

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: SURVEYING
Code No.: SUR 101-5
Program: CIVIL ENGINEERING
Semester: I
Date: JUNE, 1983
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New: Revision:

APPROVED:

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Chairperson *rf*

Date

SURVEYING
Course Name

SUR 101-5
Course Number

PHILOSOPHY/GOALS:

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 surveying instruments, i.e., transits, levels and chains.

METHOD OF ASSESSMENT (GRADING METHOD):

Tests	55%
Field Book	10%
Projects	23%
Assessment by Instructor	12%

OBJECTIVES:

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.N. 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.

TEXTBOOK:

Surveying notes by Sault College Engineering Department

REFERENCE TEXTS:

Simplified Site Engineering - Parker and McGuire

Surveying, Theory and Practice - Davis and Foote

Elementary Surveying (Vol I and II) - Breed and Hosmer

Engineering Surveys (Elementary) - Rubel, Lommel and Todd

Surveying - Bouchard and Moffit

Highway Curves - Ives

Surveying Practice - The Fundamentals of Surveying - Kissam

Principles of Surveying - Herubin

CIVIL ENGINEERING TECHNICIAN

SUR 101-5

<u>Topic No.</u>	<u>Periods</u>	<u>Topic Information</u>
1	2	<p>General</p> <ul style="list-style-type: none">- Introduction- Definition of Surveying and factors controlling surveys- Types, kinds and purpose of surveys <p><u>Fundamental Principles of Surveying</u></p> <ul style="list-style-type: none">- Plane and Geodetic surveying- Safety precaution- Theory of Notekeeping- Errors and mistakes - general <p><u>Linear Measure</u></p> <ul style="list-style-type: none">- 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 <p><u>Transits</u></p> <ul style="list-style-type: none">- Basic principals- Types of Transits and general application- Use of transit- Care of transit- Sources of error <p><u>Angular Measurement</u></p> <ul style="list-style-type: none">- Definition- Basic computations involving angles- Verniers- Measure angles with transit- Double angles with a transit <p>Stadia</p> <ul style="list-style-type: none">- Principles of stadia- Topographic surveys by stadia- Mapping a topographic survey

<u>Topic No.</u>	<u>Periods</u>	<u>Topic Information</u>
7	12	<u>Levelling</u> <ul style="list-style-type: none">- 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
8	4	<u>Levelling Instrument</u> <ul style="list-style-type: none">- Types of levelling instrument- Level rods and accessories- Care of levelling instruments

CIVIL ENGINEERING TECHNICIAN

Field Exercises		Exercise Information
Exercise No.	Periods	
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	6	Traverse chaining and transit
6	2	Prolonging a straight line
7	2	Interlining
8	4	Topographic survey via stadia
9	2	Levelling set bench marks