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

COURSE OUTLINE

Course Title: MINERALOGY & PETROLOGY III

Code No.: GEO 223-4

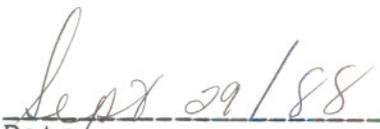
Program: GEOLOGY

Semester: 4

Date: SEPTEMBER, 1988

Author: JOHN GIGUERE

New: _____ Revision: X

APPROVED:  

Chairperson Date

CALENDAR DESCRIPTION

MINERALOGY & PETROLOGY III

GEO 223-4

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PHILOSOPHY/GOALS:

This course introduces the student to laboratory methods used in Mineralogy and related geological fields which help in the determination of rock and mineral properties.

METHOD OF ASSESSMENT:

Tests	30% of the grade
Rock Identification	20% of the grade
Labs	50% of the grade with each lab assignment worth 5%

100%

Pass Grade 60%

Make-up labs and tests available to students with over 50% but under 60% average at the end of the semester, and all assignments submitted.

GRADING:

A+ - 90% or better
A - 80% - 89%
B - 70% - 79%
C - 60% - 69%

TEXTBOOK(S):

Manual of Mineralogy by C. Klein and C. Hurlbut Jr., 20th edition, John Wiley & Son

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THEORY SESSIONS

<u>TOPIC</u>	<u>PERIODS</u>	<u>DESCRIPTION</u>
1		Review of Mineralogy & Petrology
2		<u>X-Ray Methods</u> - Generation of X-Rays - Diffractometer - The Diffraction Camera - The Bragg equation from the crystal lattice as a diffraction grating - X-Ray Fluorescence - Electron Probe
3		<u>Mineral Assemblages in Igneous Rock</u> - The Granite Rhyolite System - the Gabbroic-Basalt System exemplified by proper phase diagrams
4		<u>Sedimentary Rocks</u> - review of classification and nomenclature - sorting analysis - modality
5		<u>Metamorphic Rock</u> - facies concept review - mineral assemblages in different facies - stability factors in metamorphic rock

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LAB COMPONENT

Seven or more Lab Projects to be completed of the following

TOPIC	PERIODS	DESCRIPTION
1		X-Ray Diffraction (identification of an unknown)
2		Refractive Index Identification of Volcanic aphanites
3		Sieve Analysis of a sediment to determine Modality, sorting and mean value, standard deviation
4		Preparation and staining identification of calcite in mixed limestone
5		Identification and logging of oil type drill samples
6		Photograph rock structure and fabric by photomicrographic techniques.
7		Quantitative determination of the Calcite component of a limestone using X-Ray, diffraction
8		Determination of plagioclase feldspars in several thin sections
9		Option of students choice with approval of the teacher.
10		Preparation of a polished section for hardness testing.

Other Lab Work:

Identification of Igneous, Sedimentary and Metamorphic Rock with detailed descriptions.