EXPANDED COURSE DESCRIPTION
CIVIL ENGINEERING
Lassonde School of Engineering
Civil Engineering
LE / CIVL 4110 3.0 SECTION A
CIVIL ENGINEERING PROJECT MANAGEMENT
FALL 2017 / WINTER 2018

Last Modified Date: 08/17/2017

COURSE CALENDAR DESCRIPTION

The course builds on the basic principles of project management covered in LE/ENG 2001. It covers salient features of the most widely accepted practices in the management of large civil engineering projects, grouped sequentially into five phases of initiation, planning, execution, monitoring/control, and closure. These five phases are presented using twelve areas of expertise needed by a professional project manager. The course uses a case-studies-based approach to cover various elements of project management, such as scope, time, cost, quality, human resources, communication, risk and procurement, relevant to large civil engineering projects. Complexities of managing large projects are emphasized using example applications of advanced project control tools. International standards on project management are also introduced. Prerequisites: LE/ENG 2001 3.00; LE/ENG 3000 3.00

INSTRUCTOR(S)

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<tr>
<th>Name</th>
<th>Section / Format / Term</th>
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TOPICS AND CONCEPTS

**Introduction**
1. Need for project management training, definition of a project, the triple constraints, five phases of a project, stakeholders, history and future of project management.

**Project Organization and Life Cycle**
2. Organizational culture and structure, methods for selection and delivery of projects, design-bid-build projects, design-build projects, public-private partnerships (P3), challenges of managing mega projects.

**Project Management Processes**
3. Phase diagram, management process groups, process refinements, management of programs and portfolios.

**Project Integration Management**
4. Project development and application, teamwork, reporting of project performance, integrated change control, coaching, rewarding and recognition.

**Project Scope Management**
5. Writing a scope statement, taxonomy of project management, work breakdown structure creation, work duration estimation, scope verification.

**Project Time Management**
6. Logical scheduling, resource availability, network diagrams, Gantt charts, Monte Carlo and other probabilistic methods of project scheduling, distribution of milestones and tasks, crashing.

**Project Cost Management**
7. Budget, cash flow, revenue generation, progress billing, statements of value, spending curve, task progress evaluation, earned value analysis, sunk costs, forecasting, role of engineering consulting firms and project management office.
**Project Quality Management**
8. Quality plan, quality assurance and quality control.

**Project Risk Management**

**Project Procurement Management**
10. Bid documents, elements of a contract, types of contracts, distribution of risk, construction contracts, bonding and insurance, bid analysis and awards of contracts, tendering, contract execution, legal issues in construction contracts.

**Project Human Resources Management**
11. Negotiation methods, training of workforce, assignments and reassignments, resource levelling, Maslow’s hierarchy of needs, Myers-Briggs personality types, emotional intelligence, goals and accountability.

**Project Communications Management**
12. Strategies for conflict resolution, communication matrix and models, effective meetings and information distribution, effective communication.

**LIST OF LEARNING OUTCOMES AND EXAMPLES OF**

This course aims to:
1. Provide a comprehensive overview of the widely accepted practices in the management of large civil engineering projects.
2. Introduce the students to the concepts and applications of various project management techniques using a case-history-based approach.
3. Prepare the students to contribute effectively – individually as well as in a team environment – in the management of complex engineering projects.
4. Encourage the students to be mindful of construction sustainability and engineering ethics.

**Grading Scheme**

Quizzes: 20%
Attendance and Group discussions: 20%
(Grades are given for attendance, preparedness, consistent communication of progress, participation, teamwork and professional conduct, group discussions that focuses on quality and content, applications of PM principles and innovative work)
Interim deliverable # 1: 10%
Interim deliverable # 2: 5%
Interim Presentation: 5%
Final Presentation: 10%
Final report: 30%

**Contact hours:** 4 hours per week
Lectures/In-class discussions – 3 hours per week
Tutorials/Computer labs – 1 hour per week (one 2-hour session every two weeks)

**Required Text**
**Suggested Text**

Author: S. Sears, G. Sears, Clough, Rounds, Segner  
Publisher: John Wiley & Sons, Inc. Year: 2015

Project Management: The Managerial Process  
Authors: Erik W. Larson and Clifford F. Gray  
Publisher: Irwin Professional Publishing (5th Edition; 2010)

**ACADEMIC INTEGRITY LINKS**

- Senate Policy on Academic Honesty - [http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/](http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/)
- Academic Integrity - [http://lassonde.yorku.ca/academic-integrity](http://lassonde.yorku.ca/academic-integrity)

**STUDENT LINKS**

- Student Rights and Responsibilities - [http://oscr.students.uit.yorku.ca/student-conduct](http://oscr.students.uit.yorku.ca/student-conduct)
- Religious Observance - [https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs](https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs)
- Counselling and Disability Services - [http://cds.info.yorku.ca/](http://cds.info.yorku.ca/)

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**Moodle @ York University**