revised
May, 1986.

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: FOREST MENSURATION II

Code No.: FOR 109-4

Program: FORESTRY TECHNICIAN

Semester: TWO

Date: AUGUST, 1985

Author: J. G. WISKIN

New: _____ Revision: X

APPROVED: _____ Aug 21/85
Chairperson Date

CALENDAR DESCRIPTION

FOREST MENSURATION II — COURSE NAME

FOR 109-4 — COURSE NUMBER

PHILOSOPHY/GOALS: To provide the student with a foundation in measurement principles and sampling techniques.

FOR 109 is a pre-requisite for FOR 203.

METHOD OF ASSESSMENT (GRADING METHOD): Student assessment is based on:

	Approximate weight
1. Projects and assignments	25%
2. Practical Tests	25%
3. Theory Tests	45%

(A student must achieve a "C" grade (60%) in each of these sections.)

4. Attendance	5%
	100%

Tests and projects are assigned a numerical grade. Letter grades have the following numerical equivalent:

A = 80-100%
B = 70-79%
C = 60-69% (pass mark is 60%)

Theory Tests

Test marks are accumulative. A student with an accumulated average of less than 60% in the tests will be required to write a final test (rewrite) based on the entire semester.

Practical Tests

Students are required to attain competency standards in the use of the tree measuring instruments, consequently, a pass mark of 60% must be achieved on each test. One rewrite will be scheduled after each test.

FOR 109-4...3

Projects and Assignments

- Involve field and lab work, both of which require a "C" grade (60%). An "I" grade means the work is incomplete or unsatisfactory and must be corrected and returned.

- Projects or assignments are to be handed in on or before an established "due date". Failure to do so will result in loss of marks up to a maximum of 10% per day.

TEXTBOOK(S):

1. Manual of Forest Measurements and Instruments

2. Reference textbooks in Library

FOR 109-4...4

COURSE OUTLINE AND OBJECTIVES

FOR 109-4

FOREST MENSURATION II

REF. NO.	TOPIC NO.	OBJECTIVES
2967.04	1	LOG IDENTIFICATION
		- identify commercial tree species in the log form
	2	METRIC (SI) UNITS
		- state the unit symbol for a given measurement use - use the correct form for writing metric units and symbols - state equivalent values between millimetres, centimetres, metres and kilometres and between square metres and hectares
2967.04	3	MEASUREMENT OF TREE DIAMETER
		- define and locate dbh - determine diameters for irregular trees - determine diameter class midpoints and class limits - define and derive tree basal area - use the dendrometers (parallel calipers, diameter tape, Biltmore stick and parabolic calipers) to measure tree diameter - use upper stem dendrometers to measure tree diameter - calculate the calibrations for the Biltmore stick

FOR 109-4...5

REF. NO.	TOPIC NO.	OBJECTIVES
2967.04	4	MEASUREMENT OF TREE HEIGHT

- define total and merchantable height
- describe the results of measuring a leaning tree
- name and describe hypsometers based on trigonometric principle (Abney, Haga, Suunto)
- use these hypsometers to determine total tree height
- from the degree scale, derive the percent and Haga scales
- name and describe hypsometers based on geometric principle (Staff, Merritt)
- describe how to use these hypsometers
- calculate the calibrations for the Merritt hypsometer

2967.01	5	FIELD NOTES

- name four important requirements of field notes
- list the type of information required in the design of tally sheets and map sheets
- use the dot-dash method for tallying tree diameters
- list the type of information to be included on site and stand description sheets
- write the common signs and symbols used for mapping forestry, land, water and cultural features
- list the abbreviations for commercial tree species (Ontario Ministry of Natural Resources)
- define the following land classifications, give examples and show the map symbol used:
  (a) non-productive forest land
  (b) non-forested land
- apply field mapping techniques to actual field conditions
- use acceptable drafting skills to prepare a forest stand map

FOR 109-4...6

REF. NO.	TOPIC NO.	OBJECTIVES
2967.04	6	SAMPLING IN FORESTRY

- define the following terms:
  (a) sample
  (b) sample unit
  (c) stand table
  (d) stock table
- state two basic differences between fixed-area and variable-area sample units
- describe how stand variability affects plot size or strip width
- compare the advantages and disadvantages of strips vs. plots
- describe two types of errors that may occur in forest sampling
- calculate the radius of circular plots and the side and diagonal of square plots, given the area
- calculate the area of a forest property in hectares, given the dimensions in metres
- define and calculate: -
  (a) sample area in hectares
  (b) sample volume in m^3
  (c) volume per hectare in m^3
  (d) total stand volume in m^3
  (e) sample intensity
- locate plot and strip sample units in the field; tally trees on the sample units by species and diameter

2967.06	7	THE MEASUREMENT OF TREE VOLUME

- prepare a local volume table for tree species
- calculate the volume of a tree by means of
  - formulae
  - graphic estimation
- compare local and standard volume tables on the basis of dependent and independent variables