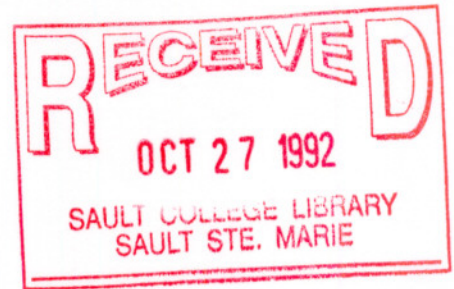


SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE


COURSE TITLE: ATMOSPHERIC POLLUTANTS

CODE NO.: ENV 300-3 SEMESTER: IV

PROGRAM: ENVIRONMENTAL TECHNICIAN/TECHNOLOGY

AUTHOR: D. TROWBRIDGE

DATE: APRIL 1992 PREVIOUS OUTLINE DATED: NEW

APPROVED:  04/26/92
 DEAN, SCHOOL OF SCIENCES & NATURAL RESOURCES DATE

COURSE NAME

COURSE NUMBER**TOTAL CREDIT HOURS: 48****PREREQUISITE(S): CHM 104****I. PHILOSOPHY/GOALS:**

This course deals with the nature and effects of atmospheric pollution and their control. An overview of pollutant types, effects and control will be presented as well as current methods of control, monitoring and dispersion modelling.

II. STUDENT PERFORMANCE OBJECTIVES:

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

1. Identify the causes and effects of the common pollutants in the air.
2. Describe the effect of meteorological factors on atmospheric pollution.
3. List and describe the current control devices used in industry.
4. Describe the air monitoring instruments and their use in determining the Air Quality Index. (AQI)

III. TOPICS TO BE COVERED:

1. Causes and Effects of Atmospheric Pollutants
2. Particulate and Gaseous Pollutants
3. Meteorological Factors and Dispersion Modelling

AIR POLLUTION & CONTROL

ENV 300-3

COURSE NAME

COURSE NUMBER

TOPICS:

Hours

1. Introduction 6
 - The Origins of Air Pollution
 - Causes of Air Pollution
 - Types of Substances that Pollute
 - The Effects of Air Pollution
 - Air Pollution Episodes

2. Airborne Particulate Matter 6
 - Classification
 - Calculation of Terminal Settling Velocity
 - Visibility and Coefficient of Haze (COH)
 - Effects of Particulates
 - Monitoring Devices
 - Legislation Standards

3. Gaseous Pollutants 6
 - Types of Gaseous Pollutants
 - Effects of Gaseous Pollutants
 - Photochemical Smog
 - Monitoring Devices
 - Legislation Standards

4. Climatology and Meteorology 6
 - Basic Atmospheric Properties
 - Wind, Stability and Turbulence
 - Smoke Dispersion and Atmospheric Stability
 - Dispersion Calculation
 - Wind and Pollution Roses

5. Control of Air Pollution 6
 - Cyclones
 - Wet Scrubbers
 - Baghouse Filters
 - Electrostatic Precipitators
 - Adsorption Devices
 - Catalytic Combustion and Converters
 - Odour Control

COURSE NAMECOURSE NUMBER

- | | | |
|----|--|---|
| 6. | Predicting Air Pollutant Concentrations
Pollution Dispersion Models
Plume Rise Models
Point of Impingement Calculations | 6 |
| 7. | Legislation
Environmental Protection Act of Ontario
and Regulation 308
Ontario's Clean Air Program
Air Quality Index
Transboundary Issues | 6 |
| 8. | Air Monitoring
Air Monitoring Networks
Monitoring Stations and Equipment
Sampling Procedures and Equipment
Analytical Techniques | 6 |
| 9. | Testing | 3 |

IV. EVALUATION METHODS:

Tests	-	Midterm	30%
		Final	40%
Assignments & Quizzes			30%
			<u>100%</u>

All assignments must be submitted to pass the course.
Marks are cumulative and 60% is considered a pass.

 = 90% A = 80-89% B = 70-79% C = 60-69%

V. REQUIRED STUDENT RESOURCES:

COURSE NAME

COURSE NUMBER**VI. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY**
BOOK SECTION:Periodical Section

1. Environmental Science and Engineering *
2. Environment
3. Journal of Air and Waste Management *

Audiovisual Section

1. Greenhouse Effect **
2. Air is for Breathing**

* In Departmental Reading Room

** In College Media Services

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.