**Carleton University**
Department of Mechanical and Aerospace Engineering
Winter 2017

MAAE 3202 C Mechanics of Solids II

**Instructor:**

Professor Xin Wang
Office: CB 4310
Phone: 520-2600 Ext. 8308
E-mail: xin.wang@carleton.ca

**Lectures:** 3 hours/week, Monday/Wednesday 1:05pm-2:25pm TB 210.

**Problem Analysis / Laboratory:**

**L1** Tuesday 2:25 pm – 5:25 pm (ME 4342 for PA)
**L2** Tuesday 8:35– 11:25 am (ME 4342 for PA)

Solid Mechanics Laboratory is located at ME 2332. Labs and PA are 3 hours each on alternate weeks, starting the week of January 9th. For the week of January 9th, it will be a PA session, and everyone must attend that PA session.

**Text Book:**

Mechanics of Engineering Materials
Authors: P.P. Benham, R.J. Crawford and C.G. Amstrong
Publisher: Addison Wesley Longman
Edition: Second

**Problem Analysis Sessions:**

During the PA sessions, the TAs and instructor will be available to help you solving the assigned problems. Although your attendance is optional, the TAs may record the names who are present. History has shown that the students who regularly come to the PA sessions did better in the course.

**Laboratory Experiments:**

There are four Labs in this course, each takes 3 hours to complete. They are scheduled at the same time as your PA sessions. Therefore, there are four weeks you will attend the Laboratory instead of P.A. The Laboratory will be held in groups, each with 3-4 students. Each group will use one test apparatus. You will record the experiment on your own log book and it will be submitted at the end of each experiments. The log books will be marked individually. Every student please prepare a standard lab log book individually in advance.

Note: Discussion and conclusions of the lab must be written during the lab, not before. We have a NO CELL PHONE policy, and for each lab group only one laptop will be allowed.

You must personally attend the Labs, absenteeism in any Laboratory automatically result in a "Fail" for that lab. Penalty for not submitting a lab report: 25% of total lab grade. Penalty for late submission: 20% per day for that lab.

**Exams:**

Final 3 hours. (course notes and calculator only).

**Assessment**

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|---|---|
| Laboratory Experiments & Report | 35% |
| Mid-term Assignment (Optional) | Bonus marks** |
| Final Examination | 65% |
| Total | 100% |

(** Added to Final Examination marks for grade determination)

**Note: (a) Absenteeism in any scheduled laboratory session without a valid reason automatically results in a Fail grade in the Laboratory component of the course.**

**(b) Failure in either the Final Examination or the Laboratory component will constitute failure in this course.**

**(c) In the event of missed assessed term work (i.e. laboratory, mid-term examination) because of illness, it must be fully supported by a medical certificate dated no more than one day after the term work due date and must be submitted to the instructor within 5 working days.**

**cuLearn:**

- The course will be supported by the cuLearn Course Management System.
- Marks will be released through cuLearn only
- Additional lecture notes in the form of slides will be available through cuLearn before class.

**Note:** Students will be required to regularly login to cuLearn and is fully responsible for reading the information distributed to students through the cuLearn course page. Information provided to students on this page will be considered to have been delivered to all registered students within 24 hours of posting.

**Course Objective:**

Study the advanced topics of Mechanics of (Deformable) Solids. In MAAE 2202, we have learned how to handing simple loading cases. Here focus will be on the understanding of the effect of general complex loading on machine structures and components.

Topics includes:

1. Review of elementary solutions
2. Stress and strain transformations
3. Failure theories
4. Torsion of thin-walled sections
5. Elastic beam bending
6. Energy methods
7. Variation of stress and strain
8. Axi-symmetric deformations

**Academic Accommodation**

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the Student Guide

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the Student Guide

Academic Accommodations for Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable).