DOC.# 522

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: FOREST MENSURATION I

Code No.: FOR 105-3

Program: FORESTRY TECHNICIAN

Semester: ONE

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New: _____ Revision: X

APPROVED: _____ August 30/88
Chairperson Date

CALENDAR DESCRIPTION

FOREST MENSURATION I	FOR 105-3
COURSE NAME	COURSE NUMBER

PHILOSOPHY/GOALS:

There are two parts to this course: 1. Direction and Distance
2. Methods of Wood Measurement

1. Direction and Distance

Proficiency in determining direction and distance from a map and in the field is of utmost importance. Consequently, this topic receives top priority in the first semester. It is covered in 8 3-hour weekly sessions.

Each student is required to prove competency in the use of magnetic hand compass under field conditions. In addition, each student is required to master the following objectives:

1. to determine azimuths and distances from a map by means of protractor and engineer's scale or metric scale
2. to plot azimuths and distances on a map using protractor and engineer's scale or metric scale
3. to define: declination, isogonic chart, isogonal, agonic line, true and magnetic meridians, true and magnetic azimuths, true and magnetic bearings
4. to express a map scale in 4 different forms and to convert from one scale to another
5. to state equivalents re: feet, chains, miles and acres or metres and hectares
6. to define the direction of a line in terms of true and magnetic azimuths, and true and magnetic bearings

2. Methods of Wood Measurement (Scaling):

All timber harvested from Crown lands in Ontario is measured by a licensed scaler. It is not the intent of this course to qualify forest technicians as licensed scalers, however, the very nature of the work with private industry or government services requires that technicians have a good understanding of the methods of wood measurement.

There are four major topics:

1. Cubic Metre Measure
2. Stacked Wood
3. Board Foot Measure, the Ontario Log Rule
4. Log Identification

The four topics are covered in 8 3-hour weekly sessions, Three main objectives of the course are:

1. how to measure wood
2. how to measure defect
3. how to identify logs or bolts

Following are specific objectives each of which is mastered by the student in topic A, Cubic Metre Measure.

1. Forest products which are measured by this method
2. The unit of measurement used
3. Calculation of volume by formula and the use of appropriate tables
4. Unit of length used
5. Measurement of gross diameter of logs
6. Definition and measurement of defect, cull and the use of appropriate tables
7. The determination of net diameter and net volume of logs
8. The use of the scale stick for measuring gross diameters of logs and diameter of defect

in topic B, Stacked Wood

1. Forest products which are measured by this method
2. The unit of measurement
3. The calculation of gross and net volume
4. The measurement of length, height and width of a pulpwood pile
5. The definition and measurement of defect, cull and voids in stacked cords and the use of appropriate tables
6. The volume of solid wood, bark and air space in the stack
7. The use of the scale sticks for measuring gross diameter of bolts and defects diameter

in topic C, Board Foot Measure, Ontario Log Rule

1. Forest products which are measured by this method
2. The unit of measurement
3. The calculation of gross volume by formula and tables
4. Unit of length used
5. Broomage allowance
6. Measurement of gross diameter
7. Definition and measurement of:
   a) interior & exterior defects
   b) partial and continuous defects
   c) culls
8. The calculation of net diameter and net volume by formula and the "field method"
9. The use of the scale stick for measuring gross diameter and defect diameter

in topic D, Log Identification the student masters the identifying characteristics of 15 coniferous and deciduous timber species in log or bolt form.

METHOD OF ASSESSMENT:

	Weight
1. **Direction & Distance**	
Compass field tests	15%
Lab assignments	5%
Theory test (written)	40%

A +/- 5% error in compassing is allowable, otherwise the student is required to repeat the test. A passing grade (60%) must be achieved on the compass tests)

2. **Methods of Wood Measurement (Scaling):**	
Written test	40%
	100%

GRADING:

The following grade symbols are the approved grades for end of term reporting:

A+	90-100%	Consistently Outstanding Achievement
A	85-89%	Outstanding Achievement
B	75-84%	Consistently Above Average Achievement
C	60-74%	Satisfactory or Acceptable Achievement
R	<60%	Repeat - Objectives of the course not achieved and course must be repeated.

EQUIPMENT LIST:

12" Engineer's Scale
Metric Scale (triangular)
Navigational Protractor
Set Squares
Silva Ranger Compass (360^{o})
Direction and Distance Manual
H and 2H pencils
Calculator
Hard Hat (liner)
Boots
Warm Clothing
Rain gear