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SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: SURVEYING

Code No.: SUR 120-3 0\<icodb 5u£a30~3

Program: GEOLOGICAL ENGINEERING

Semester: ONE

Date: AUGUST, 1983

Author: W. B. SPROULE

New: **Revision:**

APPROVED:

Chairperson ^ **Date**

SURVEYING	SUR 120-3
Course Name	Course Number

PHILOSOPHY/GOALS:

The objectives of this course are to develop a basic knowledge of surveying. The students will learn the use and care of instruments, i.e., transits, levels and chains.

METHOD OF ASSESSEMENT (GRADING METHOD):

Tests	55%
Notes (Field Notes)	10%
Projects	23%
Assessment by Instructor	12%

TEXTBOOK(S):

Surveying Notes -- Sault College Engineering Department

REFERENCES:

Simplified Site Engineering - Parker and McGuire

Surveying, Theory and Practice - Davis and Foote

Elementary Surveying (Vol. 1 & 2) - Breed and Hosmer

Engineering Surveys (Elementary) - Rubel, Lommel, and Todd

Surveyi ng - Bouchard and Noffit

Highway Curves - Ives

Surveying Practice - The Fundamentals of Surveying - Kissam

Principles of Surveyin - Herubin

SUR 120-3

SEMESTER 1

PERFORMANCE OBJECTIVES FOR SURVEYING—SUR 100-3

The objective of this course is to develop a basic knowledge of surveying. The students will learn the use and care of instruments, i.e., transits, levels and chains and will do surveys by using the instruments, i.e., transits, levels and chains.

The student, in order to complete the course must be able to:

1. **Care for and maintain transits.**
2. **Care for and maintain levels.**
3. **Care for and maintain chains.**
4. **Identify the parts of a transit.**
5. **Identify the parts of a level.**
6. **Read the vernier scales on any transit.**
7. **Measure an angle in the field by means of a transit.**
8. **Neasure a field angle by doubling same with aid of transit.**
9. **Layout a transverse and measure same.**
10. **Measure courses with different types of chains.**
11. **Set up standard surveyor's field book.**
12. **Record survey notes for a measured transverse.**
13. **Convert slope distances to horizontal distances.**
14. **Identify between errors and mistakes.**
15. **Correct chainage distances for temperature differences.**
16. **Measure distance by means of stadia surveying.**
18. **Calculate distances using stadia tables.**

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19. Complete a stadia survey and draw up the results of stadia surveys.

20 Solve slope problems by use of logarithms.

21. Identify a B.M. and be able to obtain the elevation from recorded data.

22. Transfer grades.

23. Carry a set of elevations from one point to another.

24. Extablish B.M.'s and T.P.'s

25. Record levelling notes.

TOPIC NO.	PERIODS	TOPIC DESCRIPTION
		General - introduction - definition of surveying factors controlling surveys - types, kinds and purpose of surveys Fundamental Principles of Surveying - plane and Geodetic surveying - precision of surveys - safety precautions - theory of notekeeping - errors and mistakes–general Linear Measure - terms and definitions - units of linear measurement - methods of measuring distances - steel tape - chaining methods - notekeeping - care and maintenance of chaining equipment - temperature affects on chaining Transits - basic principies - types of transits and general application - use of a transit - care of a transit - sources of error Angular Measurement - definition - basic computations involving angles - verniers - measuring angles with a transit - double angles with a transit Stadia - principles of stadia - topographic surveys by stadia - mapping a topographic survey

TOPIC NO.	PERIODS	TOPIC DESCRIPTION
	10	Levelling - introduction to levelling - theory of levelling - terms and definitions - datus planes and bench marks - methods of measuring difference in elevation - levelling procedure - notekeeping - reduction of level notes - sources of error - distribution of error
	2	Level1i ng Instrument - types of levelling instruments - level rods and accessories - care of levelling instruments

FIELD EXERCISES

EXERCISE NO.	PERIODS	CONTENT OF EXERCISE
1	2	Chaining level ground
2	2	Chaining sloping ground
3	1	Setting up transit over point
4	2	Reading angles use of vernier
5	3	Transverse chaining 4 transit
6	1	Interlining
7	3	Topographic survey via stadia