

COURSE SYLLABUS



COURSE TITLE: CIVE 152 – TRANSPORTATION ENGINEERING
CLASS SECTION: X01A and X01B
TERM: 2023W
COURSE CREDITS: 3
DELIVERY METHOD(S): Lecture and Computer Lab

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>.

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 Fell
EMAIL: fellp@camosun.bc.ca
OFFICE: TEC 108
HOURS: See posting outside office and D2L

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

Students are introduced to the analysis and design of transportation systems at several jurisdictional levels and design domains from rural divided highways to local urban roadways. Students learn how to design cross-sections and explore safety considerations, road drainage and mixed-mode uses. An overview of traffic operations is given to familiarize the student with current analysis methods.

PREREQUISITE(S): All of: C in CIVE 132
PRE or CO-REQUISITE(S): none
EXCLUSION(S): none

COURSE LEARNING OUTCOMES / OBJECTIVES

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

- Identify legislative authorities and discuss relationships between municipal, regional, provincial and federal highway and transportation jurisdictions.
- Evaluate and select standard roadway cross-sections appropriate to meet classification, traffic volume and safety requirements.

- Propose appropriate roadway components related to aesthetics, environmental impact and cost, while considering pedestrians, cyclists, emergency vehicles, transit users, and utilities.
- Design geometric elements of horizontal and vertical road alignments, incorporating appropriate design criteria, guidelines and best practices for low speed and high speed urban and rural design domains.
- Discuss the goals and types of roadway drainage systems and describe their major components.
- Discuss environmental, social, and economic issues typically encountered within transportation systems related to alternate and mixed modes and users.
- Describe the design and general construction process undertaken for highway projects.
- Calculate and balance earthwork volumes and construct mass haul diagrams.
- Analyse and design intersections to meet required capacity, safety, physical constraints, and aesthetics.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

- There is no required text for this course.
- Lecture notes and other supporting material posted in D2L.
- The following are recommended reference material for the course:
 - a) Transportation Association of Canada (TAC), *Geometric Design Guide for Canadian Roads*, TAC, 2017, ISBN 1978-1-55187-614-6 (available in Camosun library).
 - b) British Columbia. Ministry of Transportation and Infrastructure (MOTI), *BC Supplement to TAC Geometric Design Guide – 2019 3rd Ed.*, MOTI, 2019, ISBN 978-0-7726-7322-0 (available online).
 - c) Kavanagh, Barry F., *Surveying with Construction Applications*, 8th Ed, Prentice-Hall, Toronto, 2015, ISBN-13: 9780132766982

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 are as follows:

- Tuesday 8:30 AM - 10:20 AM in TEC 173

Labs are as follows:

- X01A: Wednesday 8:30 AM - 11:20 PM in TEC 151
- X01B: Friday 8:30 AM - 11:20 AM in TEC 151

WEEK	DATE RANGE (M-F)	LECTURE TOPICS	LAB TOPICS	OTHER
1	Jan 9 – 13	<u>Course overview and Introduction to Transportation Engineering</u>	<u>Design Considerations</u> - design parameters, regulations	
2	Jan 16 – 20	<u>Design Considerations</u> - Classification of highways <u>Design Parameters</u> - Design vehicles	<u>Design Considerations</u> – Traffic flow, speed, flow, density, LOS Lab 1: Speed, flow, density LOS	
3	Jan 23 – 27	<u>Design Parameters</u> - Capacity and level of service (Intro & Multi-lane Roadways)	<u>Design Parameters</u> - Sight distance Lab 2: Classification, design vehicles, Sight distance	Lab 1 Due

WEEK	DATE RANGE (M-F)	LECTURE TOPICS	LAB TOPICS	OTHER
4	30 Jan – 3 Feb	<u>Design Parameters</u> - Capacity and level of service (2 Lane Roadways)	Lab 3: Capacity & LOS (Multilane Roadways)	Lab 2 Due
5	Feb 6 - 10	<u>Geometric Design</u> – Horizontal alignment (circular curves)	Lab 4: Capacity and level of service (2 Lane Roadways)	Lab 3 Due
6	Feb 13 - 17	Review for Mid-term <u>Geometric Design</u> – Horizontal alignment (Radius and spiral curve intro)	Lab 5: Horizontal Circular Curves	Lab 4 Due
7	Feb 20 - 24	Reading Break – No lectures	No Labs	
8	Feb 27 – Mar 3	<u>Geometric Design</u> – Spiral Calculations	Intro to Civil3D <u>Geometric Design</u> - Horizontal alignment (Length of Spiral)	Lab 5 Due (start of lecture period)
9	Mar 6 - 10	<u>Mid-term exam</u>	Civil 3D – Base plans / surfaces Lab 6: Radius, Superelevation, Spiral Length	Mid-term
10	Mar 13 - 17	<u>Geometric Design</u> – Vertical alignment	Civil 3D – Horizontal Alignment Lab 7: Spiral Calculations	Lab 6 due
11	Mar 20 - 24	<u>Geometric Design</u> – Cross section design	Civil 3D – Vertical design and cross-sections Lab 8: Vertical alignment & Cross sections	Lab 7 due
12	Mar 27 – 31	<u>Design Considerations</u> – Earthworks <u>Geometric Design</u> - Intersection design	Civil 3D - Earthworks balancing / Mass haul Lab 9: Intersection design Pt A	Lab 8 due
13	Apr 3 - 7	<u>Geometric Design</u> - Intersection design (cont.) <u>Design Considerations</u> - Parking / Misc. topics	X01A: Lab 10: Intersection design Pt B X01B: No lab (Friday 7 April College Closed – Good Friday)	Lab 9 due
14	Apr 10 - 14	<u>Review for Final Exam</u>	X01A: No lab X01B: Lab 10: Intersection design Pt B	No submission required for Lab 10 (participation mark)
15/16	April 19 - 27	Final Exam (details to be announced)		

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>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING	Notes
Lab Assignments	30%	Labs, submitted individually, unless otherwise noted. 10 lab assignments are anticipated.
Mid Term	25%	Open book, 1.5hr duration, held during Week 9.
Final Exam	40%	Open book, 3hr duration, held during exam week.
Instructor Evaluation	5%	Based on attendance, cooperation, participation, not submitting plagiarized work, etc.
TOTAL	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 policy for more information.

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

COURSE GUIDELINES & EXPECTATIONS

- Assignments and labs are due at the start of the applicable lecture or lab period, unless otherwise noted. Late assignments and labs will have 10% deducted. Assignments and labs submitted after graded assignments and labs have been returned or after solutions have been posted are worth 0.
- You must complete all assignments in order to qualify to write the final exam.
- You must achieve an average of 50% on the final exam in order to pass the course. In addition, a weighted average of 50% on the mid-term and the final exam must be achieved in order to pass the course.
- A mark of at least a C must be attained to gain credit for the purposes of continuing-on to courses for which this course is a pre-requisite.
- Attendance is expected for all scheduled course components. Attendance for the lectures and labs is included as part of the instructor assessment portion of your final grade. If you plan to or do miss a lecture or lab you must speak to the instructor.

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 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: <https://camosun.ca/about/camosun-college-policies-and-directives/governance>

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/

Support Service	Website
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.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

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 250-3703841

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.