

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

COURSE OUTLINE

Course title: SURVEYING  
Code No. SUR 236-2  
Program: FORESTRY TECHNICIAN  
Semester: IV  
Date: JANUARY 1989  
Author: V. VENN

New; Revision X

Approved: <sup>•:/ I;</sup>  
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Date

CALMDAR DESCRIPTION

SURVEmO

SUR 236

Course Name

Course Number

PHILOSOPHY/GOALS;

To continue the area of study begun in 3(JR 120 and introduce the student to linear measurement, stadia principles, engineers transit, traverse computation and horizontal curve computation

METHOD OP ASSESSMENT

Assignments	25^
Short quizzes	10^
Mid semester test	25/^
Pinal Semester Test	4C^
	100%

A	8056 - 100^
B	70?g - 7956
C	59^ - 69^
R	Repeat
X	A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete the requirements for the course. Note it is only used at the end of the semester.

1) Minimum acceptable grade is 6C5^

2) Your assignments will carry equal weight and you will be notified one week in advance prior to handouts. Late submissions will be penalized in the following fashion:

- 1 day late - loss of 205^
- 2 day late - loss of 10^
- 3 day late - loss of 10^

NO ASSIGNMIMTS will be accepted on the 4th day.

3) The in-class short quizzes will be given as the study lesson lends itself applicable. Each quizz will carry equal weight.

5) If at the end of the semester your overall average of the combined assignments, quizzes, mid semester test and final test is below 59^ then it will be up to the instructor whether you receive an "R" repeat or a re-write. The criteria employed for arriving at that decision is class attendance, class participation, and overall grade.

6) In case a re-write is granted it will be permitterd only once, and will be subjected to the following conditions:

- a. it will cover the entire semesters course outline
- b. the maximum obtainable grade is "C"
- c. the re-write grade weight is 100\$, therefore excluding the assignments, quizzes *and* mid semester test from your overall average.

PRIEBQUISITE: SUR 120

TEXTS: Sault College Notes

RDRESTRY TECHNICIAN

SEMESTER 4

SUR 236

TOPIC NO.	TOPIC DESCRIPTION
1.	<u>Linear Measurement</u> <ul style="list-style-type: none"><li>- Terms and definitions</li><li>- Units of measurements</li><li>- Significant figures</li><li>- Standard condition of steel tape</li><li>- Taping accessories</li><li>- Taping methods</li><li>- Taping notes</li><li>- Errors in chaining</li><li>- Slope corrections</li><li>- Corrections for tapes of incorrect length</li><li>- Sources of error</li><li>- Duties of head chainperson and rear chainperson</li><li>- Pacing</li></ul>
2.	<u>Engineers transit</u> <ul style="list-style-type: none"><li>- Basic principles</li><li>- Types of transits</li><li>- Method of use</li><li>- Reading verniers</li><li>- Measuring horizontal angles</li><li>- Running straight lines</li><li>- Balancing in</li><li>- Prolonging a line past an obstacle</li><li>- Sources of error</li><li>- Hand signals for transit work</li></ul>
3.	<u>Traversing</u> <ul style="list-style-type: none"><li>- Types of traverses</li><li>- Angular closure</li><li>- Bearing calculations</li><li>- Latitudes and departures</li><li>- Precision and accuracy</li><li>- Traverse adjustments</li><li>- Coordinate computations</li><li>- Area computation</li></ul>

Cont 'd.

TOPIC NO.

TOPIC INFORMATION

4.

Stadia Surveying

- Definitions
- Theory of stadia
- Applications and limitations
- Note keeping
- Field procedures
- Plotting stadia topography

Horizontal Curves

- Circular curve geometry
- Deflection angles
- Chord computation
- Field procedures

Field Work

- Transit and tape traverse survey
- Stadia survey

## SPECIFIC OBJECTIVES

### SUR 236

#### Chaining

1. Measure distances with chaining equipment and make proper adjustments
2. Demonstrate the various use for the plumb bob and chaining pins
3. List and perform the basic duties of the head chainperson and rear chainperson
4. Participate within a field crew and act as a head chainperson rear chainperson and note keeper
5. Recognize and list the sources of chaining errors
6. Produce notes that are legible, neat and accurate
7. Perform chaining computations for chains that are too short or too long
8. Reduce slope chaining distances to horizontal distances

#### Transit

1. Demonstrate the correct procedure for mounting, removing and storing the transit head .
2. Demonstrate the proper method of transporting a mounted transit in the field
3. Set up a transit
4. Demonstrate proper use of tangent screws
5. Plumb a site
6. Measure a horizontal angle
7. Read the verniers
8. State the basic functions of a transit

#### Traverse computation

1. Compute the bearings and/or azimuths of lines given the angles between the lines and a reference bearing
2. Balance the angles and compute the latitudes and departures of a traverse
3. Balance a traverse using compass rule
4. Calculate any two missing measurements of either bearing or distance in a closed figure
5. Compute plane coordinates
6. Compute areas by D.M.D.'s
7. Plot a traverse with protractor and scale and/or coordinates

#### Stadia

1. Measure the H.I. with a tape
2. Read stadia intervals
3. Read and book the horizontal angles and vertical angles
4. Reduce field notes and compute the horizontal distances and elevations

#### Horizontal curves

1. Compute T, L,  $\Delta$ , M, R, and station of B.C. and E.G. for circular curve
2. Compute chord layout lengths
3. Tabulate all data required to lay out by deflection angles, a simple horizontal curve
4. Be familiar with the field procedure for laying out the curve