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

CEE 4478 – Case Studies in Civil Engineering - Course Outline 2018/19

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.

Prequisites: 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 Antirequisite. 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 Antirequisite conditions.

Instructor:

Dr. T.A. Newson, SEB 3084, email: tnewson@eng.uwo.ca. *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:

SI units will be used in lectures and examinations.

Specific Learning Objectives:

Course participants will:

- learn how to assess information presented or collected to identify key points.
- learn how to develop key arguments and decisions, and present them in written and oral formats.
- develop problem-solving skills whilst working alone and in groups.
- develop an understanding of the impact of engineering on non-technical issues and vice-versa.
- develop an appreciation of the impact of engineering solutions in a global and societal context.
- be introduced to well-known engineering failures and understand the effects they have had on the engineering profession.
- be made aware of the need for life-long learning in engineering practice.
- learn to prepare a case study based on a review of the literature, collection of data, interpretation and analysis, and group/personal discussion.

General Learning Objectives:

E=Evaluate, T=Teach, I=Introducee

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

Evaluation:

The final course mark will be determined as follows:

	Individual	**Group**
Written analysis of case studies (group effort)		15%
Participation in classroom discussions (individual mark)	15%	
Group case study project (group effort)		25%
Presentation (individual mark)	5%	
Final Exam (individual mark)	40%	
	60%	***40%***

Note: **(a) Students must pass the final 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.

(c) Should any of the course requirements conflicts with a religious holiday that a student wishes to observe, the student must inform the instructor of the conflict no later than two weeks before the scheduled test.
(For further information on Accommodations for Religious Holidays see http://www.uwo.ca/univsec/handbook/appeals/accommodation_religious.pdf)

1. Examinations:

Programmable calculators are **not** permitted in the final exam. The final examination will be **CLOSED BOOK: no programmable calculators or other external sources of information, including books, notes or crib sheets, are permitted.** A list of acceptable calculators for closed book exams will be posted on the bulletin board across from the Department of Civil and Environmental Engineering Office: please be sure your calculator is on it!

2. Weekly Assignments:

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

3. Use of English:

In accordance with Senate and Faculty Policy, students may be penalised up to 10% of the marks on all assignments, tests, and examinations for the improper use of English. Additionally, poorly written work with the exception of 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.

4. Group Case Study Project:

Details to be announced in class.

5. 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.

Plagiarism Checking:

The University of Western Ontario uses software for plagiarism checking. Students are required to submit their Laboratory Reports in electronic form to Turnitin.com for plagiarism checking.

Cheating:

University policy states that cheating is a scholastic offence. The commission of a scholastic offence is attended by academic penalties that might include expulsion from the program. If you are caught cheating, there will be no second warning. For more information on scholastic offenses, please see:
http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf

Attendance:

Any student who, in the opinion of the instructor, is absent too frequently from class, laboratory, or tutorial periods will be reported to the Dean (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Dean, the student will be debarred from taking the regular final examination in the course.

Accessibility:

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

Conduct:

Students are expected to arrive at lectures on time, and to conduct themselves during class in a professional and respectful manner that is not disruptive to others. Late comers may be asked to wait outside the classroom until being invited in by the Instructor. Please turn off your cell phone before coming to a class, tutorial, quiz or exam. On the premises of the University or at a University-sponsored program, students must abide by the Student Code of Conduct: http://www.uwo.ca/univsec/board/code.pdf

Sickness and Other Problems:

Students should immediately consult with the Instructor or Department Chair if they have any problems that could affect their performance in the course. Where appropriate, the problems should be documented (see attached). The student should seek advice from the Instructor or Department Chair regarding how best to deal with the problem. Failure to notify the Instructor or Department Chair immediately (or as soon as possible thereafter) will have a negative effect on any appeal.

For more information concerning medical accommodations, please see:
http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf

Notice:

Students are responsible for regularly checking their email, course website (https://owl.uwo.ca) and notices posted outside the Civil and Environmental Engineering Department Office

Consultation:

Students are encouraged to discuss problems with their teaching assistant and/or instructor in tutorial sessions. Office hours will be arranged for the students to see the instructor and teaching assistants. Other individual consultation can be arranged by appointment with the appropriate instructor.

Course breakdown:

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