DOC. 355

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: STRUCTURAL GEOLOGY

Code No.: GEO 277-4

Program: GEOLOGICAL ENGINEERING TECHNICIAN

Semester: III

Date: SEPTEMBER 1988

Author: MANFRED ENGEL

New: _____ Revision: X

APPROVED: _____ September 15, 1988
Chairperson Date

CALENDAR DESCRIPTION

STRUCTURAL GEOLOGY	GEO 277-4
COURSE NAME	COURSE NUMBER

PHILOSOPHY/GOALS: The general objectives of the course are as follows:

1. To cause the student to visualize geological structures in three dimensions.

2. To teach the student the necessary graphical techniques and methods related to descriptive geometry. To describe, measure, plot and reconstruct certain geological structures.

3. To teach the student to relate geological structures on maps to the shape and size of structures at depth.

METHOD OF ASSESSMENT (GRADING METHOD):

Four written tests:

True and apparent dip	15%
Depth and thickness determinations	15%
Outcrop patterns	15%
Faults	15%
Lab book with approximately 30 plates	40%
	100%

A+ = 90-100%
A = 80-89%
B = 70-79%
C = 60-69%
R = 0-59%

If the semester average is between 49-59%, a supplemental test may be given.

TEXTBOOK(S):

Structural Geology An Introduction, John G. Dennis

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
1	6	Plate Tectonics and Tectonics Movements - plate model - plate motion - recent tectonic movements	Chapter 1 and 2
2	3	Geometric Representation of Rock Structures - lines and planes - field techniques - primary structures	Chapters 3 & 4
3	6	True and Apparent Dips - terminology - graphical methods of finding true dip from two apparent clips, and apparent dip from true dip - trigonometric methods of finding true dip from two apparent dips - use of alignment diagrams - practical exercises	Appendix A
4	2	Stress and Strain - units and dimensions - measuring strain	Chapter 5
5	6	Thickness Determinations - terminology - solutions for simple cases - horizontal beds and vertical beds - traverse perpendicular to strike of dripping beds - practical exercises	Appendix A
6	6	Depth to Dipping Strata - depth to planar units - strata with changing dip - use of nomogram for calculating depth to strata - bed thickness in a well - distance along inclined hole - practical exercises	Appendix A

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
7	3	Flow of Rocks - models - mechanism of flow in rocks	Chapter 6
8	4	Folds - geometry of folds - cross sections - folding mechanisms	Chapters 7 & 8
9	6	Outcrop Patterns and Three-Point Problems - rule of the V's - three-point problem - plotting outcrop patterns - practical exercises	Appendix A
10	8	Faults - terminology - analysis of displacement - intersection of a fault and a plane - geological setting of faults - practical exercises	Chapters 11, 12, 14
11	4	Stereographic Projections - principles - types of projections - Smith and Wolff Net	Appendix A
	6	TESTS	
TOTAL	60 Hours		