

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



**SAULT
COLLEGE**

COURSE OUTLINE

COURSE TITLE: Forest Harvesting and Products
CODE NO. : NRT245 **SEMESTER:** 4
PROGRAM: Forest Conservation Technician
AUTHOR: Shaun Meakin
DATE: DEC 2013 **PREVIOUS OUTLINE DATED:** N/A

APPROVED:

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	"C.Kirkwood"	DATE
TOTAL CREDITS:	3	
PREREQUISITE(S):	NONE	
HOURS/WEEK:	3	

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I. COURSE DESCRIPTION:

Forest Harvesting and Products will provide students with the knowledge and skills needed for the planning and layout of forest operations. This includes planning of harvesting, forest access roads, water crossings and the transportation of products for processing. Emphasis will be given to the identification, description and operational constraints of a very wide range of forest harvesting equipment. Students will use operational maps, aerial imagery and inventory data to plan harvesting operations in a variety of forest types. Current operational considerations and procedures applicable to forest harvesting will also be covered. Students will tour a variety of forest harvesting operations and industry processing plants and discuss the relationships between forest harvesting and the processing of a variety of products. The historical evolution of forest harvesting techniques and practices will also be outlined to emphasize the influence on current forests and equipment technology.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Trace the historical evolution of forest harvesting in Ontario and relate past practices to the current forest industry.

Potential Elements of the Performance:

- Identify and describe historical logging equipment
- Trace the evolution of logging and logging equipment in Ontario
- Understand how past forest practices have influenced current forest harvesting and product markets

This learning outcome will constitute approximately 10% of the course.

2. Use local operational and topographic maps and aerial imagery to layout and construct forest access roads, including water crossings.

Potential Elements of the Performance:

- Understand Standard Operating Procedures (SOP) for Access
- SOP Road Construction
- SOP Road Decommissioning
- Installation of Water Crossings
- Determination of Culvert Length
- Forestry Aggregate Pit Requirements
- OMNR conditions on Water Crossings
- Identify Equipment used in Road Construction

This learning outcome will constitute approximately 20% of the course.

3. Identify harvesting equipment and operational considerations for harvesting equipment in different forest types under different silvicultural methods.

Potential Elements of the Performance:

- Identify a variety of harvesting equipment currently used in the industry
- list and describe and compare four or more logging methods
- list and describe loading equipment
- list and describe logging transportation equipment
- identify advantages disadvantages and constraints of specific pieces of harvesting equipment
- list advantages and disadvantages of logging methods and effects on long-term sustainability
- Health and safety concerns will be emphasized

This learning outcome will constitute approximately 20% of the course.

4. Use local operational, topographic and aerial imagery to plan and layout harvesting operations in a variety of forest types under different silvicultural methods.

Potential Elements of the Performance:

- Delineate water sheds using maps and aerial photos
- Calculate watershed areas and culvert sizes using manual and

- computer models.
- design culvert water crossing installations
- plan and utilize erosion control techniques
- identify potential road corridors from aerial photographs using vegetation and terrain as indicators
- identify and locate road location and harvesting constraints including areas of concern
- locate potential harvesting areas using aerial photographs
- use topographic and FRI maps to locate road corridors and to determine slopes
- determine the feasibility of forest stands for harvesting using FRI maps and aerial photographs
- identify forest types, ecosites, special features and habitats

This learning outcome will constitute approximately 30 % of the course.

5. Identify a variety of wood products produced in the forest industry. Understand the relationship between harvesting operations and the products produced. Also, recognizing the influence of global markets on the Canadian forest industry.

Potential Elements of the Performance:

- Identify roundwood, chip and biomass forest products produced in Canada
- Relate roundwood, chip and biomass forest products to the end product and consumer
- Recognize the influence of global markets on the production of forest products
- Understand the current market values of forest products
- Identify units of measure

This learning outcome will constitute approximately 20% of the course.

III. TOPICS:

1. The history of the forest industry in Ontario and the influence on the current forest industry- local examples.
2. Forest harvesting equipment
3. Planning of forest access roads, bridges, culverts and aggregate extraction. Standard Operating procedures.
4. Planning of forest harvesting operations under different silviculture methods
5. Forest access road construction, good practices and surveying techniques
6. Forest products from the forest to the consumer

IV. REQUIRED RESOURCES/ TEXTS/ MATERIALS:

NONE

V. EVALUATION PROCESS/GRADING SYSTEM:

The following grades will be assigned:

1. History of Forest Industry Quiz 10%
2. Forest Access Road Assignment 10%
3. Forest Access Road Test 10%
4. Forest Harvesting Equipment Test 20%
5. Forest Harvesting Operation Assignment 20%
6. Forest Harvesting Operation Quiz 10%
7. Forest Products Test 20%

The following semester grades will be assigned to students:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00
A	80 - 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 - 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded	

X	subject area. A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline

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