

# COURSE OUTLINE



COURSE TITLE:	CIVE 291 – Structural Design 1
CLASS SECTION:	X01A and X01B
TERM:	2022F
COURSE CREDITS:	3
DELIVERY METHOD(S):	Lecture & Lab

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ 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:	Adel Shoaib (Lecture & Lab) Peter Burrage (Computer Lab)
EMAIL:	ShoaibA@camosun.ca , Burrage@camosun.ca
OFFICE:	Adel Shoaib (TEC 120), Peter Burrage (TEC 112)
HOURS:	See office door

*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

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Students are introduced to the limit states design method in accordance with the BC Building Code. Students also learn to design timber beams, columns, diaphragms, shear walls and connections using the relevant Canadian design codes. Computer based analysis tools are also introduced.

PREREQUISITE(S):	C in CIVE 192
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## COURSE LEARNING OUTCOMES / OBJECTIVES

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

- Use BC Building Code and supplements in Limit States Design calculations of dead loads, live loads and loads imposed by snow, wind and temperatures.
- Present properly formatted design notes in order to reduce calculation errors.
- Describe factors affecting a structure's performance during an earthquake.
- Determine when it is appropriate to use a static design approach for earthquake or wind calculations.

- Explain the use of wood construction materials.
- Calculate material resistance for wood components in accordance with relevant CSA Standards.
- Design timber construction elements including joists, beams, columns, stud walls, shear walls, diaphragms, and connection details as part of a timber structure.
- Describe the concept of load path used to ensure loads applied to a structure can be distributed down to the foundation.
- Use computer based tools to determine loads and stresses for structures.

## REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

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- Textbook: *CWC Wood Design Manual and CSA O86*, 2020 Edition, Canadian Wood Council, ISBN 978-1-989039-07-6 Note: this book can be ordered directly from the CWC for a student discount (see <https://webstore.cwc.ca/student-promotion/> for details).
- Part 4 of the BC Building Code available at: [https://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc\\_2018dbp4s41r2](https://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc_2018dbp4s41r2)
- SFrame and RISA 2D software are installed in the computer labs.

## 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.

WEEK	DATE RANGE	LECTURE TOPIC	LAB (02)	Computer Lab (01) (Peter Burrage)
		<i>Mondays 3:30 – 5:20 in TEC 181 Wednesdays 2:30 – 4:20 TEC 181</i>	<i>-X01A: Tuesdays 10:30-11:20 in TEC 110 -X01B: Tuesdays 11:30-12:20 in TEC 110</i>	<i>-X01A: Tuesdays 8:30-9:20 in TEC 273 -X01B: Tuesdays 9:30-10:20 in TEC 148</i>
1	Sep 05-09	Introduction to Limit States Design, NBCC, and BCBC	Practice/Problem Solving	SFrame/Risa 2D
2	Sep 12-16	Dead and Live Loads	Practice/Problem Solving	SFrame/Risa 2D
3	Sep 19-23	Wind Load	Practice/Problem Solving	SFrame/Risa 2D
4	Sep 26-30	Snow Load	Practice/Problem Solving	SFrame/Risa 2D
5	Oct 03-07	Earthquake Load	Practice/Problem Solving	SFrame/Risa 2D
6	Oct 10-14	Monday: no class/Thanksgiving <b>Wednesday: Midterm Exam 1</b>	Practice/Problem Solving	SFrame/Risa 2D
7	Oct 17-21	Introduction to timber design Tension Members, Bending Members	Practice/Problem Solving	SFrame/Risa 2D
8	Oct 24-28	Joist and Sawn timber	Practice/Problem Solving	SFrame/Risa 2D
9	Oct 31- Nov 4	Glulam beams/Compression Members	Practice/Problem Solving	SFrame/Risa 2D
10	Nov 07-11	Compression Members	Practice/Problem Solving	SFrame/Risa 2D

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11	Nov 14-18	<b>Monday: Midterm Exam 2</b> Wednesday: Diaphragms and Shear Walls	Practice/Problem Solving	SFrame/Risa 2D
12	Nov 21-25	Diaphragms and Shear Walls	Practice/Problem Solving	SFrame/Risa 2D
13	Nov 28-Dec 02	Connections	Practice/Problem Solving	SFrame/Risa 2D
14	Dec 05-09	Connections/Review (as time permits)	Practice/Problem Solving	SFrame/Risa 2D

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
Midterm 1	30%
Midterm 2	30%
Final Exam	30%
Lab Work (Practice/Problem Solving)	5%
Computer Lab	5%
<b>TOTAL</b>	<b>100%</b>

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](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.
- You must pass final exam (minimum of 50%) to pass the course.

## SCHOOL OR DEPARTMENTAL INFORMATION

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**Department:**

- Civil Engineering Department Chair: Zoe Broom, TEC 116.
- Bridge Program Coordinator: Peter Burrage, TEC 112
- See the chair/program leader 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 know of any 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

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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

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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>

Support Service	Website
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>
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>

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.

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## 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](http://camosun.ca/services/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 250-370-3841

### 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.