SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: HAZARDOUS WASTE DISPOSAL

Code No.: WTR 329-4

Program: WATER RESOURCES ENGINEERING TECHNOLOGY

Semester: VI

Date: MAY 1989

Author: JOHN K. THEIL

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New: _____ Revision:

APPROVED: _____ Date A/^t/cA :30AV

Chairperson

CALENDAR DESCRIPTION

HAZARDOUS WASTE DISPOSAL	WTR 329-4
Course Name	Course Number

PHILOSOPHY/GOALS;

Hazardous wastes range in nature from common household trash to complex materials in industrial wastes, sewage sludge, agricultural residues, mining refuse and pathological wastes. The purpose of this course is to assess the various types of hazardous wastes, and to determine appropriate handling, waste treatment and disposal techniques.

METHOD OF ASSESSMENT (GRi\DING METHOD):

Assignments/Lab Work	30%	Grading:
Interim Tests (2 @ 20%)	40%	
Final Examination	30%	A+ 90-100%
		A 80 - 89%
		B 70 - 79%
		C 60 - 69%

A passing grade will be based on a minimum composite grading of 60%. Students obtaining a composite grading of 55 to 59% may be allowed to complete a supplementary examination.

TEXTBOOK(S);

Peavy, Howard S., Donald R. Rowe, George Tchobangolous. Environmental Engineering, McGraw-Hill Book Company, Toronto.

Viessman Jr., Warren, Mark J. Hammer. Water Supply and Pollution Control Harper & Row, Publishers, New York

Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste; Ministry of the Environment.

OBJECTIVES:

The student will be able to:

1. Identify and classify liquid industrial and hazardous wastes according to current practices.

2. Develop design procedures for physical, chemical and biological treatment of liquid industrial and hazardous wastes.

3. Identify the types and sources of solid wastes and the influencing factors related to physical and chemical composition and waste generation rates.

4. Describe materials flow in society, reduction in raw materials usage, reduction in solid wastes quantities, re-use of materials, materials recovery, energy recovery, and solid waste management.

5. Analyze the activities associated with the management of solid wastes including waste generation; on-site handling, storage and processing; collection; transfer and transport; processing and recovery; and disposal.

6. Evaluate landfilling with respect to site selection, landfilling methods and operations, occurrence of gases and leachate in landfills, and movement and control of landfill gases and leachate.

7. Evaluate the techniques and methods used to recover materials, conversion products, and energy from solid wastes.

8. Describe thermal incineration fundamentals.

WTR 329-4

COURSE OUTLINE

TOPICS	HOURS
1. Course Introduction	
2. Origin and Nature of Hazardous Wastes Components of a Hazardous Waste Treatment Facility	
3. Registration Guidance Manual for Generators of Liguid Industrial and Hazardous Waste	
4. Treatment Technologies - Physical, Chemical, and Biological	
5. Types, Sources and Properties of Solid Wastes, Solid Waste Management Overview	8
6. Engineered Systems for Solid Waste Management	
7. Landfilling - Site Selection, Operation and Control of Gas and Leachate Production	
8. Engineered Systems for Resource and Energy Recovery	
9. Thermal Incineration Fundamentals	
	40
Review	1
Interim Tests/Final Examination	4