

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

**COURSE TITLE:** Construction Methods

**CODE NO.:** CIV318 **SEMESTER:** VI

**PROGRAM:** Civil Engineering Technology

**AUTHOR:** D. J. Elliott

**DATE:** January, 1994 **PREVIOUS OUTLINE DATED:** \_\_\_\_\_

**APPROVED:** *R.P. Arquette*  
**DEAN**

*M. [Signature]*  
*Jan/94*  
94-01-05-  
**DATE**



**TOTAL CREDIT HOURS** 64

**PREREQUISITES(S)** ARC232

**I. PHILOSOPHY/GOALS:**

The intent of this course is to provide the student with a basic knowledge of the methods of construction used in the various fields of civil engineering. Equipment, materials and methods will be discussed with emphasis on the role of the technologist as a supervisor, inspector, contractor, consultant or owner's representative. The student will develop an understanding for the applicable safety and environmental regulations. Case studies of specific projects will be used.

**II. STUDENT PERFORMANCE OBJECTIVES:**

Upon successful completion of this course the student will:

- 1) Describe a variety of construction methods and procedures used for specific construction projects
- 2) Select appropriate equipment and materials for a specified project
- 3) Identify appropriate mitigative measures during a construction project to effectively minimize negative impacts on the environment
- 4) Identify applicable occupational health and safety regulations for various construction methods
- 5) Describe methods of quality assurance during construction
- 6) Demonstrate an understanding for measurement and basis of payment methods for budget control during the construction phase of a project

**III. TOPICS TO BE COVERED:**

- 1) Introduction to the construction process
- 2) Earthworks
- 3) Roadworks
- 4) Pipe Construction
- 5) Foundations
- 6) Concrete

- 7) Wood, Steel and Masonry Construction
- 8) Construction Management

**IV. LEARNING ACTIVITIES:**

**REQUIRED RESOURCES:**

- 
- 1. Introduction
    - Construction process
    - Contractual relationships and responsibilities
    - Construction Management
  
  - 2. Earthworks
    - Excavations and Lifting
    - Volume change characteristics
    - Equipment and methods
    - Loading and hauling
    - Rock excavation
    - Quality Assurance
    - Payment methods
    - Environmental considerations
  
  - 3. Roadworks
    - Equipment, materials and methods
    - Compaction and finishing
    - Paving
    - Quality Assurance
    - Payment methods
    - Environmental considerations
  
  - 4. Pipe Construction
    - Sewer construction by open cut method
    - Trenchless pipe construction
    - Control of water
    - Quality Assurance
    - Payment methods
    - Environmental Considerations
  
  - 5. Foundations
    - Mass concrete
    - Piles
    - Quality Assurance
    - Payment methods
    - Environmental considerations

Chapter 1

Chapter 2, 3, 4, 6, 9

Chapter 5, 8

Chapter 9



6. Concrete Chapter 10, 11
- Materials and methods
  - Formwork and falsework
  - Steel reinforcement
  - Quality assurance
  - Payment methods
  - Environmental considerations
7. Wood, Steel and Masonry Chapter 12, 13, 14
- Materials and methods
  - Connections
  - Quality assurance
  - Payment methods
  - Environmental considerations
8. Construction Management Chapter 15, 16, 17, 18
- Construction documents
  - Agreements
  - Tender process
  - Estimating
  - Scheduling
  - Payment procedures
  - Approvals
  - Meetings
  - Progress monitoring

**V. METHOD OF EVALUATION:**

A final grade will be derived from the results of assignments and tests weighed as follows:

Assignments and Exercises	40 %
Tests (three @ 20%)	60 %
<b>TOTAL</b>	<b>100 %</b>

The grading system used will be as follows:

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

- 1) Minimum acceptable grade for this course is 55%.
- 2) Students obtaining a composite grade below 55% may be allowed to complete a supplementary examination. Eligibility for a rewrite will be based on class participation, attendance and overall grade, which should be at least 45%.
- 3) When a rewrite is granted, the maximum obtainable grade in the course will be 60%.

**VI. REQUIRED STUDENT RESOURCES:**

Nunnally, S.W.; Construction Methods and Management, Third Edition; Prentice Hall

Note: Additional reference material includes Ontario Provincial Standards

**VII. SPECIAL NOTES:**

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

The instructor reserves the right to modify the course as required to meet the needs of the students.

