DOC.# 531

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: TREE IMPROVEMENT

Code No.: FOR 352-3

Program: FOREST MANAGEMENT TECHNOLOGY

Semester: 6

Date: SEPTEMBER, 1989

Author: MARK HARVEY

New: _____ Revision: X

APPROVED: _____ June 28/89
Chairperson Date

CALENDAR DESCRIPTION

TREE IMPROVEMENT	FOR 352-3
COURSE NAME	COURSE NUMBER

PHILOSOPHY/GOALS:

This course is designed so that students will:

1. develop a broad understanding of current and future tree improvement programs.

2. understand the concepts of applied genetics as they apply to heritability, hybridization, natural selection, pressures, variability, plus tree selection, clonal forestry, breeding strategies and production of genetically improved seed.

3. integrate tree improvement practices with other forest management activities.

4. apply the principals used in the design construction operations and maintenance of seed, orchards, seed production areas and related genetic testing facilities.

METHOD OF ASSESSMENT:

Test #1	10%
Test #2	20%
Reading Assignment	20%
Participation	10%
Fall Field Trip Report	10%
Seed Orchard Assignment	30%
	100%

The fall extended silvicultural tour will act as an integral part of the course and provide students with exposure to tree improvement field operations.

TREE IMPROVEMENT — COURSE NAME

FOR 352-3 — COURSE NUMBER

TOPIC NUMBER	PERIODS	TOPIC DESCRIPTION
1	2	Define the scope of forest tree improvement programs.
2	4	Genetic and Tree Improvement - basic genetics - natural variation - mutations - hybridization - heritability
	1	- **TEST #1**
3	1	Gene Conservation - seed banks - clone banks - monocultures - effects of harvesting and silvicultural practices
4	5	Selection and Provenance - selection traits - plus tree selection - provenance testing - seed sources
5	2	Seed Production Areas - establishment - maintenance - maximizing quality seed production
6	7	Seed Orchards and Progeny Testing - clonal orchards - seedling orchards - design, maintenance, operation - techniques for enhanced seed production - artificially, enhanced pollination - protection - roguing - seed collection and storage - research

TREE IMPROVEMENT — COURSE NAME

FOR 352-3 — COURSE NUMBER

TOPIC NUMBER	PERIODS	TOPIC DESCRIPTION
7	3	Breeding Techniques - open and controlled pollination - pollen contamination - collection and handling of pollen - breeding halls, breeding orchards - controlled pollination
8	2	State of the Art Seed Orchar Management in B.C.
9	2	Tree Improvement Strategies and the Ontario Tree Improvement Program
	2	TEST #2