

# COURSE SYLLABUS



COURSE TITLE: ENGR 175 – Statics

CLASS SECTION: 001A/B

TERM: S 2024

COURSE CREDITS: 3

DELIVERY METHOD(S): In Person

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](#).

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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: Sam Behfarshad

EMAIL: [behfarshads@camosun.ca](mailto:behfarshads@camosun.ca)

OFFICE: TEC 264

HOURS: Tue 14:30-15:20, & Wed 8:30-10:20

*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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Introduction to engineering mechanics. Dealing with equivalent force systems, conditions for equilibrium: statics of rigid bodies, frames and machines; extension of the application of free body diagrams to complex structures; reactions at supports; two-dimensional force analysis of trusses using methods of joints and sections; three-dimensional vector analysis of forces and moments. Focus on interpreting and solving engineering mechanics problems in a clear and concise manner.

PREREQUISITE(S): One of:

- C in Physics 12
- C in [Camosun Alternative](#)
- A in PHYS 151

and one of:

- B in Pre-calculus 12
- B in [MATH 097](#)
- B in [MATH 115](#)
- A in [MATH 107](#)

## COURSE LEARNING OUTCOMES / OBJECTIVES

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Upon successful completion of the course students will be able to:

1. Analyze the forces acting both externally and internally on static objects and structures
2. Utilize algebraic and graphical methods in analyzing static situations
3. Present static analyses in a complete and clear manner including
  - a. Sketching two- and three-dimensional reference frames and vectors
  - b. Labeling of sketches and diagrams
  - c. Using engineering vector notation
4. Identify the forces and moments acting on a rigid body and draw the corresponding free body diagram (FBD)
5. Assign reference points and calculate moments of forces relative to these points
6. Identify the various structural forms including rods, connections, beams, circular shafts and some types of simple trusses, frames and machines
7. Divide a structure into sub-assemblies for static analysis
8. Incorporate multiple FBDs in the solution of impending motion problems including friction
9. Use the concepts of the principles of statics, FBDs and component methods
10. Calculate the location of centroids of lines and areas

## REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

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**ENGINEERING MECHANICS: Statics, 14th EDITION, By: R. C. HIBBELER, 2016**

## 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	ACTIVITY or TOPIC	OTHER NOTES
1	Fundamental concepts, units of measurements, procedure for analysis, scalars and vectors, vector operations.	
2	Cartesian vectors, position vectors, force vector directed along a line, dot product, the laws of static equilibrium, free body diagram, coplanar force systems, three-dimensional force systems.	
3	Force system resultants, Moment of a force- scalar formulation, cross product, Moment of a force- vector formulation, principles of moments, moment of a force about a specified axis, moment of a couple, simplification of a force and couple system, reduction of a simple distributed loading.	Quiz 1
4	Equilibrium of a rigid body, equations of equilibrium, two and three force members, constraints and statical determinacy, analysis of force systems	Quiz 2

WEEK	ACTIVITY or TOPIC	OTHER NOTES
	including: cables, frames, distributed loads, point loads.	
5	Structural analysis, simple trusses, method of joints, zero force members, method of sections, space trusses, frames and machines.	
6	More analysis of force systems including dry friction, center of gravity, center of mass, centroid of a body, composite bodies.	Quiz 3
7	Course review	Quiz 4

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
Assignments	10%
Quizzes	20%
Midterm Exam	30%
Final Exam	35%
Attendance	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 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>

#### Letter Grading System at Camosun:

A+	90-100	B-	70-72
A	85-89	C+	65-69
A-	80-84	C	60-64
B+	77-80	D	50-59
B	73-76	F	<50

## COURSE GUIDELINES & EXPECTATIONS

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### Lecture Attendance

To get the most out of this course, students are expected to attend all classes and be on time. It is your responsibility to acquire all information given during a class missed, including notes, hand-outs, changed quiz/exam dates etc.

### Due Dates and Late Assignments

Regular (non-experiment) lab sessions will typically consist of tutorials. Assignments will be graded based on completion, with solutions posted after the assignment is due. Assignments are due by one week after it is announced/posted on D2L, and **no late assignments will be accepted for grading unless there are acceptable reasons**. See <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for the Camosun grading policies.

## 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>
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>

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>

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

### Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>  
Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

### 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 Progress

Please visit [https://www.camosun.ca/sites/default/files/2021-05/e-1.1\\_0.pdf](https://www.camosun.ca/sites/default/files/2021-05/e-1.1_0.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” (<https://camosun.ca/registration-records/policies-and-procedures-students/registration-policies-students>) 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://www.camosun.ca/sites/default/files/2021-05/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.

### Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

**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.

