



SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

BUILDING & CONSTRUCTION ESTIMATING

COURSE TITLE: \_\_\_\_\_

ARC101

CODE NO.: \_\_\_\_\_

Architectural & Civil Engineering Technology

PROGRAM: \_\_\_\_\_

III

SEMESTER: \_\_\_\_\_

H. Pietrzakowski

AUTHOR: \_\_\_\_\_

S. Ienco

INSTRUCTOR: \_\_\_\_\_

September 1995

DATE: \_\_\_\_\_

NEW: \_\_\_\_\_ REVISION: X

APPROVED: *L.P. Orzutti*  
DEAN

DATE 95-09-01

*RP 29-Aug-95*

**TOTAL CREDITS:** 4

**PREREQUISITE(S):** None

**I. PHILOSOPHY/GOALS:**

This course will introduce the student to the fundamental principles of estimating, which include the identification and solving of problems related to quantity take-offs, the appreciation of the economic factors involved in design and construction, and the building of unit costs for various construction elements. The topics covered will deal with the theory, analysis of construction documents, and the structuring of relevant data in order to compile a realistic cost estimate and subsequent unit prices for a given construction project.

**II. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):**

Upon successful completion of this course the student will:

- 1) Effectively apply the principles of mensuration to estimating.
- 2) Develop a structured and organized cost estimate from the accurate determination of areas, quantities and amounts obtained from both the specifications and working drawings for a given project.
- 3) Identify the various types of estimates, and choose the most appropriate for a given situation.
- 4) Identify the various economic factors involved in design and construction.
- 5) Generate unit costs for various stages of construction.

**III. TOPICS TO BE COVERED:**

- 1) Principles of Mensuration
- 2) Working Drawings and Specifications
- 3) Introduction to Estimating

**IV. LEARNING ACTIVITIES/REQUIRED RESOURCES**

**1. Principles of Mensuration**

**Learning Activities:** In class instruction and practical exercises on:

- Plane Geometry
- Geometric Solids
- Area Calculations
- Volume Calculations

**Resources:** Handouts and overheads

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**2. Working Drawings & Specifications**

**Learning Activities:** In class instruction and practical exercises on:

- Construction Documents: Terms and definitions
- Basic Principles
- C.S.I. Organizational Format
- Instructions to Bidders
- Alternatives and Addenda

**Resources:** Examples of As-Built Drawings and Specifications  
Chapter 6 : Architecture- Design, Engineering, Drawing

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**3. Introduction to Estimating.**

**Learning Activities:** In class instruction, practical exercises and assignments on:

- Types of Estimates
- Quantity Surveying
- Cost Analysis Methods
- Sources of Estimating Information

**Resources:** Handouts and Overheads  
Chapters 1, 22, 23

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**4. Aspects of Estimates**

**Learning Activities:** In class instruction, practical exercises and assignments on:

- Organization
- Work-up Sheets
- Summary Sheets
- Construction Costs
- Unit Pricing

**Resources:** Handouts and Overheads  
Chapters 2, 3

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**4. Estimating**

**Learning Activities:** In class instruction, practical exercises and assignments on:

- Organization
- Estimating Construction Projects - C.S.I. Format
  - (i) Earthwork and Sitework
  - (ii) Concrete and Formwork
  - (iii) Masonry
  - (iv) Carpentry
  - (v) Roofing and Flashing
  - (vi) Drywall and Plaster
  - (vii) Painting and Finishing
- Construction Costs (specific)
- Unit Pricing (specific)

**Resources:** Handouts and Overheads  
Chapters 4, 6 - 12, 14 - 16

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**V. EVALUATION METHODS: (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS, ETC.)**

A final grade will be derived as follows:

Assignments	40%
Three tests, each worth 20%	60%
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Total	100%

The grading system used will be as follows:

A+	90% - 100%
A	80% - 89%
B	70% - 79%
C	55% - 69%
R	Repeat

- 1) Assignments will be collected on dates specified and will not only be graded for correct solutions, but will also be checked for neatness and layout of work. **Late Assignments will not be accepted.**
- 2) Minimum acceptable grade for this course is 55%.

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- 3) If at the end of the semester the overall mark is below 55%, then it will be up to the instructor whether or not a rewrite test will be granted. The criteria employed for arriving at that decision is class attendance, class participation and overall grade, which ~~should~~<sup>must</sup> be at least 45%.
- 4) In the case a rewrite is granted, it will be permitted only once, it will cover the entire course outline and will limit the maximum obtainable grade for the course to 60%.

**VII. STUDENT RESOURCES**

Robert L. Peurifoy, Garold D. Oberlender, Estimating Construction Costs, McGraw-Hill Book Company, 4 th edition.

In addition to the recommended course text, there are numerous books available in the library related to construction estimating.

**VIII. SPECIAL NOTES**

Students with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.

