

# COURSE SYLLABUS



COURSE TITLE: Cive 262 – Soils and Materials 2  
CLASS SECTION: X01 A and X01 B  
TERM: 2022 Winter  
COURSE CREDITS: 4  
DELIVERY METHOD(S): Lectures and Labs

Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and W̱SÁNEĆ 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>.

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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: Bao-Qin Bai

EMAIL: [bai@camosun.bc.ca](mailto:bai@camosun.bc.ca)

OFFICE: Tech 114

HOURS:

**Lecture:** Monday 2:00 - 3:20                      Thursday 2:00-3:50                      Friday 10:30-11:50

**Lab:** X01A: Wednesday 8:30-11:20                      X01B: Tuesday 1:00 - 3:50

*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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Students are introduced to the theory and application of soils settlement calculation and shear strength, and the design methods of retaining walls and foundations, and the analysis of slope stabilities. Students learn the basic concepts and principles of the construction materials of aggregates, Portland cement concrete, asphalt binders, and mixes, including the design, batching, and testing of Portland cement concrete and the design and testing of asphalt mixes. Typical standard tests on soils, aggregate, Portland cement concrete, and asphalt mixes are performed. introduced.

PREREQUISITE(S): C in CIVE 261

CO-REQUISITE(S): None

EXCLUSION(S): None

## COURSE LEARNING OUTCOMES / OBJECTIVES

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

- Apply relevant safety regulations and best practices in the lab and in the field.
- Conduct a one-dimensional consolidation test and a direct shear test and analyze the test results.
- Calculate settlement due to primary consolidation.
- Describe how to use soil properties to evaluate a slope stability and to design foundations and retaining walls.
- Sample aggregates in normal field settings (i.e. pits, truckloads, conical piles, etc.).
- Describe the general process of aggregate production and appropriate methods of stockpiling and handling.
- Explain the concepts and testing methods of aggregate cleanliness, toughness, and durability.
- List and describe the principal composition of the raw materials used in the production of the five major types of Portland cement.
- Describe the characteristics of the main compounds, the physical properties and tests of Portland cement.
- Describe the requirements for the major component materials and typical admixtures in Portland cement concrete.
- Describe the differences between entrained and entrapped air in Portland cement concrete.
- Design Portland cement concrete mix using the absolute volume method.
- Describe the concepts of deformation and durability of hardened Portland cement concrete.
- Describe classification, production, composition, and their basic properties of asphalt binders and asphalt mixes.
- Design asphalt mixes according to Marshall method.
- Describe how the basic asphalt mix properties influence the behaviors of asphalt pavement.
- Grade asphalt binders using the Canadian General Standards Board and the Superpave grading systems; describe the basic testing methods used in the gradings.
- Test the properties and analyze their test results for aggregate, plastic and hardened Portland cement concrete, and asphalt mix.

## REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

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- Lecture presentations and Lab Notes that are posted on D2L course site
- A pair of steel-toed boots that are needed for labs and field trips
- **Text(Optional):**  
D.F. McCarthy, Essentials of Soil Mechanics and Foundations, Pearson Prentice Hall, 7th ed., 2007.  
Lab Manual (D2L course site)  
H.K. Steven et al., Design and Control of Concrete Mixtures, Cement Association of Canada  
Asphalt Institute, Principles of Construction of Hot Mix Asphalt Pavement, Asphalt Institute, (MS-22).

## 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.

**Lecture:** Tec 175 Mon. 2:00 - 3:20 PA 103 Thur. 2:00-3:50 Tec 174 Fri. 10:30-11:50  
**Lab:** Tec 127 X01A: Wed. 8:30-11:20 X01B: Tue. 1:00 - 3:50

Week	Soil Mechanics	Materials	Lab and Field Trip	Due
1, 2	* Review Cive 261;	* Aggregate	1. One-D Consolidation Test	Lab1 (B)
3	* Settlement	* Portland cement		
4	<b>Quiz 1</b>	* Portland cement concrete	3. Coarse Aggregate Tests	Lab1 (A)
5	* Soil shear strength		4. Coarse & Fine Agg	Lab3
6			2. Direct Shear Test	Lab4
8	<b>Quiz 2;</b>		5. Concrete Batching and Testing	Lab2
9	* Retaining Wall	* Asphalt binder	6. Comp strength test-7d	Lab5
10	<b>Quiz 3;</b>	* Asphalt mix	6. Comp strength test-14d; Field trip?	
11	* Slope Stability		7. Marshall specimens	
12	* Shallow Foundation		7. Marshall test; Strength test-28d	
13	<b>Quiz 4</b>	* Introduction to Asphalt Binder PG system	Field trip?	Labs 6 & 7
14	* Deep Foundation		Review	
15	<b>* Exam Week</b>			

Notes: Each quiz always covers the course materials up to the week that is one week before the quiz test.  
Feb 21-25 Week 7, Reading Break, Family & Conversations Days; Apr 15 Week 14, Good Friday  
The field trip(s) may be cancelled depending on the COVID 19 situation that time and the policies of the plants.

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 noticed is required. Deadlines scan 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

Component	Option 1	Option 2	Comment
Quizzes	23%	50%	Open book
Labs	22%	45%	Follow "Lab Rules and Safety Concerns" in the Lab Notes
Instructors Assessment	5%	5%	Based on your attendance and co-operation during lectures and labs
Final Examination	50%	/	Open book
TOTAL	100%		

50% on the final examination for **Option 1**, or 50% average on all tests/examinations for **Option 2**, must be attained in order to pass this course. You will need to choose either Option 1 or Option 2 in Week 14.

Mark deduction for late submission of any lab report is 10% of that report. If it is handed in after the lab reports of the other students are returned to class, no mark will be given. But all the required reports must be submitted to the instructor's satisfaction prior to the final examination in order to pass this course. If a lab session is missed without a solid reason, a mark of zero will be assigned for that lab session. If your report is required to redo, you have one week to complete your work and rehand in from the day of your receiving the notice, and your maximum mark for that report will be the minimum mark of the class minus 10%.

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>

## COURSE GUIDELINES & EXPECTATIONS

### Attendance

Students are expected to attend all lectures and labs on time. It is your responsibility to catch up with the others of your class if you missed some classes. The 5% of Instructor's Assessment will be partly based on your attendance.

### **Due dates and Late Submissions**

Your lab reports are usually due in one week after completing your labs. The purpose of the due dates is to help both you and I to get the work done so that we can have a relatively quick feedback and also your work can be assessed in a timely manner. Late submissions of any project or assignment will be subject to mark deductions.

### **Quizzes and Final Examination**

All Quizzes and Final Examination must be written at the scheduled times with the exception of students requiring an accommodation by CAL. It is understood that emergency circumstances do occur (e.g. severe illness or family emergency); for such circumstances, accommodation may be offered at the discretion of the instructor, provided the student:

- a) notifies the instructor in advance of the exam (not after), and
- b) provides documented evidence of the circumstance (e.g. medical certificate).

## **SCHOOL OR DEPARTMENTAL INFORMATION**

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**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, TEC 169
- Associate Dean is Ken Kosik, 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:

<http://camosun.ca/about/policies/equity-diversity-inclusion.html>

## **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>
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

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### 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](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 250-3703841

### 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.