Handout #1

BOSTON UNIVERSITY
Department of Mechanical Engineering
ME 305: Mechanics of Materials Sections A1
Fall 2021

Instructor and Class Information

Instructor:

- Dr. Xin Zhang: Professor of Mechanical Engineering
- Email: xinz@bu.edu
- Phone: (617) 358-2702

Hours:

- Class Hours (A1): Monday/Wednesday 12:20-2:05PM (09/08 – 12/08)
- Discussions (B1/B2): Monday/Wednesday 11:15AM-12:05PM (09/13 – 12/08)
- Weekly Zoom Hours: Friday 12:00-1:00PM, or by appointment

Course Websites:

- Blackboard: http://learn.bu.edu
- Gradescope: https://www.gradescope.com/courses/305460
- Piazza: http://piazza.com/bu/fall2021/me305a1

Exams:

- Midterm #1: October 18 (Monday), 12:20-2:05PM
- Midterm #2: November 17 (Wednesday), 12:20-2:05PM
- Final Exam: TBA

Textbook

- Goodno/Gere, Mechanics of Materials, 9th ed. (Cengage L), ISBN 9781337093347

List of Chapters

- Chapter 1: Tension, Compression, and Shear
- Chapter 2: Axially Loaded Members
- Chapter 3: Torsion
- Chapter 4: Shear Forces and Bending Moments
- Chapter 5: Stresses in Beams
- Chapter 9: Deflections of Beams
- Chapter 11: Columns
- Chapter 7: Analysis of Stress and Strain
- Chapter 8: Applications of Plane Stress

Coverage of Major Exams:

- Midterm#1: Chapter 1,2,3,4
- Midterm#2: Chapter 5,9,11
- Final Exam: Chapter 1,2,3,4,5,9,11,7,8

Course Summary:

- This course will introduce students to the theory and application of the fundamentals of mechanics of materials. The course will help enhance students problem-solving skills. After completing the course, students will be prepared for advanced courses in structural engineering. Specific learning objectives of this course are: (1) Gain a general understanding of normal and shear stresses and the relationship between stress and strain. (2) Be able to analyze axially loaded members (statically determinant and indeterminant) and determine the resulting stresses and displacements. (3) Be able to analyze members with circular cross-sections loaded in torsion. (4) Determine bending and shear stress distribution of members loaded in pure bending and transverse loads. (5) Be able to determine slopes and deflections of beams. (6) Understand the concept of stress transformation and be able to determine principle stresses and maximum in-plane shear stresses from a given state of stress. (7) Gain a general understanding of buckling and stability of columns with varying support conditions.

Grading:

- The allocation of credit for the semester is as follows:
    - Class Attendance & Participation 10%
    - Quizzes (drop lowest 2) 10%
    - Design and Project Assignments 20%
    - Laboratory Assignments 25%
    - Midterm Exam 1 (on Chapter1,2,3,4) 10%
    - Midterm Exam 2 (on Chapter 5,9,11) 10%
    - Final Exam (on Chapter 1,2,3,4,5,9,11,7,8) 15%

Teaching Assistants (TAs):

Name	Email	Lecture	Discussion/Quizzes	Lab	Design/Project
Zhiwei Yang	zwyang@bu.edu	A1/Zhang	B1/B2	All	All
Hiba Kobeissi	hibakob@bu.edu	A2/Barbone	B3/B4	All	All
Peerasait Prachaseree	pprachas@bu.edu	A2/Barbone	B3/B4	All	All

- ✓ *Zhiwei Yang for Prof. Zhang: Lecture A1 and Discussion B1/B2.*
- ✓ *Hiba Kobeissi and Peerasait Prachaseree for Prof. Barbone: Lecture A2 and Discussion B3/B4.*
- ✓ *All three teaching assistants will be working together on "laboratory assignments".*
- ✓ *All three teaching assistants will be working together on "design and project assignments".*
- ✓ *For ME305A1, your major contact of teaching assistant is TA Zhiwei Yang.*
    - *He will lead discussion sections associated with A1 (i.e., B1/B2, M/W, 11:15AM-12:05PM).*
    - *All of quizzes (except one) will be held in discussion sections (B1/B2), 11:40AM-12:05PM.*

Major TA for ME305A1: Zhiwei Yang (zwyang@bu.edu)

- ✓ *For ME305A1, TA Zhiwei Yang will be in charge of discussion sections (B1/B2), where all of quizzes (except one) will be held in discussion sections (B1/B2), 11:40AM-12:05PM (25 mins including submission).*
- ✓ *For ME305A1, TA Zhiwei Yang will be your major point of contact for both "laboratory assignments" and "design and project assignments".*
- ✓ *In addition to discussion times, TA Zhiwei Yang will also set aside weekly zoom hours (one hour per week) to be available to the students for additional one-on-one questions.*

Grader for ME305A1: Xiaohang Xie (xhxie@bu.edu)

- ✓ *Grader Xiaohang Xie will help grade weekly quizzes for students registered to ME305A1.*

Important Information

Websites:

- Most materials (handouts, assignments, etc) will be distributed via Blackboard. Work will be submitted via Gradescope. Questions posted to the Piazza website tend to get answered very quickly.

Blackboard (for handouts, assignments, etc): http://learn.bu.edu
Gradescope (to submit assignments, see grades, and grading): https://www.gradescope.com/courses/305460
Piazza (for questions & discussions, etc): http://piazza.com/bu/fall2021/me305a1

Class Attendance & Participation:

- We expect that if you are registered for ME305A1, you should attend class – in person if possible but online if not. Most of the course material can be found in a textbook, but not everything, and you will be tested on what is covered in class, not what is simply covered in the textbook.
  - ***Remote attendance:*** As of August 30, 2021, the BU Administration asks that all classes be held in-person with very few exceptions. Therefore, there is not currently a remote attendance option. Neither are we permitted to record class meetings per the BU administration. Those policies may change, of course, in the event that a public health emergency requires it.

Homework:

- Homework will be assigned. It will *not* be collected or graded. Solutions will be posted online.

Quizzes:

- ***All of quizzes (except one) will be administered in discussion sections (B1/B2)[1], started at 11:40PM, 25 mins including submission (11:40AM-12:05PM).*** You will need to register to one of discussion sections (B1/B2). ***Quizzes are closed note and closed book.*** Equation sheet will be provided for each quiz. The purpose of the quizzes is to help you to keep current with the material. The quizzes will consist of problems very similar to homework problems as well as problems discussed in class. ***Generally speaking, no make-up quizzes will be given; however, you will be able to drop your two lowest quiz scores****, in recognition of extenuating circumstances that may prevent you from taking the quizzes.* Quizzes will start at 11:40PM, no extra time will be given if you are late. TA will wrap up and walk out of the classroom for discussion sections at 12:05PM and any late submission will receive partial or no credits (within 5 mins, at/before 12:10PM, 50%; beyond 5 mins, after 12:10PM, 0%).

Midterm and Final Exams:

- There will be two in-class exams given during the semester; see the schedule for dates. The final exam will be given during the final exam period, and the date is TBD. ***All exams are closed note and closed book.*** Since the Registrar will set the date later during the semester, ***do not make travel plans before the end of the exam period***. Make-up exams will be given only in extreme circumstances. It is your responsibility to let your instructor know as far in advance as possible of an unavoidable conflict or medical emergency.

  Schedule: Midterm#1 (Oct. 18, Mon, in class); Midterm#2 (Nov. 17, Wed, in class); Final Exam (TBD).
  Coverage: Midterm#1 (Ch. 1,2,3,4); Midterm#2 (Ch. 5,9,11); Final Exam (Ch. 1,2,3,4,5,9,11,7,8).

[1] One quiz will be held in class. See schedules in a separated document for more details (date/time/topic/etc.)

Design and Project Assignments:

- Designs/projects will be assigned during the course of the semester. Such assignments will be modeling and analysis problem aimed at explaining and/or analyzing the mechanical behavior of an everyday object.
- ***Failure to turn in any one of the design and project assignments will result in automatic failure of the course.***

Laboratory Materials and Excises:

- The course includes three lab exercises. Two of these were designed to be conducted with materials you and/or your lab mates have at home, can obtain easily, or will be provided to you. A third (the torsion lab - chronologically the second of the labs) uses apparatus in the Materials Characterization Lab.
  - ✓ Do-at-home labs: Two of our three lab assignments for this semester are "Do-at-home labs." These provide more hand-on interaction than our old "demonstration-type" labs. These you will do in groups at "home", or wherever you choose to work.
- ***Failure to turn in any one of the laboratory exercises will result in automatic failure of the course.***

Group Work and Interaction:

- Some of the class structure for this semester will be based on group work, including at home lab groups and design and project groups.

Discussion:

- You will need to register to one of discussion sections (B1/B2). Led by TA Zhiwei Yang, the discussion sections will focus on solving problems assigned for homework and other, similar problems. ***All of quizzes (except one) will be held in discussion sections, 11:40AM-12:05PM (25 mins including submission).*** Quizzes will start at 11:40PM, no extra time will be given if you are late. TA will wrap up and walk out of the classroom for discussion sections at 12:05PM and any late submission will receive partial or no credits (within 5 mins, at/before 12:10PM, 50%; beyond 5 mins, after 12:10PM, 0%).

Grading:

- All assessments will be accessible on-line. All complaints related to grading quizzes, labs, projects and exams must be reported to the grader (Xiaohang Xie, xhxie@bu.edu), the teaching assistant (Zhiwei Yang, zwyang@bu.edu), copying the instructor (Xin Zhang, xinz@bu.edu) ***within one week*** after the grades are announced.

Deadlines and Late Work:

- Generally speaking, any take-home work (labs, design and project assignments) submitted late will receive partial or no credits (within 24 hours, 75%; within 48 hours, 50%; within 72 hours, 25%; beyond 72 hours, 0%). Deadlines help keep the class working together. Mutual respect for your group mates requires that you keep up with the course. Circumstantial uncertainty, however, suggests that we won't all keep up all the time with everything. Therefore, limited flexibility will be available for assignment deadlines on a case-by-case basis, but there will be no flexibility on requirements of those assignments.

Drop and Withdrawal Dates

- The last day to DROP (with no 'W' on your record): day, October 7, 2021
- The last day to WITHDRAW (with a 'W' on your record): day, November 5, 2021

Incompletes

- Incompletes will be permitted only for extenuating circumstances and must be arranged with me as soon as such a circumstance arises. This situation only pertains to assignments whose due dates have not yet passed.

Accommodations:

- ***Accommodations for students with documented disabilities:*** If you are a student with a disability or believe you might have a disability that requires accommodations, please contact the Office for Disability Services (ODS) at (617) 353-3658 to coordinate any reasonable accommodation requests. ODS is located at 19 Deerfield St, on the second floor. We will make every effort to accommodate such requests but (a) please notify your instructor at the beginning of the semester if you've received approved accommodations in previous semesters (even if you haven't received your paperwork for this semester yet!) and (b) provide at least one week's notification prior to each exam so we can make the necessary arrangements.
- ***Religious accommodations:*** We are aware of and in agreement with Boston University's Policy on Religious Observance, whereby absences for any religious beliefs are understood and missed assignments on such occasions will be given a chance to be made up. We require notification at least a week in advance, particularly if an accommodation must be made, for such occasions.
- ***COVID 19 & BU Community Health Expectations:*** Masks are required and face coverings must be worn over the mouth and nose at all times when in public spaces on campus, including classrooms. You should be prepared to show proof that you are compliant with health attestations and testing in order to attend class. You are expected to follow all university guidelines with respect to your vaccination, daily symptom checks, testing, and mask wearing when you leave your dorm or home. For a detailed description of official BU policies regarding COVID, please visit: https://www.bu.edu/back2bu/campus-life-undergraduates/ With the continued presence of the contagious Delta variant, there exists the possibility that you, your instructor or teaching assistants may be required to quarantine and miss class. The University has been clear that class-via-Zoom is not an environment that is supported going forward. We will do our best to be in touch with you about contingency plans should we need to quarantine, and we ask that you be in touch with us should you need to miss class. We have some, but not unlimited, digital resources available to present you with the course material, should you need to miss class, but it is important that you remain proactive in doing so should you need to quarantine.

Ethical Responsibilities:

- Cheating on homework, exams, project reports, or any form of assignment, may be a form of plagiarism and is an infringement of every code of engineering ethics. Plagiarism is a serious academic offense and should not be taken lightly. Understanding your ethical responsibilities is an integral part of becoming a professional. A copy of the Code of Ethics of engineers, promulgated by the Accreditation Board for Engineering and Technology (ABET) and the National Society of Professional Engineers can be found on the main course web site. Please recall that when you enrolled at Boston University, you agreed to an Academic Honesty Pledge. The Academic Conduct Code details your responsibilities as well as the results of code violations, and is posted at:
  https://www.bu.edu/academics/policies/academic-conduct-code/

I’ve read through the ME305A1 syllabus document and the semester dates.

Signature:_____

Name: _____

Please submit this page with your name and signature to the Gradescope, on/before September 15, 2021.