SYLLABUS
ME 305: Mechanics of Materials
Section A1
Spring 2013

Instructor: Professor Morgan, efmorgan@bu.edu, ENG 221
Office Hours: Tu 2-4 p.m. and F 10-11 a.m.
Teaching Fellow: Allison Moore, armoore@bu.edu

Course Text: Timothy Philpot, Mechanics of Materials: An Integrated Learning System, third edition, Wiley, 2013.

** The online content that is paired with this textbook, and that is offered by WileyPLUS at https://www.wileyplus.com/WileyCDA/Section/Mechanics-of-Materials-An-Integrated-Learning-System-3rd-Edition.id-812376.html, is STRONGLY recommended This online content includes a PDF "eBook" of the textbook, for a total cost of ~$75. An alternative option is to purchase a hardcopy of the textbook along with the WileyPLUS access code, for a total cost of ~$200. The access code expires after 12 months; students can subsequently purchase the PDF eBook for ~$50.

Prerequisites: EK301

Blackboard Site: lms.bu.edu

Grading: The allocation of credit for the semester is as follows:

Quizzes	20%
Midterm Exams	25% (12.5% each)
Course Project	15%
Laboratory Reports	15%
Final Exam	25%

Lecture(s)	*Topic(s)*	*Book Chapter(s)*
1-2	Stress and Strain	1 & 2
3	Mechanical Properties of Materials, Design Concepts	3 & 4
4-6	Axial Deformation	5
7-9	Torsion	6
10-11	Shear Forces and Bending Moments	7
13	Midterm #1	
12,14	Stresses in Beams	9
15-16	Deflections of Beams	10
17-19	Stress and Strain Transformations	12 & 13
20	Thin-Walled Pressure Vessels	14
21	Midterm #2	
22-23	Combined Loads	15
24-25	Columns	16
26-27	Advanced Topics	
28	Review	

Course Learning Objectives: By the end of this course, students should be able to: 1) explain the concepts of stress and strain; 2) describe how to characterize the material behavior of standard engineering materials; 3) calculate the stress state for a structure subjected to axial, torsional, and/or bending loads; 4) carry out a project that requires students to design and optimize a structure according to several constraints; and 5) perform a stress analysis of a complex structure using a computer.

Course Policies:

- Homework will be assigned each week but will not be collected or graded. Solutions to the homework will be posted in the Science and Engineering library.
- All discussion sections are open to any student enrolled in this course. The discussion sections will focus on solving problems assigned for homework and other, similar problems. The location of the discussion sections is TBA.
- If you must miss class, see a classmate to obtain the class notes. If, after reviewing the material that you have missed, you have questions, see the instructor during office hours and/or teaching fellow during discussion sections to get your questions answered.
- Quizzes will be given weekly and will test students' ability to solve problems similar to the problems on each week's homework assignment. The lowest quiz score for each student over the course of the semester will be dropped when computing the final course grade.
- The course project will be assigned in Lecture 6 and will consist of two parts. The first part will be due on **March 28**. The second part will be due **April 27**.
- There will be four laboratories in the course. Laboratory scheduling will be accomplished by a sign-up sheet outside the main laboratory for the course: Room B01, 110 Cummington Mall (ENG). Note that the location for Lab #1 only will be different: Room 308 of 730 Commonwealth Avenue (EMA).
- The date, time, and location of the final exam will be announced as soon as they have been determined.

Academic Conduct:

- Students must follow the COE Academic Conduct Code, which is found in the COE Undergraduate Student Handbook (http://www.bu.edu/eng/current-students/ugrad/documents/Student%20Handbook%20%202012-2013.pdf /). Any violation of this conduct code will be reported to the COE Academic Conduct Committee.
- Plagiarism is discussed briefly in the conduct code. However, for several reasons, this subject warrants additional emphasis. In engineering, just as in humanities, science, and social science disciplines, plagiarism is unacceptable. Plagiarism is theft of another person's ideas and is a punishable offense in the same way that any form of theft is an offense. Plagiarism harms the individual whose ideas have been stolen. Original thought is highly valued in engineering and is expected from students in this course in preparing and completing all course assignments.

- Quizzes, Midterm and Final Exams: These assignments are to be completed by each student individually with no consultation with any other person other than the proctor. All quizzes and exams are closed note and closed book.
- Homework, Lab Reports, and Course Project: Students are permitted to consult with each other regarding approaches to solving problems in these assignments. However, everything that is written down and turned in must be authored by the student getting credit for the assignment, and any sources that were consulted while completing the assignment must be referenced. For example, if you consult with another person in preparing one section of a laboratory report, you should write "Consulted with <*person's name*> in preparing this section" in that section of the report. Similarly, if you consult with a textbook other than the course text or a webpage, acknowledge this in writing in the relevant section of the report or project.