

I. COURSE DESCRIPTION:

This course introduces the student to the fundamental principles of construction estimating. The topics covered will deal with the measurement of construction work, reading construction documents (prints and specifications) as well as records management. Emphasis is placed on estimating site work, concrete, masonry, steel and wood, using detailed and systematic methods. Computer-based spreadsheets will be used to prepare estimates and assignments. Students will learn to assemble and sort estimate information for a complex project in a logical and manageable manner and develop organizational and time management skills. Students will also become familiar with issues relating to construction waste management and reduction as well as environmental controls as it relates to construction estimating.

II. LEARNING OUTCOMES:

1. Communicate information effectively and accurately by interpreting, translating and producing civil engineering documents.
2. Complete all work in compliance with the rights and conditions of contractual obligations; applicable law, standards, by-laws and codes; and the accepted principles and practices of civil engineering.
3. Monitor the quality and quantity of work for civil engineering projects.
4. Contribute to designing, planning, inspecting and constructing civil engineering projects.
5. Apply principles of mathematics and science to analyse and solve technical problems related to civil engineering projects.
6. Use electronic technology to support civil engineering projects.
7. Maintain civil engineering project records, logs and inventories
8. Recognize the interdependence of the architectural, structural, mechanical and electrical disciplines relating to civil engineering projects.
9. Facilitate communication among project stakeholders involved in the design and implementation of civil engineering projects.

III. REQUIRED RESOURCES/TEXTS/MATERIALS:Construction Project Management

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Pearson Prentice Hall

ISBN 978-0-13-199623-6

IV. EVALUATION PROCESS/GRADING SYSTEM:

Assignments and Activities (5-7)	50%
Mid-term Test	25%
Final Test	25%
Total	<hr/> 100%

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

V. SPECIAL NOTES:

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

Substitute course information is available in the Registrar's office.

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session. Late arrivers may not be granted admission to the room.

Assignments and Examination Policy:

If a student is unable to write a test or exam at the scheduled time the following procedure shall apply:

- The student shall provide the professor with advance notice (in writing) of the need to miss the test
- The student shall provide documentation as to the reason for the absence and the make-up will be at the discretion of the professor.
- Upon return the student is responsible to make arrangements for the writing of the test. This arrangement shall be made prior to the next schedule class.
- In the event of an emergency, the student shall telephone the professor as soon as possible at 759-2554, to notify of the absence. If the professor is not available, the college has a 24 hour voice mail system.
- In the event of a test missed due to emergency, the student shall provide documentation from a professional such as doctor or lawyer.

All late assignments (without documentation) will receive a maximum grade of C (60%). Assignments more that one week late may receive a grade of zero.

VI. TOPIC OUTLINE

Outcome	Topic and Content	Reading	Week
1.	Overview of the Construction Industry 1.1. Size and Importance of Construction 1.2. Construction Sectors 1.3. Viewing the Construction Industry 1.4. Technology in Construction 1.5. Construction Industry as a Profession	Chapter 1	1
2.	Project Participants 2.1. Quiz Chapter 1 2.2. Private and Public Ownership 2.3. Owner Representatives 2.4. Design Professionals (Architects & Engineers) 2.5. Construction Professionals 2.5.1. Constructors 2.5.2. Specialty Contractors 2.5.3. Trades 2.5.4. Suppliers 2.6. Video – Skyscraper (Rock and Paper) 2.7. Assignment 1	Chapter 2 LMS	2
3.	Organizing and Leading Construction Projects 3.1. Quiz Chapter 2 3.2. Organizing and Managing Construction Projects 3.2.1. Work Breakdown 3.2.2. Quality Management 3.3. Legal forms of Business Organizations 3.4. Leadership and Communication 3.5. Video – Skyscraper (Time and Money) 3.6. Assignment 2	Chapter 3 LMS	3,4
4.	Project Delivery Methods 4.1. Quiz Chapter 3 4.2. Managing Risk 4.3. Conventional Delivery (Design/Bid/Build) 4.4. Design/Build 4.5. Construction Management (CM) 4.6. Contract Types 4.7. Changes to Contracts 4.8. Video – Skyscraper (Steel and Stone)	Chapter 4 LMS	5

5.	Project Chronology	Chapter 5 LMS	6
	5.1. Quiz Chapter 4		
	5.2. Feasibility and Financing		
	5.3. Project Design		
	5.4. Procurement		
	5.5. Construction		
	5.6. Turnover and Commissioning		
	5.7. Video – Skyscraper (Copper and Diamond)		
	5.8. Assignment 3		
6.	Mid-Term Test		7
	<i>All material to Chapter 1-5 inclusive</i>		
7.	Construction Services During Design, Bidding and Procurement	Chapter 6	8,9
	7.1. Selecting a Construction Manager		
	7.2. Role/Responsibility of Construction Manager		
	7.2.1. Site Investigation		
	7.2.2. Design Review		
	7.2.3. Estimating and Scheduling		
	7.3. Construction Documents	Chapter 7 Handout	
	7.4. Bid Information		
	7.5. Contractual Information		
	7.5.1. CCDC2		
	7.6. Bonds and Insurance		
	7.7. Drawings and Specifications		
	7.8. Contract Award		
	7.9. Assignment 4		
8.	Construction and Close-out	Chapter 8	10
	8.1. Quiz Chapter 6		
	8.2. Subcontracts and Startup		
	8.3. Productivity		
	8.4. Job Site Organization		
	8.5. Completion and Turnover		
9.	Project Planning, Scheduling and Controlling	Chapter 10 LMS	11,12 and 13
	9.1. Scheduling Entire Project		
	9.2. Planning and Scheduling Process		
	9.3. Scheduling Methods		
	9.3.1. Bar Charts		
	9.3.2. Network Schedules		
	9.4. Create a Construction Schedule with MS Project		
	9.4.1. Define Activities		
	9.4.2. Network Diagrams		
	9.4.3. Calculating and Refining		

9.5. Monitoring a Schedule		
9.6. Assignment 5		
10. Project Administration and Construction Law	Chapter 12	14
	Chapter 13	
	LMS	
10.1. Meeting Minutes and Progress Reports		
10.2. Application for Payment		
10.3. Progress Review and Payment Procedures		
10.4. Holdback		
10.5. Changes		
10.6. Claims and Disputes		
10.7. Construction Law		
10.7.1. Contracts		
10.7.2. Construction Lien Act		
10.7.3. Calculation of Substantial Performance		
10.7.4. Release of Holdback		
10.7.5. Federal, Provincial and Local Laws		
10.7.6. Dispute Resolution		
10.8. Assignment 6		
11. Final Test		15
<i>All material covered to date</i>		