SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: FOREST MENSURATION III

Code No.: FOR 203-4

Program: FORESTRY TECHNICIAN

Semester: THREE

Date: AUGUST, 1987

Author: J. G. WISKIN

New: _____   Revision: ___X___

APPROVED: _____   Date _aug 27/87_
Chairperson

CALENDAR DESCRIPTION

FOREST MENSURATION III   FOR 203-4
_____   _____
    COURSE NAME   COURSE NUMBER

PHILOSOPHY/GOALS: To provide the student with a firm foundation in forest sampling.

Prerequisite - FOR 109

METHOD OF ASSESSMENT: Student assessment is based on:

                                                    Weight

1. Theory Tests
    1. Point-sampling   20%
    2. Statistics, volume   25%
    3. Lab quizes   5%

2. Practical tests   5%

3. Projects and Assignments
    1. Point-Sample Project   25%
    2. Lab assignments   20%

                                100%

Projects and assignments are assessed on the basis of accuracy and neatness. They are to be handed in on or before an established "due date". Otherwise, marks will be deducted up to a maximum of 10% per day.

Tests and projects are assigned a numerical grade; letter grades have the following numerical equivalent:

    A+ = 90-100%
    A = 80-89%
    B = 70-79%
    C = 60-69%

COURSE OUTLINE AND OBJECTIVES

FOREST MENSURATION

FOR 203-4

REF. NO.	TOPIC NO.	OBJECTIVES
	1	SAMPLING IN FORESTRY
2967.04		(i) Point-Sampling

State two major differences between fixed-area and variable-area sampling units.

State the advantages and disadvantages of point-sampling.

Describe the procedure to be taken when a borderline tree is encountered.

Calculate the Limiting Distance for a tree of given diameter.

State three factors which determine if a tree is to be included in the sample.

Define Basal Area Factor (BAF) and develop the general equation.

Calculate BAF values.

Given, the ratio between the tree diameter and its distance from the point, determine the Plot Radius Factor (PRF).

Given, the BAF of a wedge prism, determine its PRF.

Define the term Tree Factor (TF) and compute TF values for fixed-area and variable-area sample units.

Name the sources of error in point-sampling.

Explain how to correct for sloping ground when using the wedge prism. Explain how this correction works.

Given, a map and a set of instructions, locate sample points in the field and determine, by the use of a wedge prism, an accurate tree count by species.

Measure sample trees and obtain an average stand age and height.

Compile field data (diameter and species) into stand and stock tables using the Tree Factor Concept.

Using the field data (tree count, stand age, and height) and Norman Yield Tables (Plonski), determine:

>   site class
>   actual basal area per hectare
>   stocking factor
>   actual volume & CAI per hectare

Name four methods for measuring site.

State the limitations of site index.

2967.04

ii) Types of Forest Inventories

Name and describe two basic types of forest inventories used in Canada.

2967.04

iii) Forest Inventory Design

List the general and specific factors to consider in the design of a forest inventory.

Plan the inventory: -
- calculate the required sample size for a given sampling system and intensity
- locate sample units on a map

Apply sampling techniques in the field.

2967.06		Prepare a cruise report to include statistical analysis: - - sample mean - standard deviation - standard error of the mean - confidence limits - required sample size - derive coded volumes for a Cumulative Volume Tally Sheet
2967.06	2.	**THE MEASUREMENT OF TREE VOLUME**

List four methods for determining tree volume.

Identify the geometric solids which make up a tree stem.

Determine the volume of a tree from formulae and graphical estimation.

Name the variables associated with local and standard volume tables.

List the steps involved in constructing a local volume table from:
- felled trees
- a standard volume table

Determine an average form class for a local species from regression equations.