

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE:

SILVICULTURE

CODE NO. :

NRT200

SEMESTER:

3

PROGRAM:

FORESTRY TECHNICIAN/ABORIGINAL RESOURCE
TECHNICIAN

AUTHOR:

BOB CURRELL

DATE:

Dec. 2000

PREVIOUS OUTLINE DATED:

May
2000

APPROVED:

DEAN

DATE

TOTAL CREDITS: 4

PREREQUISITE(S): NONE

**LENGTH OF
COURSE:**

16 weeks

TOTAL CREDIT HOURS:

64

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For additional information, please contact Joe Fruchter
School of Business, Hospitality & Natural Resources
(705) 759-2554, Ext. 688

Course Name

Code No.**I. COURSE DESCRIPTION:**

This course is the first of two Forestry courses (Silviculture and Forest Renewal) which together explain how reforestation in Ontario is carried out to manage both Boreal and Great Lakes-St. Lawrence forest region tree species.

Harvesting methods as they affect regeneration, preparing sites for artificial or natural regeneration and carrying out direct seeding operations will be discussed. Emphasis will be placed on the ecosystem approach to silviculture and low impact natural forest regeneration systems will be introduced.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Describe the importance of silviculture in Ontario and explain who is responsible for its implementation

Potential Elements of the Performance:

- Identify the reasons for possible wood shortages in Ontario
- Describe programs which are contributing to silviculture in Ontario
- Explain current forest industry responsibilities for silviculture and show how forest management activities are being funded
- describe programs assisting Ontario 1st Nations forestry

This learning outcome will represent 10% of the course grade.

2. Prescribe forest management treatments to forested ecosystems in Ontario.

Potential Elements of the Performance:

- Identify the value of Ecological Land Classification
- Classify N.E. Ontario forest ecosystems using the N.E. Ontario FEC system
- Recommend management of different ecosystems having identified their FEC site type

This learning outcome will represent 15% of the course grade.

Course Name

Code No.

3. Describe the Silvicultural Harvesting Systems in use in Ontario and show how and with what species groups, each system is being used.

Potential Elements of the Performance:

- Define silvicultural harvesting system and know how they are different than logging methods
- Describe where and in what forest types, each system should be used.
- Explain how each harvesting system is carried out and describe how each system encourages the regeneration of desired species
- Describe the main differences between the logging methods used in Ontario and explain the silvicultural advantages and disadvantages of each method

This learning outcome will represent 15% of the course grade.

4. Forecast seed crops, collect and store tree seeds and conduct seeding operations

Potential Elements of the Performance:

- Show the reproductive cycle of typical tree species
- Explain how to forecast tree seed crops
- Identify the appearance of ripe fruits of several forest tree species
- Explain the concept of seed dormancy and describe how seed dormancy can be broken artificially
- List methods commonly used to collect tree seed
- Explain how tree seed is extracted from fruits and cones
- List and describe methods of aerial and ground, tree seeding
- Compare characteristics of good and poor seedbeds

This learning outcome will represent 15% of the course grade.

5. Describe the objectives of site preparation and show how it can be carried out to meet these objectives

Potential Elements of the Performance

- List and describe seven practical reasons for carrying out site preparation

Course Name

Code No.

- Summarize how site preparation can change soil conditions and improve growing conditions for seedlings
- List and describe 5 types of scarification prime movers
- Recognize at least 20 scarifiers, understand how they operate, sites where each should be used and describe the results each type will produce
- Describe the value of prescribed burning for ecosystem management
- Explain, giving examples, how controlled burning is being used in Ontario

This learning outcome will represent 25% of the course grade.

6. Explain how logging systems can be used or modified in order to promote natural regeneration can be used or modified to promote natural regeneration

Potential Elements of the performance

- List and describe six reasons why there has been a recent interest in natural regeneration systems
- Demonstrate how Black spruce alternate strip cuts should be planned and managed to encourage natural regeneration
- Describe how Cut to Length can be planned and carried out to protect advanced regeneration
- Discuss the similarities and differences between Claag, HARO and HARP logging modifications as practiced on upland and lowland sites

This learning outcome is worth 20% of the course grade.

III. TOPICS:

1. Introduction to Silviculture

- what it is, why it's important
- responsibilities for silviculture in Ontario (who does what)
- how is Ontario silviculture funded?
- recent forest management developments affecting silviculture
- native lands forestry in Ontario

Course Name

Code No.

2. Site Classification

- why is site classification carried out
- types of site classification systems used in Ontario
- how to use the N.E. Ontario FEC system
- ecological and silvicultural recommendations based on site type

3. Silvicultural Harvesting Systems

- even-age and uneven-age management systems
- silvicultural harvesting systems and the site types where they're recommended
- logging methods and their effect on silvicultural opportunities

4. Tree Seed

- seed biology
- reproductive cycles of common Ontario tree species
- tree seed crop forecasting
- characteristics of ripe fruits and seeds of 6 typical Ontario tree species
- seed dormancy
- seed collection methods
- cone and fruit seed extraction procedures
- seed zones
- direct seeding methods used in Ontario

5. Site Preparation (SIP)

- reasons for site preparation
- physical and biological effects of site preparation
- mechanical site preparation (scarification)
- prime movers
- appearance, operation and results expected when using 20 different types of scarifiers
- role of prescribed burning in silviculture in Ontario
- how prescribed burns are planned and carried out to meet silvicultural objectives

6. Natural Regeneration Systems

- the value of natural regeneration
- harvest modifications to encourage natural regeneration
- strip cuts, patch cuts, seed trees
- ClaaG, HARP and HARO natural regeneration systems for peatlands
- careful logging on upland sites

 Course Name

 Code No.
IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Silvicultural Study Guide: 2000 edition

- the new manual includes the unit on seeds and seeding formerly found in the Forest Renewal study guide and contains significant revisions from previous editions

V. EVALUATION PROCESS/GRADING SYSTEM:

Tests (3) 60%

- test 1 following topic 2
- test 2 following mechanical site preparation
- test 3 at the conclusion of the course
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Assignments, 40%

Individual oral quizzes will be given to 3 selected students at the start of each class covering material explained in the previous week. Over the course of the semester each student will have been asked at least 3 questions. The answers to these questions will constitute 20% of the student's assignment mark

The following semester grades will be assigned to students in postsecondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	3.75
B	70 – 79%	3.00
C	60 – 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies & Procedures Manual - Deferred Grades and Make-up</i>).	

Course Name

Code No.

NR Grade not reported to Registrar's office.
This is used to facilitate transcript preparation when, for extenuating circumstances, it has been impossible for the faculty member to report grades.

VI. SPECIAL NOTES:

Students receiving a final grade of 55% to 59% will be given the opportunity to write a rewrite test at the start of the next semester covering material from the entire course. A mark of at least 60% on this test will result in a passing grade in the course.

Assignments will be post marked and are due on the due date. Late assignments will be penalized 5% per day.

Retention of course outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the instructor.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.