



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

CIVE 276 – HYDROLOGY
F2020

COURSE OUTLINE

1 Instructor Information

Instructor	Robin Ley
Office hours	Via zoom (see D2L for hours)
Location	Working Remotely due to Covid19
E-mail	LeyR@camosun.bc.ca
Website	Online.camosun.ca/d2l

2 Calendar Description

Students learn to design appropriate piping and structures for handling rainwater. Students learn to predict storm flow rates by interpreting a contour map, evaluating a catchment, and applying historical rainfall data. The effects of land development on riparian systems are discussed and best practices for mitigating downstream effects are compared.

3 Prerequisites and Co-requisites

One of:

C in Pre-calculus 12

C in Principles of Math 12

C in MATH 107

C in MATH 115

4 Intended Learning Outcomes - Upon successful completion of this course, students will be able to:

Discuss:

- The hydrologic cycle and the value of fresh water as a resource;
- The role civil engineering plays in hydrologic systems; and
- The effects of land development on downstream riparian systems.

Evaluate:

- Topographic maps to determine surface runoff catchment boundaries, flow paths and runoff velocities;
- Storm water runoff rates using various commonly used methods and appropriate structures for handling storm water; and
- The effects of snow pack and snow melt on surface runoff rates.

Construct

- Topographic maps from a 3D model;

- Hyetographs and hydrographs using commonly applied methods; and
- Spreadsheets and graphs for determining the required storage volume of a detention pond, layout and flow-control outlet structure.

Compare:

- Rainfall intensities, patterns, durations for differing regions and return periods;
- The applications and limitations of various common methods for calculating storm water runoff rates;
- The effects of development on a storm hydrograph before and after a detention pond;
- The changes in approach to storm water management in the last 80+ years; and
- Best management practices for stormwater management.

5 Required Materials

CIVE 276 Course Notes – 2012 (edited 2020) by Z. Broom and P. Fell, Camosun College Civil Engineering Dept. No electronics besides calculators will be permitted in exams. Students are advised to print out notes for use during class and exams. Notes will be supplemented in class. Power point slides will be used from time to time but may not made available after class. Students should make notes during class.

6 Course Content and Schedule (check website for up to date schedule)

Week	Week Starting (Monday)	Lecture 1 (posted by Wednesday of every week)	Lecture 2 (posted by Wednesday of every week)	Assignments Due (due date noted on D2L)
1	07-Sep	Introduction to Hydrology, Course Content, Water Cycle	Case Study	Quiz 1
2	14-Sep	Precipitation (ROT, Rainfall Type, Extreme Events)	Precipitation and Statistics	Assignment 1 Due
3	21-Sep	Time of Concentration, Catchbasins	Time of Concentration, Catchbasins, Velocities (Cont.)	Quiz 2
4	28-Sep	Intro to Rational Method	Rational Method	Assignment 2 Due
5	05-Oct	Pipe Sizing	Pipe Sizing	Quiz 3
6	12-Oct	Culvert Sizing	Culvert Sizing	Assignment 3 Due
7	19-Oct	Midterm Exam Review	Midterm (date will be determined, synchronized)	
8	26-Oct	SCS Method	SCS Method	
9	02-Nov	Cedar Hill Development Assignment	Cedar Hill Development Assignment	Assignment 4 Due
10	09-Nov	Design for Detention	Design for Detention	Quiz 4
11	16-Nov	Modern Stormwater Design, BMPs	Raingarden Design	Assignment 5 Due
12	23-Nov	BMP Design	Stream Restoration	Quiz 5
13	30-Nov	Watershed Management	Snowmelt	Assignment 6 Due
14	7-Dec	Review		

7 Student Assessment

<i>Component</i>	<i>Weighting</i>	<i>Comments</i>
Assignments	30%	6 assignments at 5% each
Mid-term Exam	20%	Exam will be open notes (1.5 hour exam)
Quizzes	15%	5 quizzes
Final Exam	35%	Exam will be open notes (3 hour exam)

8 Grading System

- Standard Grading System (GPA)
 Competency Based Grading System

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

9 Class Policies

- This is an online course where content is provided to students on a weekly basis through Camosun's D2L site. This content includes recorded lectures and potentially other sources. Additionally, students will be required to complete course readings and online quizzes. A midterm and final exam is scheduled and will be administered online through the D2L site. This course is being offered asynchronously which means students may decide when they complete the course content (with the exception of the Midterm and Final Exams). However, students are advised that course content must be completed on a weekly basis. The instructor will be available online during office hours (or as otherwise arranged) to assist students with content.

Due to the nature of this course, significant emphasis is placed on assignments and quizzes. Students should anticipate that substantial effort is required to complete assignments and plan accordingly. Unless otherwise indicated assignments are to be completed individually and submitted electronically through D2L. Assignments should be professionally presented (even in electronic form). The student code of conduct is in place and will be referred to as needed.

- Late assignments will have 10% deducted per day the assignment is late (including weekends). Assignments submitted after graded assignments have been returned or solutions are posted are worth zero. Note, assignments will be graded and returned quickly, so students submitting late assignments run the risk of receiving a zero grade. Students will have a significant amount of time between assignment due dates and should plan accordingly. Assignments will take a substantial effort. Students attempting to complete assignments close to the due date are unlikely to be successful and extensions will not be given for technical issues or lack of planning or prioritizing.
- You must complete all assignments prior to the final exam in order to be permitted to write the final exam.
- 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.
- 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: <http://camosun.ca/about/policies/equity-diversity-inclusion.html>