

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: FOREST OPERATIONS AND MANAGEMENT
CODE NO. : NRT224 **SEMESTER:** 4
PROGRAM: Forest Conservation Technician
AUTHOR: Robert Routledge (modified after M. Harvey)
DATE: Dec 2010 **PREVIOUS OUTLINE DATED:** Dec 2009
APPROVED: "C.Kirkwood"

Dean **DATE**
TOTAL CREDITS: 4
PREREQUISITE(S): None
HOURS/WEEK: 4

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For additional information, please contact Colin Kirkwood, Dean
School of the Natural Environment/Outdoor Studies & Technology Programs
(705) 759-2554, Ext.2688

I. COURSE DESCRIPTION:

Timber Management will provide students with skills needed for the planning and installation of forest access roads, bridges and culverts. Students will use maps, aerial photographs and inventory data to plan harvesting operations in a variety of forest types. Students will tour forest industry processing plants and discuss the relationships between timber harvesting and processing. Emphasis will be given to the identification, description and operational constraints of a very wide range of timber harvesting equipment. The historical evolution of the timber industry and the impacts of past timber management practices on the forests and forest industry in Ontario will be discussed. Current Provincial legislation applicable to timber harvesting will also be covered. Students will be introduced to the concepts of the forest management planning process and the Forest Management Planning Manual.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

1. Identify forest harvesting equipment
2. Identify the function of and operational constraints of timber harvesting equipment
3. Estimate water shed areas and calculate culvert sizes
4. Use maps to plan forest access roads and timber harvesting operations
5. Use timber inventory data to plan harvesting operations
6. Use aerial photographs to plan and locate forest access roads
7. Use aerial photographs to plan and locate forest harvesting operations
8. Trace the historical evolution of the timber industry in Ontario
9. List the impacts of past and current timber management and harvesting practices on the forests of Ontario
10. Understand provincial legislation related to forest management planning
11. List the sequence of operations used in forest access road construction
12. Demonstrate an understanding of selected forest access road construction and surveying techniques
13. Understand the relationship between timber management, and the Forest products industry
14. Identify forest access road related social economic resource management issues and strategies for mitigating access road impacts
15. Define Forest Management Plan and Annual Work Schedule and demonstrate a familiarity with selected aspects of the forest management planning process

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

- 1 Use surveying data, maps and air photos to design forest access roads (20%)

Potential Elements of the Performance:

- design curves using the tangent offset method
- estimate cut and fill
- calculate slopes from elevation data
- calculate aggregate volumes from elevation data
- list and describe at least 8 steps in the road building process
- draw a simple aggregate permit site plan
- calculate aggregate volumes using contour maps

2. Identify harvesting equipment and operational considerations for harvesting equipment (20%)

Potential Elements of the Performance:

- identify up to forty pieces of harvesting equipment
- list and describe methods of felling using the chain saw
- 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

3. Use maps and aerial photographs to plan and locate forest access and harvesting operations (30%)

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
 - outline methods of constructing forest access roads in an environmentally responsible manner
 - identify forest types, ecosites, special features and habitats
4. Describe the forest management planning process and understand legislation ,policy and compliance as related to forest management planning and forest operations (20%)

Potential Elements of the Performance:

- list key components of the crown forest sustainability act that apply to timber harvesting and forest management activities
 - define and describe the Forest Operations Information Program
 - define and describe a forest management plan
 - demonstrate familiarity with the Forest Management Planning Manual
 - understand the forest management planning process
 - list forest management planning alternatives used to minimize impacts on riparian and aquatic habitats
 - list key aspects of provincial regulations and compliance for timber harvesting, water crossings and aggregate extraction
5. Trace the historical evolution of the timber industry in Ontario and and relate past practices to the current timber industry (10%)

Potential Elements of the Performance:

- Identify and describe historical logging equipment
- Trace the evolution of logging and logging equipment in Canada
- Tour a forest products mill and visit a logging contractor's equipment yard

III. TOPICS:

1. The history of timber harvesting in Ontario
2. Timber harvesting equipment
3. Planning forest access roads, bridges, culverts and aggregate extraction
4. Planning forest harvest and renewal operations
5. Forest access road construction, good practices and surveying techniques
6. Forest Operations Inspection Program (FOIP), water crossings, harvests, and aggregate extraction
7. Forest Management Plans (FMPs) and Annual Work Schedules (AWS)

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Timber Management Study Guide and Lab Manual
- OMNR Forest Management Planning Manual
- Drafting and air photo interpretation equipment

V. EVALUATION PROCESS/GRADING SYSTEM:

Assignments ¹	45%
Tests	45
Attendance ²	10

¹ All assignments must be submitted at the start of class on the due date. There will be a 10% per day penalty for late assignments. Late assignments will not be accepted after that assignment has been marked and returned to the class.

² Students may miss some or all of two scheduled 4-hour classes without penalty. Further absences will result in a loss of 5 marks per missed class up to a maximum of 15 marks. Students must be present at the beginning and end of each class to be considered as present.

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%	3.75
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 subject area.	
X	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:

Course Outline Amendments:

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.

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.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

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

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations. Announcements, news, the academic calendar of events, class cancellations, your learning management system (LMS), and much more are also accessible through the student portal. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

Tuition Default:

Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) as of the first week of *March* will be removed from placement and clinical activities. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.