



CAMOSUN COLLEGE
School of Trades and Technology
Department of Civil Engineering Technology

CIVE 152
Transportation Engineering
Winter 2019

COURSE OUTLINE

Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1 Instructor Information

Instructor	Peter Fell
Office hours	See instructor's website and posting outside office
Location	TEC 108
Phone	250-370-4483
Alternate	250-857-2547 (text preferred)
E-mail	FellP@camosun.bc.ca
Website	http://civil.camosun.bc.ca/student/

2 Prerequisites and Corequisites

Pre/Corequisite:

- 'C' in CIVE 132

3 Hours and Credits

Course Activity

- Lecture (Direct Instruction)
- Seminar (Direct Instruction)
- Lab / Collaborative Learning
- Supervised Field Practice
- Workplace Integrated Learning (*Coop, Internship, etc.*)
- Other* (*please note*):

Hours / Week	Instruction – No of Weeks (Q=11; S=14; "P or S" = 7)
2	14
3	14

Credits = 3

4 Short 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 familiarise the student with current analysis methods.

5 Intended Learning Outcomes

- 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.

Course Content and Schedule

<i>Week</i>	<i>Topics (Lecture)</i>	<i>Topics (Lab)</i>
1	<u>Course overview</u> <u>Introduction to Transportation Engineering</u>	No lab this week
2	<u>Design Considerations / Classification of Highways</u> – Design parameters, regulations, classification of highways	Level of service / Traffic flow / Speed, flow and density
3	<u>Design Parameters</u> - Design vehicles <u>Design Parameters</u> - Sight distance	Sight distance / Design vehicles
4	<u>Geometric design</u> - Cross section design <u>Design Parameters</u> - Capacity and level of service	Cross section considerations / Capacity and Level of Service
5	<u>Design Parameters</u> - Capacity and level of service	Capacity and Level of Service
6	<u>Geometric Design</u> – Horizontal Alignment (circular curves) Review for Mid-term	Horizontal alignment (circular curves)
7	Reading Break (no lectures or labs)	
8	Mid-term Exam	Civil 3D – Introduction
9	<u>Geometric Design</u> – Horizontal Alignment (circular and spiral curves)	Horizontal alignment (circular and spiral curves)
10	<u>Geometric Design</u> – Horizontal Alignment (spiral curves)	Horizontal alignment (circular and spiral curves)
11	<u>Geometric Design</u> – Vertical Alignment <u>Design considerations</u> - Alignment phasing and aesthetics (reading assignment)	Vertical design
12	<u>Geometric Design</u> – Design integration / Intersection design	Design integration and earthworks balancing / Intersection design
13	<u>Geometric Design</u> - Intersection design	Earthworks balancing / Mass Haul

Week	Topics (Lecture)	Topics (Lab)
	<u>Design Considerations</u> – Parking / Misc topics	
14	<u>Design Considerations</u> - Drainage Design	Review for Final Exam
15	Exam Week – Final Exam	

Notes:

- 1) *This course schedule is subject to change. Please refer to the course website for updates.*
- 2) *For weeks without scheduled labs, lab time may be used for lectures, if required.*
- 3) *Each week a lab is held, it includes a corresponding lab assignment. Generally the lab is due the following week, unless noted otherwise.*

6 Basis of Student Assessment

Component	Weighting %	Comments
Labs	20	
Mid-Term Exam	25	Open book
Final Exam	50	Open book Must pass final exam to pass the course
Instructor Assessment	5	Instructor assessment based upon attendance, cooperation, participation, not submitting plagiarized work, etc.
TOTAL	100	

7 Required Materials to Assist Students to Succeed Throughout the Course

a) Texts:

1. No text is required for this course.
2. Handouts posted to course webpage

b) Other (Recommended):

1. Transportation Association of Canada (TAC), Geometric Design Guide for Canadian Roads, TAC, 2017, ISBN 1978-1-55187-614-6
2. Kavanagh, Barry F., Surveying with Construction Applications, 8th Ed, Prentice-Hall, Toronto, 2015, ISBN-13: 9780132766982
3. British Columbia. Ministry of Transportation (MOT), BC Supplement to TAC Geometric Design Guide. – 2007 Ed., MOT, 2007, ISBN 978-0-7726-5800-5
4. Additional reference material posted to course webpage

8 College Supports, Services and Policies**Immediate, Urgent, or Emergency Support**

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support &

education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

9 Grading System

- Standard Grading System (GPA)*
- Competency Based Grading System*

See [Camosun Grading Policy E-1.5](#)

10 Class Policies

- Unless otherwise noted, assignments are due at the start of the applicable lecture or lab session.
- Late assignments will have 10% deducted. Assignments submitted after marked assignments have been returned to the class, or solutions posted, will be assigned a mark of 0.
- Unless otherwise noted, all assignments are to be completed individually.
- You must complete all assignments in order to qualify to write the Final Exam.
- Attendance for scheduled lectures and labs is included as part of the instructor assessment portion of your final grade. If you plan to miss a lecture or lab, you must contact the instructor prior to the session.
- You must achieve 50% on the final exam in order to pass the course. In addition, a weighted average of 50% on the mid-term and 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.