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SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: HAZARDOUS WASTE DISPOSAL

CODE NO.: WTR 329-4 SEMESTER: VI

PROGRAM: WATER RESOURCES/ENVIRONMENTAL ENGINEERING TECHNOLOGY

Author: JOHN K. THEIL

DATE: APRIL 1992 PREVIOUS OUTLINE DATED: MAY 1991

APPROVED: _____ **DATE^** ^ ^ ***r^^***

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HAZARDOUS .WASTE DISPOSAL! WTR 329-4

COURSE **NAME** COURSE NUMBER

TOTAL CREDIT HOURS 4 5

PREREQUISITE(S): CHM230, WTR201, WTR226

I. 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.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course, the student will be able to:

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

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

3. 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.

4. 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.

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

6. Describe thermal incineration fundamentals.

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III. TOPICS TO BE COVERED:

TOPICS	HOURS
1. Course Introduction	I
2. Origin and Nature of Hazardous Wastes Components of a Hazardous Waste Treatment Facility	
3. Regulatory Requirements for Generators of Liquid Industrial and Hazardous Waste	
4. Types, Sources and Properties of Solid Wastes,	6
5. Landfilling - Site Selection, Operation and Control of Gas and Leachate Production	12
6. Treatment Technologies - Physical, Chemical, **and** Biological	12
7. Thermal Incineration Fundamentals	
	38
Review	**2**
Interim Test/Final Examination	**5**

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IV. METHOD OF EVALUATION:

Assignments	20%	Grading:
Interim Test	25%	
Final Examination	55%	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.

V. REQUIRED STUDENTS RESOURCES:

Wentz, Charles A. Hazardous Waste Management^ McGraw-Hill Book Company, Toronto.

VI. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRART^

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

Pfeffer, John T.-Solid Waste Management Engineering

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

VII. SPECIAL NOTES:

Students with special needs (e.g. 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.