

SAULT COLLEGE
of Applied Arts and Technology
Sault Ste. Marie

COURSE OUTLINE

SURVEYING

SUR 101-5

r B V i S S d March, 1979 by B. Sproule

SURVEYING

SUR 101-5

TEXT:

Surveying Notes by Sault College Engineering Department

REFERENCE TEXTS:

Simplified Site Engineering by Parker and McGuire

Surveying, Theory and Practice by Davis and Foote

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

Engineering Surveys (Elementary) by Rubel, Lommel and Todd

Surveying by Bouchard and Moffit

Highway Curves - by Ives

Surveying Practice - The Fundamentals of Surveying by Kissam

Principles of Surveying - by Herubin

General

- introduction
- definition of surveying and Factors controlling surveys
- types, kinds and purpose of surveys

Fundamental Principles of Surveying

- plane and Geodetic surveying
- precision of surveys
- safety precaution
- theory of notekeeping
- errors and mistakes - general

Linear Measure

- terms and definitions
- units of linear measurement
- methods of measuring distances
- steel tapes
- chaining methods
- notekeeping
- care and maintenance of chaining equipment
- temperature affects on chaining

Transits

- basic principles
- types of transits and general applications
- use of transits
- care of transits
- sources of error

Angular Measurement

- **definition**
- basic computations involving angles
- verniers
- measure angles with transit
- double angles with a transit

Stadia

- principles of stadia
- topographic surveys by stadia
- mapping a topographic survey

Levelling

- introduction to levelling
- theory of levelling
- terms and definition
- datum planes and bench marks
- methods of measuring differences in elevation
- levelling procedure
- notekeeping
- reduction of level notes
- sources of error
- distribution of error

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Periods

Topic Description

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Levelling Instrument

- types of levelling instrument
- level rods and accessories
- care of levelling instruments

CIVIL ENGINEERING TECHNICIAN

Field Exercises

<u>Exercise Number</u>	<u>Periods</u>	<u>Exercise Information</u>
1	2	Chaining-level ground
2	2	Chaining-sloping ground
3	1	Setting up transit over poin
4	2	Reading angles - use of vern
5	6	Traverse chaining and transi
6	2	Prolonging a straight line
7	2	Interlining
8	4	Topographic survey via stadi.
9	2	Levelling set bench marks

CIVIL ENGINEERING

Semester 1

Performance Objectives for Surveying:

The objective of this course is to develop a basic knowledge of surveying. The students will learn the use and care of instruments, ie: transits, levels and chains and will do surveys by using the surveying instruments, ie: 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. Measure a field angle by doubling same with aid of transit.
9. Lay out 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.
17. Record notes for stadia surveys.
18. Calculate distances using stadia tables.
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. Establish B.M.'s and T.P.'s.
25. Record levelling notes.