

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

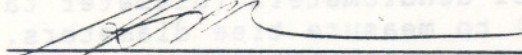
COURSE TITLE: FOREST MENSURATION I

CODE NO.: FOR119-4 SEMESTER: ONE

PROGRAM: FORESTRY TECHNICIAN

AUTHOR: GERRY BERMAN

DATE: DECEMBER 1991 PREVIOUS OUTLINE DATED: NEW

APPROVED:  DATE Dec 15/91  
DEAN, SCHOOL OF SCIENCES & NATURAL RESOURCES

FOREST MENSURATION I

FOR119-4

COURSE NAME

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TOTAL CREDIT HOURS: 64

PREREQUISITE(S): None

**I. PHILOSOPHY/GOALS:**

This course provides students with the basic skills in determining direction and distance in the field and from maps. It emphasizes the use of the magnetic hand compass, the understanding of azimuths and bearings; and the fundamentals of keeping good field notes and field mapping techniques. It also covers the theory and practical use of various instruments for measuring tree age, height and diameters.

**II. STUDENT PERFORMANCE OBJECTIVES:**

Upon successful completion of this course the student will:

1. prove competency in the use of the magnetic hand compass under field conditions.
2. determine and plot azimuths and distances on a map/from a map by means of a navigational protractor and engineers scale or metric scale; and define the direction of a line in terms of true and magnetic azimuths/true magnetic bearings.
3. to express map scale in 4 different forms and to convert from one scale to another.
4. to state equivalents re: feet, chains, miles and acres or metres and hectares.
5. determine diameter class midpoints and class boundaries.
6. define and derive tree basal area.
7. prove competency in the use of dendrometers (diameter tape, calipers, parabolic calipers) to measure tree diameters.
8. understand Biltmore stick theory and calibration.
9. prove competency in the use of hypsometers based on trigonometric principles (Abney, Haga, Suunto).
10. name and describe hypsometers based on geometric principle (Staff, Merritt).
11. list the type of information required in the design of tally sheets and map sheets.
12. determine tree age through the use of an increment borer.
13. be able to describe the steps required for the care and maintenance of an increment borer.

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**III. TOPICS TO BE COVERED:**

- Metric conversion
- Map scale
- Delineation
- Isogonic chart
- True and Magnetic Meridians
- True and Magnetic Azimuths
- True and Magnetic Bearings
- Direction of a line (map & field)
- dbh
- Diameter of irregular trees
- Diameter class midpoints and class boundaries
- Basal area
- Dendrometers
- Biltmore stick
- Total and merchantable height
- Measuring a leaning tree
- Measuring trees on a slope
- Hypsometers (trigonometric and geometric principles)
- Field notes - tally sheets and field maps
- Common signs and symbols used for mapping forestry, land, water and cultural features
- OMNR abbreviations for commercial tree species
- Non-productive forest land
- Non-forested land
- Tree age
- Use and care of an increment borer

**IV. EVALUATION METHODS:**

- |                               |       |
|-------------------------------|-------|
| Practical Tests & Assignments | - 60% |
| Written tests (2) Theory      | - 40% |

**V. REQUIRED STUDENT RESOURCES:**

- Hand Compass
- Study Guide
- Manual of Forest Measurements and Instruments

**VI. SPECIAL NOTES:**

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.

