SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	BUILDING AND CONSTRUCTION ESTIMATING		
CODE NO. :	ARC101	**SEMESTER:**	TWO
PROGRAM:	CIVIL ENGINEERING TECHNICIAN CONSTRUCTION CARPENTRY TECHNIQUES		
AUTHOR:	BARRY SPARROW		
DATE:	JAN 2010	**PREVIOUS OUTLINE DATED:**	JAN 2009
APPROVED:	*"Corey Meunier"* **CHAIR**		_____ **DATE**
TOTAL CREDITS:	5		
PREREQUISITE(S):	NONE		
HOURS/WEEK:	4		

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. Assist in preparing construction specifications, material and cost estimates.

2. Assist in planning, scheduling and monitoring construction and civil engineering projects.

3. Apply sound environmental practices and policies in civil engineering/construction projects.

4 Demonstrate relevant mathematical, computer and technical problem solving skills as it relates to civil engineering/construction projects.

5 Demonstrate an understanding of the working roles and inter-relationships required to adhere to the objectives of the project and work in accordance to labour-management principles and practices.

III. REQUIRED RESOURCES/TEXTS/MATERIALS:

Estimating in Building Construction
Frank R. Dagostino/Leslie Feigenbaum/Clint Kissoon
Canadian Edition
Pearson Prentice Hall T
ISBN 978-0-13-223137-4

IV. EVALUATION PROCESS/GRADING SYSTEM:

Assignments and Activities (6-8)	50%
Mid-term Test	25%
Final Test	25%
Total	100%

The following semester grades will be assigned to students:

Grade	Definition	*Grade Point Equivalent*
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

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 an 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%).

VI. TOPIC OUTLINE

Outcome	Topic and Content	Reading	Week
1,4	1. Estimating Mathematics and Measurement 1.1. Plane geometry formulas 1.2. Volume formulas 1.3. Sample calculations and assignment 1.4. SI units in construction 1.5. Assignment 1 – Math Review	LMS Handout	1
1,2,5,3	2. Estimating Strategies and Organization 2.1. Types of estimates 2.2. Direct and indirect costs	Chapter 1 Chapter 2 Chapter 3 LMS	2

Outcome	Topic and Content	Reading	Week
	2.3. Waste reduction and management strategies 2.4. Developing a work breakdown from drawings and specifications 2.5. Organizing using the CSI format 2.6. Estimates and contract types 2.7. Bid Documents and bidding procedures	Handout	
1,4	3. Using Computers and Spreadsheets in Estimating 3.1. Computer-based estimating and bidding 3.2. Spreadsheet Overview – Workbooks and Worksheets 3.3. Formatting and forms 3.4. Formulas 3.5. Using goal seek	Chapter 19 LMS Handout	3,4
1,4	4. Estimating Earth and Site Work 4.1. Contour and spot elevation review 4.2. Calculating cut and fill volumes (grid method) 4.3. Calculating volumes (average end area method) 4.4. Balancing cut and fill using goal seek 4.5. Estimating general excavation and material handling volumes 4.6. Estimating tonnage for asphalt paving 4.7. Environmental considerations for earthwork	Chapter 8 LMS Handout	5,6
1,4	5. Estimating Reinforced Concrete 5.1. Review of types of concrete work 5.2. Using the 'centre line length' concept 5.3. Formwork estimation (footings, walls, slabs) 5.4. Concrete accessories and finishing 5.5. Estimating reinforcing steel	Chapter 9 LMS Handout	7
	6. Mid-term Exam		8
1,4	7. Estimating Masonry 7.1. Review of types of masonry construction 7.2. Estimating concrete block 7.3. Estimating brick 7.4. Masonry accessories 7.5. Scaffolding requirements	Chapter 10 LMS Handout	9
1,4	8. Estimating Steel and Metals 8.1. Estimating structural steel 8.2. Estimating steel joists and deck 8.3. Miscellaneous metals	Chapter 11 LMS	10

Outcome	Topic and Content	Reading	Week
1,4	9. Estimating Wood 9.1. Review of wood frame construction 9.2. Estimating floor and platform framing 9.3. Estimating frame wall construction 9.4. Estimating roof framing and trusses 9.5. Estimating panel area quantity 9.6. Using roof factors to determine slope length	Chapter 12 LMS Handout	11,12
1,4	10. Estimating Thermal and Moisture Protection 10.1. Review foundation waterproofing and damp-proofing 10.2. Estimating asphalt shingles 10.3. Estimating membrane roofing 10.4. Estimating foundation, roof and wall insulation	Chapter 13 LMS Handout	13
1,4	11. Estimating Doors, Windows and Finishes 11.1. Residential doors and windows 11.2. Curtain wall frame and window systems 11.3. Estimating hardware and accessories 11.4. Estimating finishes (walls, floors and ceilings)	Chapter 14 LMS	14
	12. Final Exam		15