EXPANDED COURSE DESCRIPTION
MECHANICAL ENGINEERING
Lassonde School of Engineering
Mechanical Engineering
LE / MECH 3502 3.0 SECTION A
SOLID MECHANICS AND MATERIALS LABORATORY
FALL 2020 / WINTER 2021

Last Modified Date: 09/04/2020

COURSE CALENDAR DESCRIPTION

Building on the foundational knowledge in the mechanics of materials, this course introduces students to a number of measurement and characterization methods used for macro- and micro-systems. A selected number of laboratory experiments and demonstrations may include: strain measurements (e.g. strain gauges and/or speckles interferometry method), deflection measurements, hardness, impact, non-destructive testing method for crack detection; material characterization methods including techniques such as SEM, AFM, nano-indentors, etc.; motion measurements, traditional and optical (using imaging methods, e.g. by a cell phone camera). Students will continue to develop their skills in data collection, analysis, and the presentation of findings. Prerequisites: SC/CHEM 1100 4.00; LE/MECH 2301 3.00; LE/MECH 2502 3.00.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
<th>Contact Phone</th>
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<tbody>
<tr>
<td>Czekanski, Aleksander</td>
<td>Sec. A / LECT / F</td>
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ADDITIONAL INFORMATION

Course Website
MECH 3502 on Moodle (http://moodle.yorku.ca)

Required Course Materials

Optional Course Materials
• Mechanics of Materials, Ferdinand Beer, Jr., E. Russell

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Course Learning Outcomes (CLOs)
Upon the completion of this course, students are expected to learn and retain the following concepts and skills:
1. Use appropriate mechanical testers to investigate mechanical properties of materials and relate the obtained data to the concepts of solid mechanics and materials.
2. Examine the processing-structure-property relationships of materials (e.g., heat treatment of carbon steel).
3. Describe different modes of material failure using the principles of fracture mechanics.
4. Apply appropriate microscopy techniques to characterize different micro-and nanostructures of materials.
5. Develop concise and professional reports that reflect critical analysis of experimental data.
6. Recognize laboratory safety guidelines and practices related to performing experiments in the field of solid mechanics and materials.

**Laboratories**

The tutorials will be used for students to work on course-related tasks. Furthermore, in the event that a regularly scheduled lecture is cancelled, tutorial time slots may be used to recover the lecture.

**Examinations**

There will be four quizzes, and in-class (week 12) final examination at the end of the winter term. Any permitted materials will be announced prior to the exam date.

**Online Lecture Notes & e-Learning Contents**

Lecture materials will be posted on the COURSE site within Moodle. Students are encouraged to visit this page as often as possible for latest updates. Minimum technical skills are expected of the student in order to access the e-Learning materials. Students should contact the instructors for any difficulty experienced in accessing the recommended e-Learning materials.

**Evaluation Scheme**

- Quizzes: 4x5% = 20%
- Final Exam: 9%
- Pre-lab assignments: 11 x 1% = 11%
- Post-lab mini-reports: 7 x 2% = 14%
- Post-lab case studies: 7 x 2% = 14%
- Post-lab major reports including case studies: 4 x 8% = 32%

**Grading**

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, B = 6, etc.).

Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g., A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

(For a full description of York grading system see the York University Undergraduate Calendar - https://calendars.students.yorku.ca/2018-2019/academic-and-financial-information/academic-information/grades-and-grading-schemes)

**Assignment Submission**

Proper academic performance depends on students doing their work not only well, but on time. Accordingly, assignments for this course must be received on the due date specified for the assignment. Assignments are to be handed in during lectures, tutorials, or through the course Moodle site as specified by the respective instructions.

**Lateness Penalty**

Assignments received later than the due date will be penalized (i.e., 20% deduction per day that assignment is late). Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the Course Instructor but will require supporting documentation (e.g., a doctor’s letter).

**Missed Tests**

Students with a documented reason for missing a course test, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (e.g., doctor’s letter) may request accommodation from the Course Instructor on a case-by-case arrangement. Further extensions or accommodation will require students to submit a formal petition to the Faculty.
For missed exams or final assignments, students are expected to fill out the deferred exam form (https://secure.students.yorku.ca/pdf/final-exam-assignment-deferred-standing-agreement.pdf).

Please note that Senate policy states that “normally, requests for deferred standing must be communicated within one week following a missed examination or the last day to submit course work”. The period during which the University is officially closed for December holidays and statutory holidays is not counted in the determination of deadline days.

- **Classroom Etiquette**
  
The use of electronic devices (smart-phones, tablets, etc.) during lectures and tutorials is only permitted for education purposes.

- **NETiquette**
  
In all online communications (e.g., email, online discussion, or other forms of online communications), please consider the guidelines from the Core Rules of Netiquette by Virginia Shea (http://www.albion.com/netiquette/corerules.html). Sometimes, online behaviour can appear to be inappropriate or disrespectful that it requires attention and follow up. In this case, please make sure you let your instructor know immediately so that the right resources can be identified to help.

- **Reminders**
  
- If you are using a personal e-mail address, please identify yourself as a student registered in this course by providing your student number in your signature block. You are responsible for ensuring you are receiving official course information in an efficient and timely manner.
- All students are expected to familiarize themselves with the following information:
  
  - General information (http://calendars.registrar.yorku.ca/2013-2014/policies/index.htm)
  - Senate policy on academic honesty and the academic integrity website (http://www.yorku.ca/secretariat/policies/document.php?document=69) and (http://www.yorku.ca/tutorial/academic_integrity/)
  - Academic Integrity - http://lassonde.yorku.ca/academic-integrity
  - Copyright - Course materials are designed for use only in the course. Copying this material for distribution (e.g. uploading material to a commercial third-party website) may lead to a charge of misconduct under York’s Code of Student Rights and Responsibilities and the Senate Policy on Academic Honesty and/or legal consequences if copyright law has been violated http://www.copyright.info.yorku.ca.
  - Ethics review process for research involving human participants (http://www.yorku.ca/research/support/ethics/)
  - Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities (http://www.yorku.ca/secretariat/policies/document.php?document=68)
  - Additional resources related to add/drop courses, student life, academic resources, campus services, …etc. can be found at this link: http://www.yorku.ca/yorkweb/cs.htm

- **Student Links**
  
  - Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
  - Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
  - Counselling and Disability Services - http://cds.info.yorku.ca/
Land Acknowledgement

As this meeting is virtual and we are not all gathered in the same space, I recognize that this land acknowledgment might not be for the territory that you are currently on. We ask that if this is the case, you take the responsibility to acknowledge the traditional territory you are on and the current treaty holders. As a member of the York University community, I recognize that many Indigenous Nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, and the Huron-Wendat. It is now home to many First Nation, Inuit and Métis communities. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.

The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/

Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.
Moodle @ York University