Physics/Physics-Engineering 260: Engineering Statics
Spring 2012
TuTh 9:30-10:45 AM in SSL 150

Course description: This course applies the basic laws of mechanics, beginning with vector algebra and Newton's Laws, to static (stationary) systems. We start out with the basic equations of forces in three dimensions and particles, and then move onto rigid bodies and more complicated engineering structures. Towards the end in the course we deal with slightly more advanced topics including centroids, moments and products of inertia, and forces in beams. This course is a prerequisite for more advanced engineering courses such as Mechanics of Materials, Structures, and Dynamics.

Instructor: Prof. Robert Thornton
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Office hours: MWF 3:30-4:30 PM; TuTh 11:00 AM – Noon; also by appointment

Textbook (required): Vector Mechanics for Engineers: Statics, 9th Edition, by Beer, Johnston, Mazurek, and Eisenberg, published by McGraw-Hill.

Course Web page: Syllabus and related material will be on D2L.

Grading:
Exam 1: 20%; Exam 2: 20%; Exam 3: 20% (60% total)
Homework: 15%
Final Exam: 25%
Total: 100%

Attendance: Attendance is an important part of the class. After you miss more than three classes with no excuse, the instructor reserves the right to have each additional unexcused absence result in your course average being lowered by 2%. Excused absences are limited to those due to participation in University sanction events (see policy in the WCU undergraduate catalog) or those accompanied by written confirmation from a doctor, the Dean of Students, etc. If you are sick, you MUST obtain a doctor's note. Finally, whether your absence is excused or unexcused (or if you are late to class), you will be responsible for any material covered and any announcements that were made in class that day.

Homework: There will be approximately one, maybe two, homework assignments per week. The assignments will consist primarily of selected problems from the textbook. There may be a few computer exercises as well. Points will be deducted from assignments handed in late, and no credit will be given once solutions have been posted. You are encouraged to hand in the assignments on time as solutions will be posted shortly after the problems are due.

Reading: Students are expected to keep up with the assigned reading in the textbook. Pop-quizzes may be given to enforce this.

Disability: West Chester University is committed to making accommodations for persons with disabilities. Please make your needs known by contacting your instructor and the Office of Students with Disabilities. Sufficient notice is needed in order to make the accommodations possible. The University desires to comply with the ADA of 1990.

Course Coverage

There are 10 chapters in the text. We will cover all sections in the majority of the chapters, but only some sections in a few of the chapters (e.g., Ch 7 and 8). We will not cover any of Chapter 10. Below is an approximate schedule of when we will cover what and when the exams will be scheduled. This schedule is subject to change.

Chapter 1: Introduction

Chapter 2: Statics of Particles

Chapter 3: Rigid Bodies: Equivalent Systems of Forces

Chapter 4: Equilibrium of Rigid Bodies

Exam 1 (Ch 1-4): Mid-late February

Chapter 6: Analysis of Structures

Exam 2 (Ch 6): Mid-late March

Chapter 5: Distributed Forces: Centroids and Centers of Gravity

Chapter 9: Distributed Forces: Moments of Inertia

Chapter 8: Friction

Exam 3 (Ch 5, 8, 9): Mid-late April

Chapter 7: Forces in Beams and Cables

Final Exam (Cumulative)