SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: TIMBER MANAGEMENT

CODE NO. : NRT222   **SEMESTER:** 4

PROGRAM: FORESTRY TECHNICIAN

AUTHOR: MARK HARVEY

DATE: DEC 2004   **PREVIOUS OUTLINE DATED:** DEC 2003

APPROVED:

_____ _____

                    DEAN   **DATE**

TOTAL CREDITS: 4

PREREQUISITE(S): PHOTOGRAMMETRY NRT 104

HOURS PER WEEK: 4

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I.   COURSE DESCRIPTION:

Timber Management will provide students with skills needed for the planning and instillation 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.

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 timber management.
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

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

1.　Use surveying techniques to design forest access roads
　　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

　　This will constitute 20% of the course grade

2.　Identify harvesting equipment and operational considerations for harvesting equipment
　　Potential Elements of the Performance:
- Identify   up to 40 pieces of harvesting equipment
- List and describe methods of felling using the chain saw
- List and describe and compare 4 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

　　This will constitute 15% of the course grade

3.　Use maps and aerial photographs to plan and locate forest access and harvesting operations
　　Potential Elements of the Performance:
- Delineate   water sheds using maps and aerial photos
- Calculate water shed areas and culvert sizes using manual and computer models .
- Design culvert /watercrossings installations
- Plan   and utilize erosion control   techniques
- Identify   potential road corridors from aerial photographs using tree species 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 determine slopes
- Determine the feasibility of forest stands for harvesting using FRI maps and aerial photographs

　　This will constitute 35% of the course grade

4.   Describe the road building and timber harvesting process and
      understand legislation related to timber harvesting activities

      Potential Elements of the Performance:
      • List and describe at least 8 steps in the road building process
      • Outline methods of constructing forest access roads in an
        environmentally responsible manner
      • Draw a simple aggregate permit site plan
      • Calculate aggregate volumes using contour maps
      • list key components of the crown forest sustainability act that
        apply to timber harvesting
      This will constitute 15% of the course grade

5.   Trace the historical evolution   of the timber industry in Ontario and
      and relate past practices to the current timber industry

      Potential Elements of the Performance
      • Tour a forest products mill and visit a logging contractor's
         equipment yard.
      • Write an essay   outlining the   chronological   evolution of
        harvesting systems and timber harvesting equipment in
        Canada
      This will constitute 15 % of the course grade

III.   TOPICS:

1.   The history of timber harvesting in Ontario

2.   Timber harvesting equipment

3.   Planning forest access roads, bridges and culverts

4.   Planning operational timber harvests

5   Forest Access road construction good practices and surveying
      techniques

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:
      Timber Management Study Guide and Lab Manual
      Tracks in the Forest
      Environmental Guidelines for Access Roads and Water Crossings
      Stapler
      Drafting and aerial photo interpretation equipment

V.   EVALUATION PROCESS/GRADING SYSTEM:

Labs   20%
Essay   15 %
Test   Access roads   30%
Test   Culverts and erosion   10%
Project   10%
Equipment   ID test   15%
                                                      100%

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
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:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual
impairments, hearing impairments, or learning disabilities), you are
encouraged to discuss required accommodations with your instructor
and/or the Special Needs office. Visit Room E1101 or call Extension 493,
717, or 491 so that support services can be arranged for you.

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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.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Rights and Responsibilities.* Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. 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.

For students to successfully complete this course with a **C** grade or better students must attend 80% of the scheduled classroom time.. Assignments are to be completed individually unless the professor indicates the assignment is a group   assignment. Copying is not allowed. Students will be assigned 10 labs.. Only the best 8 of these labs will be used to complete the final grade
Assignments and labs are due at the beginning of the class on the day they are due. Late assignments that ,include labs and projects will be down graded or a grade of 0 assigned..

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VII.　PRIOR LEARNING ASSESSMENT:

　Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio following:

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.