Doc. 336

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: GEOPHYSICS II

Code No: GEO 211-4

Program: GEOLOGICAL ENGINEERING TECHNICIAN

Semester: THREE

Date: SEPTEMBER 1988

Author: M. ENGEL

New:_____ Revision: X

APPROVED: _____ September 22, 1988
Chairperson Date

CALENDAR DESCRIPTION

GEOPHYSICS II	GEO 211-4
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PHILOSOPHY/GOALS:

When readily detectable natural geophysical anomalies do not exist, informative anomalies may sometimes be induced. The methods studied include induced polarization; selection of optimum field methods and equipment, and preliminary interpretation of data obtained. The case history approach is used in class and for assignments - Self Potential, VLF and Horizontal and Vertical EM.

METHOD OF ASSESMENT (GRADING METHOD):

Final marks are based 25% on assignments and 75% on results of 3 written tests of equal value.

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

Rewrite option for total course is available at discretion of instructor (for C grade only) to those students that have written test, completed assignments, and achieved 45% overall.

TEXTBOOK(S):

Practical Geophysics for the Exploration Geologist Northwest Mining Association, 1980.

Additional Reference (1) Applied Geophysics, Telford, Geldartetal, Cambridge University Press, 1978
(2) Mining Geophysics, Parasnis, 2nd edition, Elsevier Scientific Publishing Company, 1973

TOPIC	PERIODS	DESCRIPTION
1	3	The Electromagnetic Spectrum Newton's 3rd Law Induction Effects on a time - varying electromagnetic field by various natural conductors - sulphides faults, graphite, electrolytes etc.
2	12	E - M using portable input methods (a) Vertical Loop (b) Horizontal Loop (c) Combination of (a) and (b) (d) Variable Frequency
3	12	E - M using fixed input methods (a) VLF (b) Turam
4		Airborne Methods
5	8	Self-Potential Method - theory Equipment - procedures Interpretation - application
6	8	Resistivity Methods - theory Types of electrode arrays a) Sounding b) Mapping c) Pseudo depth plots Interpretation
7	8	Induced Polarization - theory Pseudo depth plot combination Application of technique Interpretation of data
8	6	Gravimetric Surveying Newtons First Law, and its application to gravimetrics Discussion of corrections to be applied to gravity readings Applications and limitations
9	3	Tests
	60	