

Western University - Faculty of Engineering
Department of Civil and Environmental Engineering

CEE 4478 – Case Studies in Civil Engineering – Course Outline 2025/2026

This course introduces students to selected engineering case studies covering a range of disciplines and problems. Through studying and analyzing the outcomes of these engineering projects, students will be exposed to the complex and multidisciplinary challenges facing civil engineers on a daily basis. The effects of a number of non-technical issues, e.g. legal, managerial, financial, environmental, ethical, political and social, will be addressed. Students will be familiarized with well-known engineering failures, the lessons to be learnt from these cases and subsequent changes in the engineering profession. A participative mode of learning will be used where all students will be expected to actively contribute during group and class discussion. The students will also prepare their own case study based on information collected and present their findings in both written and oral formats.

Calendar Copy:

Students will examine a number of "cases" in which some critical engineering decisions must be made. These decisions may be influenced by technical, social, economic, political, legal, ethical, health and safety or regulatory considerations. (0.5 course).

Contact Hours:

3 lecture hours/week (recommended extra personal study: 3 hours). Attendance at the lectures is mandatory. Lectures are primarily in the case study in format.

Prerequisites: Completion of third year of the 'Civil and Environmental Engineering Program'.

Corequisites: None.

Antirequisites: None.

Note: It is the **student's responsibility** to ensure that all Prerequisite and Corequisite conditions are met or that special permission to waive these requirements has been granted by the Faculty. It is also the **student's responsibility** to ensure that they have not taken a course listed as an Anti-requisite. The student may be dropped from the course or not given credit for the course towards their degree if they violate the Prerequisite, Corequisite or Anti-requisite conditions.

Instructor:

Office hours by appointment.

Administrative Support: Room 3005.

Textbook:

Custom Course Material containing the various case studies will be available on OWL. Other relevant material will be distributed throughout the term.

Units:

Both SI and FPS unit systems may be used in lectures, laboratories, tutorials and examinations.

Specific Learning Objectives:

Course participants will:

- learn how to assess information presented or collected to identify key points (**CS1**).
- learn how to develop key arguments and decisions, and present them in written and oral formats (**CS2, CS3**).
- develop an understanding of the impact of engineering on non-technical issues and vice-versa (**EE1, PR2**).
- develop an appreciation of the impact of engineering solutions in a global and societal context (**PR2, PR3**).
- be introduced to well-known engineering failures and decision-making processes, and thereby understand the effects they have had on the engineering profession (**PR2, PR3, EE4**).
- be made aware of the need for life-long learning in engineering practice (**PR3**).
- learn to prepare a case study based on a review of the literature, collection of data, interpretation and analysis, and group/personal discussion (**EE2, CS3**).

General Learning Objectives:

E=Evaluate, T=Teach, I=Introducee

Problem Analysis	Team Work		Ethics and Equity	E
Investigation	Communication	E	Economics and Project Management	
Design	Professionalism	E	Life-Long Learning	
Engineering Tools	Impact on Society			

Course breakdown:

Natural Science = 0% ; Engineering Science = 30% ; Engineering design = 30% ; Complementary Studies = 40%; Mathematics = 0%.

Evaluation:

The final course mark will be determined as follows:

	Individual	Group
Written analysis of case studies (group effort)		16%
Participation in classroom discussions (individual mark)	16%	
Group case study project (group effort)		24%
Project presentation (individual mark)	4%	
End of Course Exam (individual mark)	40%	
	<u>60%</u>	<u>40%</u>

Note: (a) **Students must pass the end of course examination to pass this course.** Students who fail the final examination will be assigned the aggregate mark, as determined above, or 48%, whichever is less.

(b) **Students who have failed this course previously must repeat all components of the course.** No special permissions will be granted enabling a student to retain laboratory, assignment or test marks from previous years. Previously completed assignments and laboratories cannot be resubmitted.

1. Examination:

The end of course examination will be ***a 3-hour closed book exam.***

2. Weekly Assignments:

Each weekly assignment must be turned in by the group to OWL prior to the beginning of each class. Group membership will be assigned by the instructor. Late assignments will receive a grade of zero. Extensions are to be negotiated with the course instructor, not the teaching assistants.

3. Group Case Study Project:

Details to be announced in class. **Academic consideration will not be given for this assessment without appropriate documentation.**

4. Individual Presentations:

Each group member must participate as a presenter for at least 4 minutes duration in a group presentation during the course. The evaluation of the oral presentation shall be based on the organization and completeness of the presentation, the content, the use of time available, the quality of visual aids and the quality of the oral delivery.

5. Class Participation:

Participation will be assessed based on class attendance, participation in lectures and cases.

I. Missed/Late Accommodation Policy:

1. Students missing a test/assignment/lab or examination you will report the absence by submitting an Academic Consideration Request form through the [**STUDENT ABSENCE PORTAL**](#).
2. Documentation must be provided as soon as possible.

II. Exam Accommodation:

1. If you are unable to write a final examination, report your absence using the Academic Consideration Request Form through [**STUDENT ABSENCE PORTAL**](#).
2. Be prepared to provide the Undergraduate Services Office with supporting documentation (see next page for information on documentation) the next day, or as soon as possible (in cases where students are hospitalized). The following circumstances are not considered grounds for missing a final examination or requesting special examinations: common cold, headache, sleeping in, misreading timetable and travel arrangements.
3. In order to receive permission to write a Special Examination, you must obtain the approval of the Chair of the Department and the Associate Dean. In order to apply you must submit an the Academic Consideration Request Form through the [**STUDENT ABSENCE PORTAL**](#).

PLEASE NOTE: It is the student's responsibility to *check the date, time and location of the Special Examination.*

III. Late Assignments:

1. Students must advise the course instructor if they are having difficulty completing an assignment on time (prior to the due date of the assignment).
2. Students should be prepared to submit the Academic Consideration Request Form and provide documentation if requested to do so by the course instructor (see reverse side for information on documentation).

3. If granted an extension, a revised due date should be established with the course instructor. The approval of the Chair of your Department (or the Assistant Dean, First Year Studies, if you are in first year) is not required if assignments will be completed prior to the last day of classes.
4. This course has 9 assignments with only 7/9 assignments counted towards your final grade. Academic consideration will not be granted for missed assignments. If students miss 2/9 assignments, the remaining 7 assignments will be used in the calculation of the final grade. If students miss more than 2 assignments, they will receive a grade of zero on each missed assignment.
5. This course employs flexible deadlines for assignments. The assignment deadlines can be found above in the course outline. For each assignment, students are expected to submit the assignment by the deadline listed. Should illness or extenuating circumstances arise, students are permitted to submit their assignment up to 72 hours past the deadline without academic penalty. Should students submit their assessment beyond 72 hours past the deadline, a late penalty of 5% per day will be subtracted from the assessed grade. As flexible deadlines are used in this course, requests for academic consideration will not be granted. If you have a long-term academic consideration or an accommodation for disability that allows greater flexibility than provided here, please reach out to your instructor at least one week prior to the posted deadline.
6. Extensions beyond the end of classes must have the consent of the instructor, the department Chair and the Associate Dean, Undergraduate Studies. Documentation is mandatory.

Note: Forged notes and certificates will be dealt with severely. To submit a forged document is a scholastic offence (see below).

IV. Medical Accommodation:

1. Requests for Academic Consideration Request Form through [STUDENT ABSENCE PORTAL](#).
2. Requests for academic consideration must include the following components:
 - a. Self-attestation signed by the student (*This is only accepted for the first/one absence*)
 - b. Medical note
 - c. Indication of the course(s) and assessment(s) affected by the request
 - d. Supporting documentation as relevant
3. Requests without supporting documentation are limited to one per term per course.
4. **Students must request academic consideration as soon as possible and no later than 48 hours after the missed assessment.**
5. Once the request and supporting documents have been received and reviewed, appropriate academic consideration, if granted, shall be determined by the instructor in consultation with the academic advisor, in a manner consistent with the course outline. Academic consideration may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, or re-weighting of course requirements. Some forms of academic consideration, such as arranging Special Examinations, assigning a grade of Incomplete, or granting late withdrawals without academic penalty, may only be granted by the Academic Advising office of the Faculty of Engineering.

V. Religious Accommodation:

When scheduling unavoidably conflicts with religious holidays, which (a) require an absence from the University or (b) prohibit or require certain activities (i.e., activities that would make it impossible for the student to satisfy the academic requirements scheduled on the day(s) involved), no student will be penalized for absence because of religious reasons, and alternative means will be sought for satisfying the academic requirements involved. If a suitable arrangement cannot be worked out between the student and instructor involved, they should consult the appropriate Department Chair and, if necessary, the student's Dean. It is the responsibility of such students to inform themselves concerning the work done in classes from which they are absent and to take appropriate action.

VI. Academic Integrity:

In the Faculty of Engineering, we encourage students to create a culture of honesty, trust, fairness, respect, responsibility, and courage, befitting the professional degree you are pursuing. Please visit [Academic Integrity Western Engineering](#) for more information.

VII. Academic Offences:

Plagiarism means using another's work without giving credit. The university has rules against plagiarism and other scholastic offences. Western Engineering has a zero-tolerance policy on plagiarism. The minimum penalty is zero on the course work and a repeat offence will earn you zero on the course. A third offence may lead to expulsion from the university.

[Scholastic Discipline for Undergraduate Students & Cheating, Plagiarism and Unauthorized Collaboration: What Students Need to Know](#)

Students must write their reports, essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. University policy states that cheating, including plagiarism, is a scholastic offence. The commission of a scholastic offence is attended by academic penalties, which might include expulsion from the program. If you are caught cheating, there will be no second warning.

All required papers may be subject to submission for textual similarity review to commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted will be included as source documents on the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between the University of Western Ontario and Turnitin.com (<http://www.turnitin.com>). Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, in the relevant section of the Academic Handbook:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

VIII. Faculty of Engineering AI Policy:

The use of generative Artificial intelligence (GenAI) tools won't be discouraged in the Faculty of Engineering. As we pride ourselves on building the future we can't hide from the use of GenAI tools to contribute to the understanding of the course materials. However, the use of GenAI tools in any assignment or contribution during the course will have to be disclosed, as a resource. GenAI tools use won't be permitted in any type of examination or other assessments where the faculty have prohibited their use. If use of GenAI tools is detected by the instructor in these instances, academic offences penalties might be imposed against the student.

IX. Use of English Policy:

In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on all assignments, tests, and examinations for improper use of English. Additionally, poorly written work except for the final examination may be returned without grading. If resubmission of the work is permitted, it may be graded with marks deducted for poor English and/or late submission.

X. Accessibility:

Western is committed to achieving barrier free accessibility for persons with disabilities studying, visiting and working at Western. As part of this commitment, there are a variety of services, groups and committees

on campus devoted to promoting accessibility and to ensuring that individuals have equitable access to services and facilities. To help provide the best experience to all members of the campus community, please visit the [Accessibility Western University](#) for information on accessibility-related resources available at Western. Students with disabilities may arrange for academic accommodation at Western. For a more detailed explanation, please visit [Academic Support & Engagement -Academic Accommodation](#).

XI. Inclusivity, Diversity, and Respect:

The Faculty of Engineering at Western University is committed to creating equitable and inclusive learning environments that value diverse perspectives and experiences. We recognize that university courses often marginalize students based on social identity characteristics such as, but not limited to, Indigeneity, race, ethnicity, nationality, ability, gender identity, gender expression, sexuality, age, language, religion, and socioeconomic status. Understanding this, we strive to facilitate equitable experiences and inclusion within the classroom by respecting and integrating multiple ways of knowing, being, and doing. Please visit the [Office of Equity, Diversity and Inclusion](#).

XII. Health and Well-Being:

- [Health & Wellness Services – Students](#) - Offers appointment-based medical clinic for all registered part-time and full-time students.
- [Mental Health Support](#) - Provides professional and confidential services, free of charge, to students needing assistance to meet their personal, social and academic goals. Services include consultation, referral, groups and workshops, as well as brief, change-oriented psychotherapy.
- [Crisis Support](#) - For immediate assistance, please visit Thames Hall Room 2170 or call 519-661-3030. The crisis clinic operates between 11:00 am - 4:30 pm. For after-hours crisis support, click [here](#).
- [Gender-Based Violence and Survivor Support](#) - Western [is committed to reducing incidents of gender-based and sexual violence](#) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced gender-based or sexual violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts, [here](#). To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Important Contacts:

Engineering Undergraduate Services	SEB 2097	519-661-2130	engugrad@uwo.ca
Civil & Environmental Engineering	SEB 3005	519-661-2139	civil@uwo.ca
Office of the Registrar/Student Central	WSSB 1120	519-661-2100	

Important Links:

- [WESTERN ACADEMIC CALENDAR](#)
- [ACADEMIC RIGHTS AND RESPONSIBILITIES](#)