

COURSE SYLLABUS



COURSE TITLE:	CIVE 192 – Mechanics of Materials
CLASS SECTION:	X01 and X02
TERM:	2023S
COURSE CREDITS:	3
DELIVERY METHOD(S):	In-person Lectures, Labs and Seminars

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən 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>.

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

NAME:	Peter Burrage
EMAIL:	Burrage@camosun.bc.ca
OFFICE:	TEC 112
HOURS:	See office door or D2L

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

CALENDAR DESCRIPTION

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

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

- Textbook: R.C. Hibbeler, Statics and Mechanics of Materials, 5th Edition, Pearson Education Inc. 2016. ISBN 9780134382593

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

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

- Lectures (all sections):
 - *Mondays 2:30 – 4:20 in TEC 181*
 - *Fridays 3:00 – 3:50 in TEC 177 (for weeks 1-3), TEC 181 (week 4 onwards)*
- Seminars:
 - *X01 - Tuesdays 10:30 – 12:20 in TEC 181*
 - *X02 - Tuesdays 1:30 – 3:20 in TEC 181*
- Labs:
 - *X01 - Mondays 12:30 – 2:20 in TEC 123*
 - *X02 - Mondays 9:30 – 11:20 in TEC 123*

WEEK	DATE RANGE	LECTURE TOPIC	LAB TOPIC
1	May 1 – 5	Monday: Shear and Bending Moment Diagrams Friday: Shear and Bending Moment Diagrams	No Labs
2	May 8 – 12	Monday: Shear and Bending Moment Diagrams Friday: Stress and Strain	No Labs
3	May 15 – 19	Monday: Stress and Strain Friday: No Class	Lab 1A – Elastic Tensile Test
4	May 22 – 26	Monday: No Class (Victoria Day) Friday: Properties of Materials	Lab 1A – Elastic Tensile Test
5	May 29 – Jun 2	Monday: Axial Load Friday: Axial Load	Lab 1B – Plastic Tensile Test
6	Jun 5 – 9	Monday: Torsion Friday: Torsion	Lab 1B – Plastic Tensile Test
7	Jun 12 – 16	Monday: Midterm Exam Friday: Bending	Lab 2A – Torsion Test
8	Jun 19 – 23	Monday: Bending Friday: No Class	Lab 2A – Torsion Test
9	Jun 26 – 30	Monday: Transverse Shear Friday: Transverse Shear	No Labs
10	Jul 3 – 12	Monday: No Class (Canada Day obs.) Friday: Beam Deflection	Lab 2B – Beam Stresses
11	Jul 10 – 14	Monday: Beam Deflection Friday: Stress and Strain Transformation	Lab 2B – Beam Stresses
12	Jul 17 – 21	Monday: Stress and Strain Transformation Friday: Column Buckling	Lab 2C – Beam Bending
13	Jul 24 – 28	Monday: Column Buckling Friday: Indeterminate Beams	Lab 2C – Beam Bending
14	Jul 31 – Aug 4	Monday: Indeterminate Beams Friday: Influence Lines	No Labs

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

DESCRIPTION	WEIGHTING
Quizzes	15%
Midterm Exam	25%
Labs	20%
Final Exam	40%
	TOTAL
If you have a concern about a grade you have received for an evaluation, please come and see us as soon as possible. Refer to the Grade Review and Appeals policy for more information. http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf	
	100%

COURSE GUIDELINES & EXPECTATIONS

- There will be two lab reports that will be completed in groups.
- You must pass final exam (minimum of 50%) to pass the course.

SCHOOL OR DEPARTMENTAL INFORMATION

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 us 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>

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.

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	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

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.

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. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

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.