



COURSE OUTLINE

Ω 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	Bao-Qin Bai	
Office hours	As Posted	
Location	Tech 114	
Phone	250-370-4442	Alternative: _____
E-mail	bai@camosun.bc.ca	
Website	http://civil.camosun.bc.ca/student/	

2. Prerequisites and Corequisites

Prerequisites: **C** in CIVE 192

Corequisites: CIVE 271

3. Short Description

Students learn to identify soils and perform standard methods of measurement of soil properties. Applications such as geosynthetics, filter designs, seepage analysis and methods for dealing with geologic hazards and problem soils are presented. Soil properties and surface loading are used to calculate sub-surface soil stresses. Methods used in the design of walls and foundations are discussed.

4. Intended Learning Outcomes

(If any changes are made to this part, then the Approved Course Description must also be changed and sent through the approval process.)

- Apply relevant safety regulations and best practices in the lab and in the field.
- Identify types and origins of rocks and soils, common geological hazards, and describe the common methods of subsurface explorations, sampling, field testing, geotechnical instrumentation, and borehole logging.
- Classify soils using the Unified Soil Classification system.
- Evaluate and perform calculations on soils' three-phase mass-volume relationships.
- Conduct the following laboratory tests and analyze the test results: moisture content; grain size analysis; specific gravity; Atterberg limits; permeability; standard and modified proctor tests; nuclear densometer test.
- Describe drainage filter designs and applications of geosynthetics and other common erosion control methods.
- Calculate sub-surface soil stress, effective stress and stress increases due to loadings in soils.
- Perform simple calculations involving permeability, seepage and water pressure in soils.

- Relate vertical earth pressures to lateral earth pressures - lateral earth pressure coefficients.
- Complete site inspection reports for such inspections as: subgrade conditions, compaction, slopes, pile installations and identify site hazards.
- Describe methods used for dealing with problem soils.
- Describe the concepts regarding one-dimensional consolidation and the data reduction method of its test

5. Required Materials

- (a) A pair of steel-toed boots that are needed for labs and field trips

6. Course Content and Schedule

(Can include: Class hours, Lab hours, Out of Class Requirements and/or Dates for quizzes, exams, lecture, labs, seminars, practicums, etc.)

Week	Lecture Topic	Lab
1	*Soil concepts & sources; *Index properties & tests	Lab 1 - Spe gravity test; Sieve analysis
2	* Landslides; *Mass-volume relationship; Videos: Mass Wasting.	
3	* Soil composition & structure. Videos: Minerals and Rocks	Lab 2 – Hydrometer test
4	Quiz 1 (Weeks 1 to 3); * USC; Video: Glaciers	
5	* Water in soil; Video: Weathering and Soils	Lab 3 – Atterberg limits test
6	Water in soil; *Stresses in soil: Overburden & effective stresses	
7	Quiz 2 (Weeks 1 to 6); Stresses in soil	Lab 4 – Permeability test
8	Stress caused by surface loading * Soil property improvement: Surface compaction;	
9	Deep compaction and soil stabilization; Geosynthetics;	Lab 5- Standard Proctor test
10	Quiz 3 (Weeks 1 to 9); Soil exploration	
11	* Geotechnical instrumentation	Lab 6-Nuclear densometer test
12	* Geotechnical report; * Review USC; USC with dual symbols;	
13	Quiz 4 (Weeks 1 to 12); * Video: Field Identification of Soils	* Review
14	* Soil consolidation	
15	* Exam Week	

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)
4	14
2 alt weeks	14

Credits = 4

7. Basis of Student Assessment

(Should be directly linked to learning outcomes.)

Component	Option 1	Option 2	Comment
Quizzes	20%	47%	Written, open book
Labs	20%	47%	
Instructor's Assessment	5%	6%	Based on your cooperation, e.g. active participation in group work, etc.
Final Examination	55%	/	Written, open book
TOTAL	100%		

8. Grading System

(If any changes are made to this part, then the Approved Course description must also be changed and sent through the approval process.)

(Mark with "X" in box below to show appropriate approved grading system – see last page of this template.)

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

9. Recommended Materials to Assist Students to Succeed Throughout the Course

- (a) References: * D.F. McCarthy, Essentials of Soil Mechanics and Foundations, Prentice Hall
 * M. Budhu, Soil Mechanics and Foundations, John Wiley & Sons, Inc.
 * Engineering Properties of Soils and Their Measurement, J.E. Bowles, McGraw-Hill Book Company.

10. 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.

A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete</i> : A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress</i> : A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.

CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.
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