

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

COURSE OUTLINE

Course Title SURVEYING
Code No.: SUR 230-3
Program: ARCHITECTURAL ENGINEERING
Semester: TWO
Date: JUNE 1983
Author: W.B. SPROULE

New: Revision; X

APPROVED;

Chairperson

Date

SURVEYING
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SUR 230-3
Course~Number

PHILOSOPHY/GOALS;

The objective of this course is to take survey field work problems that occur and show the student how, in practice, they should be dealt with. Levelling practices, profiles and cross section works will be dealt with along with planimeter for determining areas and volumes. Bearings and azimuths conversions, latitudes and departures along with areas by D.M.D. will be studied.

METHOD OF ASSESSMENT (GRADING METHOD);

| | |
|---------------------------|-----|
| Tests | 55% |
| Field Book | 10% |
| Projects | 23% |
| Assessment by Instructors | 12% |

TEXTBOOK(S);

Surveying Notes by the Sault College Engineering Department

SURVEYING
230-3

TEXT

Surveying Notes by Sault College Engineering Department

REFERENCE TEXTS;

Simplified Site Engineering by Parker and McGuire

Surveying, Theory and Practice by David 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

The student, on completion of this course must be able to:

1. Set grades and B.M.'s in the field.
2. Deduce level notes.
3. Record field level notes and notes for profiles.
4. Plot profiles.
5. Determine areas of cross-section via end area method.
6. Determine areas of cross-section via planimeters.
7. Set sewer grades.
8. Design and plan and layout drainage schemes.
9. Determine survey requirements for borrow pit excavations
10. Determine azimuths, bearings, and co-ordinates.
11. Determine areas by D.M.D.'s.
12. Plot contour lines.
13. Determine contours from points of known elevation.
14. Conduct a topographic survey.
15. Use field notes draw a topographic map.

SURVEYING - 230-3

| Topic No. | Topic Information |
|-----------|--|
| 1 | <u>Information</u> Theory of levelling Terms and definitions Differential levelling Note keeping |
| 2 | <u>Setting Elevations</u> Levelling Instruments Types of levelling instruments Levelling work accessories Levelling using different levels |
| 3 | <u>Profile Levelling</u> Decipher levelling notes Plotting profiles |
| 4 | <u>Grade Work Levelling</u> Setting sewer grades Setting ditch grades, sidewalks, etc. |
| 5 | <u>Grade Line Problems</u> Rate of Grade % Intersecting grade lines |
| 6 | <u>Construction Surveys</u> Layout of grade lines for roads Layout of grade lines for sewers, ditches |
| 7 | <u>Contours</u> Interpolation |
| 8 | <u>Earthwork</u> Cross sections of pits Computations of volumes |
| 9 | <u>Angular Measure</u> Azimuths, bearings Bearings from field angles |

FIELD EXERCISES

SUR 230-3

ARCHITECTURAL ENGINEERING TECHNICIAN

| <u>Exercise No.</u> | <u>Periods</u> | <u>Content</u> |
|---------------------|----------------|--|
| 1 | 3 | Differential levelling |
| 2 | 4 | Setting B.M. Profiles |
| 3 | 3 | Street survey, plan & profile |
| A | 4 | Sewer grades, preliminary design and layout |
| 5 | 2 | Topographic surveying |
| 6 | 2 | Cross sections, volumes |