

# COURSE SYLLABUS



COURSE TITLE:	CIVE 192 – MECHANICS OF MATERIALS
CLASS SECTION:	X01A & X01B
TERM:	2023W
COURSE CREDITS:	4
DELIVERY METHOD(S):	Lecture, Seminars and Labs

Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and WSÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here. Learn more about Camosun's [Territorial Acknowledgement](#).

For COVID-19 information please visit <https://legacy.camosun.ca/covid19/index.html>.

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*Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.*

## INSTRUCTOR DETAILS

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NAME:	Holly Monaghan, P.Eng.
EMAIL:	<a href="mailto:monaghanh@camosun.bc.ca">monaghanh@camosun.bc.ca</a>
OFFICE:	TEC 267
HOURS:	TBD

*As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.*

## CALENDAR DESCRIPTION

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Students are introduced to mechanics theory relevant to structural design. Students are shown the stress-strain relationships and are introduced to the theories of bending, shear, torsion and beam deflections that will be used in later structural design courses. Students are also shown plane stress transformation, column theory and influence lines used in structural analysis.

PREREQUISITE(S):	C in CIVE 191
PRE or CO-REQUISITE(S):	C in MATH 193
EXCLUSION(S):	none

## COURSE LEARNING OUTCOMES / OBJECTIVES

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Upon successful completion of this course a student will be able to:

- Conduct and apply relevant safety regulations and best practices in the lab and in the field.
- Calculate stresses, strains and displacements for axial, torsional and bending problems.

- Calculate shear, tensile and bearing stresses in connections.
- Demonstrate the use of factor of safety in allowable stress design calculations.
- Use flexure formula, shear formula and structural properties of various sections for analysis.
- Develop equations for shear, moment and deflections for beams from first principles. Draw shear, moment and deflected shape diagrams for beams.
- Calculate shear, moment and deflected shape diagrams for beams using tables and superposition.
- Perform stress analysis for combined loading including combinations of axial, torsion and bending loads and determine stress on an element using Mohr's Circle for plane stress.
- Use the buckling equations of Euler to calculate critical load and critical stress.
- Draw influence lines for reactions, shears and moments in structures.
- Perform statically determinate and indeterminate analysis by various methods such as virtual work, conjugate beam, and slope deflection.

#### REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

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- Lecture & seminar notes and/or videos posted on course web pages / D2L
- Texts – R.C. Hibbeler, Statics and Mechanics of Materials, 5th Edition, Pearson Education Inc. 2016. ISBN 9780134382593

#### COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

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The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

- Lectures:
  - All Sections:
    - Monday: 11:00am – 12:20pm, TEC 174
    - Tuesday: 11:00am – 12:20pm, CBA 286
- Seminars:
  - X01A:
    - Wednesday: 12:30 – 2:20pm, CBA 120
  - X01B:
    - Thursday: 12:30 – 2:20pm, TEC 110
- Labs:
  - X01A:
    - Monday: 2:30 – 4:20pm, TEC 123
  - X01B:
    - Friday: 8:30 – 10:20am, TEC 123

WEEK	DATE RANGE	LECTURE / SEMINAR TOPIC	Lab		Assignment		Quiz	Notes
			Experiment	Report and Presentation	Available	Due (Sunday)		
1	Jan 7 - 13	Shear and Bending Moment Diagrams	-		1	-	-	-
2	Jan 14 - 20	Stress & Strain	-		2	1	-	-
3	Jan 21 - 27	Properties of Materials	Lab 1 – Elastic Tensile Test -		3	2	1	-
4	Jan 28 – Feb 3	Axial Loads + Stress & Compatibility Equations	Lab 2– Plastic Tensile Test		4	3	2	-
5	Feb 4 - 10	Torsion		Lab 1	5	4	3	-
6	Feb 11 - 17	Bending	-	Lab 2	6	5	4	-
7	Feb 18 – 24	<b>Reading Break - Camosun Closed</b>						
8	Feb 25 – March 2	Transverse Shear	Lab 3 - Torsion		7	6	5	-
9	March 3 – 9	Beam Deflection	Lab 4 - Bending		8	7	6	-
10	March 10 - 16	Stress & Strain Transformation	Lab 5 – Beam Deflection		9	8	7	-
11	March 17 - 23	Column Buckling	-	Lab 3	10	9	8	-
12	March 24 - 30	Statically Indeterminate Beams	-	Lab 4	-	10	9	March 29 (Friday) – Camosun Closed
13	March 31 – April 6	Influence Lines & Review	-	Lab 5	-	-	10	April 1 – (Monday) Camosun Closed
14	April 7 - 13	Review						April 10 – Easter Monday Camosun Closed
15	April 14 - 20	EXAM WEEK						Exam Date TBD

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced notice is required. Deadlines can be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

## EVALUATION OF LEARNING

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DESCRIPTION	WEIGHTING
Assignments (10)	10%
Quizzes (10)	35%
Labs	15%
Final Exam	30%
Engagement / Contribution	10%
	<b>TOTAL</b>
	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information.  
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

## COURSE GUIDELINES & EXPECTATIONS

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- Presence is required at all scheduled course components, including quizzes and labs.
- Produce clear handwritten notes when preparing calculations.
- Each completed assignment is worth 1%. The assignments key will be posted, and you are required to review your own work.
- Ten (10) quizzes are intended to be written during the term. If only nine (9) are delivered by the instructor, then one quiz will be worth 1/9 of the total quiz grade.
- All assignments, quizzes and labs must be handed in order to write the final.
- The 'Engagement / Contribution' component is based on class attendance, participation and lab partner assessment.
- You must pass the final exam to pass the course, even if your overall score in the course is over 60%.
- Expect your world view to change, to expand your mind and to never look at your universe the same again....

## SCHOOL OR DEPARTMENTAL INFORMATION

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### Department:

- Civil Engineering Department. Chair is Zoe Broom, TEC 116.
- See the chair if you need:
  - program help such as working out a part-time schedule
  - help with transfer credits
  - info on services from other departments.

See your instructor if you need help with the course.

**School:** School of Trades and Technology. Office TEC 169

- Dean is Eric Sehn

- Associate Dean is Ken Kosik
- Both are in TEC 169
- Student issues are looked after by the Associate Dean. However, if you need anything, go to the department chair first.

Equity, diversity, and inclusion (EDI) are central to Camosun's culture and values. The Camosun community and the engineering community at large commit to pursuing equity in education regardless of race, heritage, religion, gender or gender identity, and ability. We learn best when we feel safe. Inappropriate, hateful or demeaning comments or actions will not be tolerated. Your suggestions on how to make your experience here better are encouraged and appreciated. Please let me or the department chair know ways to improve your experience at Camosun. If you wish to know more about Camosun's EDI policy, please see the EDI page on the college's website: <http://camosun.ca/about/policies/equity-diversity-inclusion.html>

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## STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

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## SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Support Service	Website
Academic Advising	<a href="http://camosun.ca/advising">http://camosun.ca/advising</a>
Accessible Learning	<a href="http://camosun.ca/accessible-learning">http://camosun.ca/accessible-learning</a>
Counselling	<a href="http://camosun.ca/counselling">http://camosun.ca/counselling</a>
Career Services	<a href="http://camosun.ca/coop">http://camosun.ca/coop</a>
Financial Aid and Awards	<a href="http://camosun.ca/financialaid">http://camosun.ca/financialaid</a>
Help Centres (Math/English/Science)	<a href="http://camosun.ca/help-centres">http://camosun.ca/help-centres</a>
Indigenous Student Support	<a href="http://camosun.ca/indigenous">http://camosun.ca/indigenous</a>
International Student Support	<a href="http://camosun.ca/international/">http://camosun.ca/international/</a>
Learning Skills	<a href="http://camosun.ca/learningskills">http://camosun.ca/learningskills</a>
Library	<a href="http://camosun.ca/services/library/">http://camosun.ca/services/library/</a>
Office of Student Support	<a href="http://camosun.ca/oss">http://camosun.ca/oss</a>

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Support Service	Website
Ombudsperson	<a href="http://camosun.ca/ombuds">http://camosun.ca/ombuds</a>
Registration	<a href="http://camosun.ca/registration">http://camosun.ca/registration</a>
Technology Support	<a href="http://camosun.ca/its">http://camosun.ca/its</a>
Writing Centre	<a href="http://camosun.ca/writing-centre">http://camosun.ca/writing-centre</a>

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If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

## COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

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### Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

### Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

### Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

### Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

### Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

### Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

### Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the “Attendance” section under “Registration Policies and Procedures”

(<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

### Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

### Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and [camosun.ca/sexual-violence](http://camosun.ca/sexual-violence). To contact the Office of Student Support: [oss@camosun.ca](mailto:oss@camosun.ca) or by phone: 250-370-3046 or 250-3703841

### Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

**Changes to this Syllabus:** Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.