

**The University of Western Ontario**  
**Department Of Civil and Environmental Engineering**

**CEE 348a – Project Management and Engineering Cases**  
**Course Outline – Fall 2006**

This course introduces students to the planning, control and management of civil engineering projects. The course covers basic elements of Construction Engineering and Management - the science and engineering of managing and optimizing space, time and resources on construction projects. Through studying and analyzing actual case studies students will be exposed to the complex and multidisciplinary nature of the decisions faced by civil engineers on a daily basis in real world applications.

**General Objectives:**

Course participants will:

- *Acquire an understanding of the fundamental aspects of construction engineering management including construction contracts, bid preparation, planning and scheduling, project funding and estimating. Implementation of some of these aspects in the context of real world situations will be demonstrated through case histories.*
- *Learn how to sift through information presented, identifying key points.*
- *Learn how to develop key arguments and decisions, and present them in written and oral formats.*

**Prerequisites:**

Completion of second year of the Civil and Environmental Engineering Program.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

**Contact Hours:**

One two-hour and one single-hour class per week. Lectures will be supplemented by engineering cases.

**Instructor:**

Dr. Jon Southen, SEB 3116  
Email: [jsouthen@eng.uwo.ca](mailto:jsouthen@eng.uwo.ca)  
Secretary: Room SEB 3005

**Teaching Assistants:**

TBA

**Textbook:**

“Managing the Construction Process – Estimating, Scheduling and Project Control”, 3<sup>rd</sup> Edition, Frederick E. Gold (**Required**).

**Tutorials/Laboratories**

None.

**Units:**

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

**Specific Learning Objectives – Construction Engineering Management Component:**

1. Introduction. At the end of this section the student should be able to:
  - a) explain the term ‘construction engineering management’ and understand its role in civil engineering; and
  - b) recognize common types of problems that require the knowledge of construction engineering and management.
2. Construction contracts. At the end of this section the student should be able to:
  - a) identify types of construction contracts and their characteristics;
  - b) assign the correct type of contract to a specific project; and
  - c) prepare relevant documentation in compliance with contract law and standards.
3. Bid preparation. At the end of this section the student should be able to:
  - a) understand the basic structure and elements of a construction bid;
  - b) explain the various types of bonds and their purpose; and
  - c) understand the various stages in the execution of a construction bid from conceptual design to the awarding of a bid.
4. Issues during construction. At the end of this section the student should be able to:
  - a) understand the significance and context of various issues related to the execution of construction contracts such as delays, claims and change orders.
  - b) understand the various methods that can be utilized for the resolution of disputes and claims in construction projects.
5. Planning and scheduling. At the end of this section the student should be able to:
  - a) understand the importance of proper planning and scheduling;
  - b) perform manual calculations using the critical path method; and
  - c) understand the underlining concepts and computations of Project Evaluation and Review Technique (PERT).
6. Estimating. At the end of this section the student should be able to:
  - a) understand the various elements of estimating; and
  - b) estimate the cost of a simple construction project.
7. Safety. At the end of this section the student should be able to:
  - a) understand the implication of safety measures and training in construction sites with respect to project costs, liability and owner’s satisfaction.

**Specific Learning Objectives – Case Study Component:**

1. Identify, formulate and solve problems that involve more than technical engineering issues.
2. Develop problem-solving skills while working individually and as a member of a group.
3. Present his or her point of view in oral discussions and benefit from critical views expressed by others.
4. Prepare an engineering report using a formal format.

**Evaluation:**

Individual Assignments	15%
Group Assignments	15%
Term Project and Presentation (group effort)	20%
Final examination	<u>50%</u>
	100%

Note: 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.

**Examinations.**

The final examination will be CLOSED BOOK (no external sources of information including books, notes, or crib sheets).

**Use of English**

In accordance with Senate and Faculty Policy, students may be penalized 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 final examinations 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.

**Cheating:**

University policy states that cheating, including plagiarism, 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. (see Scholastic Offence Policy in the Western Academic Calendar).

**Attendance:**

Any student who, in the opinion of the instructor, is too often absent from class 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 not be allowed to take the regular examination in the course.

**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.

**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. 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.

**Consultation:**

Students are encouraged to discuss problems with their teaching assistant and/or course instructor during office hours. Individual consultation can be arranged by appointment with the instructor.

**Notice:**

Students are responsible for regularly checking their e-mail and notices posted outside the Civil Departmental Office.

**Course breakdown:**

Engineering Science = 40%

Engineering Design = 30%

Complementary Studies = 30%

The attached document “INSTRUCTIONS FOR STUDENTS UNABLE TO WRITE TESTS OR EXAMINATIONS OR SUBMIT ASSIGNMENTS AS SCHEDULED” is part of this course outline.