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SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: FIELD GEOLOGY II
Code No.: GEO 214-4
Program: GEOLOGY
Semester: 3
Date: SEPTEMBER, 1988
Author: JOHN GIGUERE

New: _____ Revision: X

APPROVED: John Giguere Chairperson Sept 29/88 Date

CALENDAR DESCRIPTION

FIELD GEOLOGY II

GEO 214-4

COURSE NAME

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PHILOSOPHY/GOALS:

This course is designed to give the student as much field time as possible so that he may develop the necessary field techniques that have been taught in the classroom. Because of the short duration of the course, it is required that the student receive as much practical, hands-on training, as possible during the early part of the third semester.

The course material will involve field and classroom projects that are realistically oriented toward industry and what the student will be doing after receiving his technician's diploma.

METHOD OF ASSESSMENT:

Pass grade is 60%

Projects	80%
Test	20%
	<u>100%</u>

GRADING:

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

TEXTBOOK(S):

No available textbooks

REFERENCES:

Field Geology, Lahee, McGraw-Hill

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TOPIC	PERIODS	DESCRIPTION
1	22	<u>Examination</u> <ul style="list-style-type: none">- nature of the preliminary field examination- mapping the showing- locating the showing with respect to property boundaries- sketching outcrops- use of character samples- researching the history of the prospect- reporting prospect examination results- field exercises on old prospects- preparation of reports and maps
2	10	<u>Field Exercise at Bruce Mines</u> <ul style="list-style-type: none">- geological mapping in the Bruce Mines area- examination of area photos- collection of hand specimens for laboratory study- preparation of maps and reports
3	14	<u>Mining Geology</u> <ul style="list-style-type: none">- duties of the mine geologist- underground geological mapping techniques in drifts, raises, stopes- underground sampling techniques- preparation of geological plans and sections- exploratory drilling, core logging, core sampling, plotting a geological section

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<u>TOPIC</u>	<u>PERIODS</u>	<u>DESCRIPTION</u>
4	8	<u>Air Photo</u> - types: vertical and oblique air photos, Mosaics - scale - stereoscopic viewing - special purpose photography and imagery - obtaining air photos and satellite imagery
5	8	<u>Air Photo Interpretation</u> - bedrock terrains - glaciated landscape - slope movement - running water and groundwater features
6	8	<u>Remote Sensing and Satellite Imagery</u> - normal colour photography - infrared photography - multispectral scanners - radar imagery - landsat imagery
7	6	<u>Diamond Drill Contracts</u> - information required by the contractor

GENERAL OBJECTIVES:

The course is designed as a continuation of first year Field Geology (GEO 119). To complete the objectives below, the student must also have mastered the objectives as outlined for GEO 113 and GEO 123 (Mineralogy & Petrology I & II).

TOPIC #1 Examination of Prospects

In preparation for this part of the course, the student will examine a series of mineralized zones at old mining camps in the area. After class instruction the students will be asked to examine the showing on an old mining property as a class project. The student will then be able to do the following:

- a) Locate the showing with regard to property boundaries.
- b) Take character samples from the mineralized zone.
- c) Make a geological map of the zone and the immediate geology.
- d) Test the zone for response to geophysical methods.
- e) Draw a geological section through the mineralized zone in detail.
- f) Relate the character of the mineralization and its geological setting to other areas.
- g) Search the title of the property and the claim status.
- h) Write a property examination report based on the above objectives.

TOPIC #2 Field Exercise at Bruce Mines

The students will be involved in a one day mapping exercise in the Bruce Mines area.

In preparation, they will be instructed in the taking of field notes and geological mapping techniques.

Upon completion, the student should be able to:

- a) take field notes on a geological survey
- b) transfer the data to a base map
- c) write a technical report on the geology of the Bruce Mines area.

TOPIC #3 Mining Geology

The objectives as set out below are designed to help the student to gain an insight into the final stages of field exploration and Mining Geology. Upon completion of the period of instruction, the student will be able to:

- a) write out the duties of a geologist in the following areas:
 - Exploration
 - Mining: development
production work
- b) be able to explain, understand and write out the geological mapping procedures in drifts, stopes and raises.
- c) given certain geological conditions, on surface or underground, the student will be able to take samples for assay.
- d) given a string of diamond drill core, be able to log the core and plot the results on a geological section.

TOPIC #4 Air Photo

The student will be instructed in the principles of aerial photography and its relation to Field Geology. Upon completion of instruction, the student will be able to:

- a) recognize certain geological features on the photographs and plot them on a map.
- b) do elementary interpretation from air photographs.
- c) examine certain photographs in the laboratory and complete a geological map of these same photos in the field.

TOPIC #5 Air Photo Interpretation

Objective to be determined at the end of the semester.

TOPIC #6 Remote Sensing & Satellite Imagery

Objective to be determined at the end of the semester.

TOPIC #7 Diamond Drill Contracts

Objective to be determined at the end of the semester.