

COURSE INFORMATION

Course Name: Engineering Economics and Project Management

Course Code: CIV ENG 3RR3

Session Offered: Winter 2020

Calendar Description: Introduction to fundamental concepts of project management and construction industry: Project and project management overview; construction industry and project; project participants; project chronology; construction contracts and delivery methods; project estimating; construction planning and scheduling; project control; introduction to Engineering Economics: engineering decision making; time value of money; value engineering; cash flow analysis; and comparison methods.

Instructor(s): Saiedeh Razavi

Phone: 905-525-9140 (ext. 27155)

Email: razavi@mcmaster.ca

Office Hours/Location: MS TEAMS

Class Schedule Day(s):

Time:

Location: Virtual

CIVENG 3RR3-C01

TuFr 11:30 - 12:20

MS TEAMS

CIVENG 3RR3-T01

We 14:30 - 16:20

MS TEAMS

CIVENG 3RR3-T02

Th 12:30 - 14:20

MS TEAMS

1. COURSE OBJECTIVES

This course Introduces students to fundamental concepts in Engineering Economics, Project Management and the Construction Industry. The course also covers topics and techniques for estimating, planning, scheduling, and control of engineering, procurement and construction projects.

2. COURSE SPECIFIC POLICIES

All course related announcements will be posted on Avenue to learn course webpage.

All course deliverables should be submitted on Avenue to learn course webpage.

No late assignment or quiz submission will be accepted.

Marks associated with any MSAF accommodated missed work will be distributed on everything else in the course.

This course has two group projects (i.e. Housing Investment Project & Term Project). Groups are self-selecting and self-governing with a firm deadline for group formation (TBA on Avenue). Teams are expected to prepare and submit a “Group Contract”. Those who will not join any group by the deadline will have to carry out the same projects individually.

Demonstrations of scheduling software tools in this course are intended to provide students with preliminary introductions to the tools and give them a “jump start”, not to fully train students on the use of tools. Students will require self-study before they will be able to work effectively with the tools.

Recommended Books (optional)

Gould, F. E., 2012, *Managing the Construction Process: Estimating, Scheduling, and Project Control*, Fourth Edition, Prentice Hall

Gould, F. E., 2009, *Construction Project Management*, 3rd Edition, Prentice Hall

Fraser, N. M., Bernhardt, I., Jewjes, E. M., and Tajima, M., 2008, *Global Engineering Economics: Financial Decision Making for Engineers*, 4th Edition, Pearson Education.

Halpin D. W., Senior B. A., 2010, *Construction Management*, 4th Edition, Wiley & Sons, Inc., N.Y.

Hendrickson C., 2008, *Project Management for Construction: Fundamental Concepts for Owners, Engineers, Architects and Builders*, <http://pmbook.ce.cmu.edu/>

PMI, 2008, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, Fourth Edition, Project Management Institute

3. SCHEDULE (Tentative)

WEEK 1 (Jan. 11-Jan.15)	Introduction to the course Engineering decision making Simple and compound interests	
WEEK 2 (Jan. 18-Jan. 22)	Effective interest and equivalence Cash flow analysis and compound amount factor	Jan. 22 nd : Assignment Due
WEEK 3 (Jan. 25-Jan. 29)	Annuity and arithmetic gradient series	Jan. 26 th : Project Grouping and Group Contract Deadline Jan. 29 th : Assignment Due
WEEK 4 (Feb. 1-Feb. 5)	Geometric gradient series and mortgage Comparison methods overview	Feb 5 th : Assignment Due
WEEK 5 (Feb 8-Feb12)	Comparison methods for equal lives	Feb 12 th : Assignment Due
WEEK 6 (Feb 22-Feb26)	Comparison methods for unequal lives Project and project management overview	Feb. 26 th : Housing Project Due
WEEK 7 (March 1-March 5)	Construction industry and project participants Construction contracts and delivery methods	

WEEK 8 (March 8-March 12)	Construction processes, planning, and work breakdown structure Midterm	
WEEK 9 (March 15-March 19)	Estimating Scheduling Fundamentals	March 19th: 1st Project Submission Due.
WEEK 10 (March 22-March 26)	Network Calculation (CPM)	March 26 th : Assignment Due
WEEK 11 (March 30-April 2)	Network Calculation (PDM) Project Control Fundamentals	April 2 nd : Assignment Due
WEEK 12 (April 5- April 9)	Project Control and Earned Value Method Term Project Consultation Session	April 9 th : Assignment Due
WEEK 13 (April 12- April 14)	Term Project Consultation Session	April 13th: Final Project Submission
4. ASSESSMENT OF LEARNING		WEIGHT %
Quizzes (Major and Minor)		30%
Housing Investment Project		20%
Term Project		25%
Midterm Exam		25%
5. LEARNING OUTCOMES		
<ul style="list-style-type: none"> • Economics: Ability to apply economic principles in decision making through understanding and analyzing the time value of money and cash flows as well as economic comparison methods for different decision alternatives (CEAB Indicator 11.1). 		
<ul style="list-style-type: none"> • Tools: Ability to create, adapt, modify and extend tools and techniques to manage and solve problems in particular in project and construction management. The students will learn tools and techniques for planning, scheduling, estimating, and project control and will develop the ability to adopt or enhance them to manage project more efficiently (CEAB Indicator 5.3). 		
<ul style="list-style-type: none"> • Communications: Ability to understand, analyze and respond to technical and non-technical instructions and questions (CEAB Indicator 7.1). 		
6. COMMUNICATIONS		
It is the student's responsibility to: <ul style="list-style-type: none"> • Maintain current contact information with the University, including address, phone numbers, and emergency contact information. 		

- Use the University provided e-mail address or maintain a valid forwarding e-mail address.
- Regularly check the official University communications channels. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student's designated primary e-mail account via their "@mcmaster.ca" alias.
- Accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.
- Check the McMaster/Avenue email and course websites on a regular basis during the term.

7. POLICIES

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. **It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>.

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY / PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. **All submitted work is subject to normal verification that standards of academic integrity have been upheld** (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities](#) (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online.**

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact [Student Accessibility Services](#) (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

[McMaster Student Absence Form \(MSAF\)](#): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”.

The McMaster Student Absence Form is a self-reporting tool for **Undergraduate Students** to report absences that last up to 5 days and provides the ability to request accommodation for any missed academic work. Please note, this tool cannot be used during any final examination period. You may submit a maximum of 1 Academic Work Missed requests per term. It is **your** responsibility to follow up with your Instructor immediately regarding the nature of the accommodation. If you are absent more than 5 days or exceed 1 request per term you **must** visit your Associate Dean's Office (Faculty Office). You may be required to provide supporting documentation. This form should be filled out immediately when you are about to return to class after your absence.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

PROTECTION OF PRIVACY ACT (FIPPA)

The Freedom of Information and Protection of Privacy Act (FIPPA) applies to universities. Instructors should take care to protect student names, student numbers, grades, and all other personal information at all times. For example, the submission and return of assignments and the posting of grades must be done in a manner that ensures confidentiality – see <http://www.mcmaster.ca/univsec/fippa/fippa.cfm>.

ANTI-DISCRIMINATION

The Faculty of Engineering is concerned with ensuring an environment that is free of all discrimination. If there is a problem, individuals are reminded that they should contact the Department Chair, the Sexual Harassment Officer, or the Human Rights Consultant, as soon as possible.
https://www.mcmaster.ca/policy/General/HR/Discrimination_and_Harassment.pdf

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

8. MCMASTER GRADING SCALE

Grade	Equivalent Grade Point	Equivalent Percentages
A+	12	90-100
A	11	85-89
A-	10	80-84
B+	9	77-79
B	8	73-76
B-	7	70-72
C+	6	67-69
C	5	63-66
C-	4	60-62
D+	3	57-59
D	2	53-56
D-	1	50-52
F	0	0-49