SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: MUNICIPAL SERVICES

CODE NO.: CIV200 SEMESTER: IV

PROGRAM: Civil Engineering Technology

AUTHOR: D. J. Elliott

DATE: January, 1994 PREVIOUS OUTLINE DATED: December, 1991

APPROVED: _____ 94-01-05
DEAN DATE

MUNICIPAL SERVICES **CIV200**
COURSE NAME **CODE NO.**

TOTAL CREDIT HOURS 64

PREREQUISITES(S) WTR330

I. PHILOSOPHY/GOALS:

This course will introduce the student to the basic principles and procedures for the design and construction of water distribution, sanitary sewers and storm drainage systems. Land development procedures, planning and administration will be discussed, and conventional water and wastewater treatment processes will be presented as well.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1) Apply the basic principles of hydraulics and hydrology applicable to water distribution, wastewater collection and storm drainage systems

2) Prepare system layouts and perform basic design of water and sewer systems

3) Identify municipal planning policies and procedures

4) Identify and apply water quality criteria and treatment requirements for drinking water and wastewater

5) Describe conventional water and wastewater treatment, and solid waste management methods

6) Identify measures for minimizing environmental impacts

III. TOPICS TO BE COVERED:

1) Review of the hydraulics of pipe flow

2) Hydrology of lakes and rivers

3) Water distribution systems

4) Sanitary sewer collection systems, stormwater drainage and management

5) Land development policies and procedures

6) Water and wastewater treatment

7) Solid and hazardous waste

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IV. LEARNING ACTIVITIES:	REQUIRED RESOURCES:
Introduction	Chapter 1
1. Hydraulics - Flow design parameters - Total energy calculations - Losses - Gravity flow in pipes - Pressure flow in pipes	Chapter 2
2. Hydrology - Water uses - Hydrologic cycle - Rainfall - Surface water - Groundwater	Chapter 3
3. Water Distribution Systems - Design factors - Applications for pipe flow formulae - Estimate water demands - System design calculations	Chapter 7
4. Sanitary Sewer Systems - Design factors - Applications for pipe flow formulae - Estimate design flows - Sanitary sewer design calculations	Chapter 8
5. Storm Drainage - Rational method - Rainfall-intensity-duration relationships - Design storm - Storm sewer design calculations	Chapter 9
6. Water and Wastewater Treatment - Drinking water objectives - Treatment of drinking water - Treatment of wastewater	Chapter 6, 10
7. Solid and Hazardous Waste - Quantities and characteristics - Processing, recovery, landfilling - Hazardous waste management	Chapter 11

8.	Planning, policies and procedures - Land development - Official Plan and Zoning	Course notes

V. METHOD OF EVALUATION:

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

Assignments and Exercises	25 %
Tests (three @ 25%)	75 %
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) Late assignments will be penalized 10% for each day late

2) Minimum acceptable grade for this course is 55%.

3) 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%.

4) When a rewrite is granted, the maximum obtainable grade in the course will be 60%.

VI. REQUIRED STUDENT RESOURCES:

Nathanson, Jerry A.; Basic Environmental Technology; Wiley

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.