> edition are in the local bookstores. If there is a problem obtaining a copy, please let us know.

## VIII. Approximate Course Outline

| Week | Topics   | Chapter(s) |
|------|--|------------|
| 2/9  | Introduction, Units, Scalars & Vectors, Forces | 1,2        |
| 2/16 | Particle Equilibrium, MATLAB                   | 3          |
| 2/23 | Free-Body Diagrams, Moments                    | 3,4        |
| 3/2  | Force Systems                                  | 4          |
| 3/9  | Review, Exam 1                                 | 1-4        |
| 3/16 | Rigid Body Equilibrium                         | 5          |
| 3/23 | Structures                                     | 6          |
| 3/30 | Spring Break                                   | -          |
| 4/6  | Trusses  | 6          |
| 4/13 | Review, Exam 2                                 | 5-6        |
| 4/20 | Internal Forces                                | 7          |
| 4/27 | Friction                                       | 8          |
| 5/4  | Center of Mass                                 | 9          |
| 5/11 | Moment of Inertia                              | 10         |
| 5/18 | Review, Reading Day                            | -          |
| 5/25 | Final Exam                                     | 1-10       |