

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: PRINCIPLES OF CHEMISTRY II

Code No.: CHM 225-3

Program: GEOLOGICAL ENGINEERING TECHNICIAN

Semester: FOUR

Date: JULY, 1985

Author: J. S. KORREY

New: _____ Revision: X

APPROVED:


Chairperson

July 19/85
Date

PRINCIPLES OF CHEMISTRY II

CHM 225-3

Course Name

Course Number

GEOLOGICAL ENGINEERING TECHNICIANS

PHILOSOPHY/GOALS:

Since this course is a continuation of CHM 108-3, students entering this program must have successfully completed CHM 108. The course is strictly theoretical and deals with such topics as oxidation-reduction reactions, measurement of oxidation potentials, introduction to organic hydrocarbons related to coal, oil and gas production, molecular polarity, solubility and geometry, and finally a brief introduction to analytical instrumentation, particularly A.A., G.C., optical techniques, and fire essays. CHM 108 and CHM 225 are designed to prepare the student for more intensive work in Geochemistry.

METHOD OF ASSESSMENT (GRADING METHOD):

A = 80 - 100%	The grade obtained will be based on a cumulative average of four tests and several assignments.
B = 70 - 79%	
C = 60 - 69%	
I = 59 or less	

Four tests - 80%
Assignments - 20%

TEXTBOOKS:

MacQuarrie, D.A., Rock, P.A., General Chemistry, W.H. Freeman, N.Y., 1984.

COURSE OUTLINE

CHM 225-3

(Theory Course)

TOPIC NO.	PERIODS	TOPIC DESCRIPTION
1	10	<p><u>THE SHAPES OF MOLECULES</u></p> <p>11-1,2,3, 8,9 VSEPR Theory - used to predict shapes of molecules How shape is affected by lone electron pairs using the formula $Ax_m E_n$ to predict shape</p> <p>12-3,4 Hybridization of carbon and other atoms</p> <p>12-5 Sigma, Pi Bonds - double and triple bonds Summary Problems</p>
2	8	<p><u>OXIDATION - REDUCTION</u></p> <p>20-1 Oxidation States 20-3 Electron Transfer Reactions 20-4 Half Reactions Balancing Redox Equations</p> <p><u>ELECTROCHEMICAL CELLS</u></p> <p>Spontaneous Redox Reactions Cell Voltages Standard Potential, Table of E° Values Batteries Electrolysis Electroplating</p>
3	8	<p><u>ORGANIC CHEMISTRY (CHAPTER 25)</u></p> <p>25-1 Hydrocarbons 25-2 Structural Isomers Sources of Hydrocarbons - oil and gas Hydrocarbons with double and triple bonds Organic vs. Inorganic Properties - solubility, polarity</p>

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TOPIC NUMBER	PERIODS	TOPIC DESCRIPTION
4	8	<u>INTRODUCTION TO ANALYTICAL INSTRUMENTATION</u> Atomic Absorption Spectrophotometer Optical Methods Gas Chromatography Fire Assays
