

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

INDUSTRIAL PROCESSES

COURSE TITLE:

ENV200-4

CODE NO.:

SEMESTER:

II

ENVIRONMENTAL ENGINEERING TECHNOLOGY

PROGRAM:

MANFRED ENGEL

AUTHOR:

JANUARY 1992

DATE:

PREVIOUS OUTLINE DATED:

FEBRUARY '91

APPROVED:

DEAN



DATE

Jan 9/92

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TOTAL CREDIT HOURS: 64

PREREQUISITE(S): None.

I. PHILOSOPHY/GOALS:

To provide the student with a knowledge of various industrial processes, an awareness of the typical wastes produced by these processes and an understanding of the treatment processes typically used to deal with these wastes.

II. STUDENT PERFORMANCE OBJECTIVES:

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

1. Describe the principles of wastewater treatment unit operations.
2. Describe industrial processes with emphasis on discharges of wastes.
3. Describe possible methods of handling these wastes.
4. Be familiar with the 'material balance' concepts.

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III. TOPICS TO BE COVERED:

Common industrial waste treatment processes including mechanical, chemical and biological treatment. Major industries will be discussed, types of processes (flow charts) and significance of wastes are identified. The industries include Pulp & Paper, Mining, Steel-Making and Metal Finishing, Petro Chemicals and Food Processing.

TOPIC	PERIODS	TOPIC DESCRIPTION
1	2	<u>Industry and Pollution</u> - (the past and the future)
2	13	<u>Common Industrial Treatment</u> Mechanical Processes - Solid - Solid separation - Solid - Liquid separation Chemical Processes - Ion - exchange - Activated carbon process - Fluidized bed Biological Treatment - Activated Sludge Process - Fixed Film Process - Digestion - Lagoons
3	20	<u>Industrial Processes</u>
	5	Pulp & Paper - CMP/CTMP - Sulphite pulping - Groundwood
	3	Mining - Environmental problems associated with mining methods - Milling processes - Smelting processes

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III. TOPICS TO BE COVERED: (cont'd)

TOPIC	PERIODS	TOPIC DESCRIPTION
3	3	Steel-Making - Coking - Pickling - Rolling
	3	Metal Finishing - Galvanizing - Electroplating - Heat treatment - Washing and cleaning
	3	Petro Chemicals - Refining and petro chemicals - Plastics - Organic chemicals
	3	Food Processing - Meat processing - Dairy industry - Canneries and frozen foods - Fish packing - Brewing and distilling



IV. EVALUATION METHODS:

4 Tests (Essay type questions) of equal value.

V. REQUIRED STUDENT RESOURCES:

No suitable textbook is available. A considerable number of handouts are given out at the appropriate time. It is the students' responsibility to obtain these materials from the instructor.

VI. 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.