

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

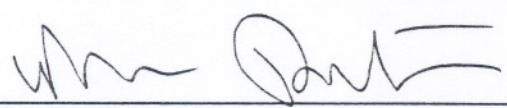
COURSE TITLE: FALL CAMP - SECOND YEAR

CODE NO.: FOR 221-2 SEMESTER: 3

PROGRAM: FORESTRY TECHNICIAN

AUTHOR: ERWIN GOERTZ

DATE: SEPTEMBER 1993 PREVIOUS OUTLINE DATED: DECEMBER 1991

APPROVED:   
DEAN

Sept 14/93  
DATE

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COURSE NAME

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TOTAL CREDIT HOURS: 32

PREREQUISITE(S): None

**I. PHILOSOPHY/GOALS:**

To carry out practical exercises in the field and perfect skills covered in the classroom. Exercises will be drawn from the following subjects; soils, photogrammetry, mensuration, silviculture, surveying, Ontario provincial parks, nursery operations, fire and entomology. A portion of the activities will be conducted utilizing facilities in the Sault Ste. Marie area with the majority being held at the Wenebegon Junior Ranger Camp near Chapleau, Ontario.

**II. STUDENT PERFORMANCE OBJECTIVES:**

Upon successful completion of this course the student will be able to:

- i) Establish a soil pit and describe a soil profile.
- ii) Conduct a two (2) year tree survival assessment.
- iii) Make practical use of aerial photographs (stand typing, ground truthing, navigation).
- iv) Conduct an FRI timber cruise and an operational timber cruise.
- v) Perform a closed traverse, determine its area as well as the number of trees which should be planted.
- vi) Have an overview of the Ontario Provincial Parks system.
- vii) Have a basic understanding of a tree nursery operation.
- viii) Have a basic understanding of Boreal Forest silviculture.
- ix) Be able to use a surveying level and take proper field notes in order to perform a closed traverse.

**III. TOPICS TO BE COVERED:**

- i) Soils descriptions and glacial depositions
- ii) Silviculture
- iii) Photogrammetry - Using aerial photographs
- iv) Traverse of young plantation
- v) Parks tour
- vi) Nursery tour
- vii) MNR Hangar tour
- viii) Operational timber cruise/FRI timber cruise
- ix) Levelling

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**IV. LEARNING OBJECTIVES:**

**SOILS:**

1. Students will visit glacial features which are prevalent to soil deposition processes in order to be able to recognize these features in the field. Features visited will include outwash plain, kame, esker and ground moraine.
2. Students will be able to identify soil horizons and complete a soil horizon description including horizon depth and boundary description, coarse fragment description, soil texture, consistency, colour, description of mottles, moisture regime and drainage class.
3. Students will be shown several gravel pits in order to identify fragment sizes and quantity present.

General Description:

The soils component of this field camp allows students to view glacial landforms in the field and be able to identify them. An understanding of landforms will enhance their ability to relate why various tree species grow where they do. The underlying deposits are important for recognizing sources of gravel for road building material. Students will establish soil pits (1) metre in depth and describe the soil profile using the NE Region Forest Site Evaluation Field Manual.

Grading:

Students are graded on the last soil pit which is described during the exercise. Accuracy of the soil profile description as well as completeness are evaluated.

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IV. LEARNING OBJECTIVES: (cont'd)

PHOTOGRAMMETRY/AERIAL PHOTO INTERPRETATION:

1. Students will gain field experience in the tree identification using aerial photographs.
2. Students will gain field experience in traversing forest land using aerial photographs only.
3. Students will gain practical experience in stereoviewing of OMNR aerial photographs under field conditions.
4. Students will be able to correlate land cover as seen on aerial photographs to the actual cover as seen in the bush.
5. Students will gain an insight into the use of aerial photographs for stream crossings.

Description:

Using a stereopair of aerial photographs and a black Stabilo grease pencil, students will outline productive forest stands, non-productive forest land and non-forested land using the conventional OMNR symbols.

Upon completion of the delineation component, the student will traverse the area (approximately 3.5 km) occupied by the aerial photographs and obtain ground truthing information on the tree species and/or land cover present. This will allow students to compare species types/land cover in other areas of the photographs for species/land cover identification in remote or inaccessible areas.

Grading:

Students will be graded on the accuracy of the divisions between various forest stands and land types (delineation) as well as the symbols/forest species identified for each stand.

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IV. LEARNING OBJECTIVES: (cont'd)

**MENSURATIONAL MEASUREMENT & TIMBER CRUISING**

1. Upgrade students' skills on the use of tree height and diameter measuring equipment.
2. Students will be able to complete an FRI timber cruise as well as an operational timber cruise.
3. Students will be able to determine distances and directions to cruise plots using aerial photographs.
4. Students will be able to use a wedge prism efficiently.

Description:

FRI Timber Cruise

Tree heights and diameters will be recorded for up to twenty (20) trees in the immediate vicinity of the Wenebegon J.R. Camp.

Students must achieve a 90% accuracy in order to continue with the FRI timber cruise. Plots on aerial photographs will be identified and students will determine the distance/direction to the plots and fill out the proper cruise tally sheets.

Operational Timber Cruise

A timber cruise project will be completed in the Mark's Bay area near the Sault Ste. Marie airport. Students will be required to plan the layout of the cruise, perform the cruise and summarize the results.

Grading:

Students are graded on their tally sheet results as well as their summary forms.

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IV. LEARNING OBJECTIVES: (cont'd)

TRAVERSE - COMPASSING AND CHAINING:

1. To allow the student to perfect their compassing and chaining.
2. To allow the student to visual estimate the area of cutover and compare this figure with the true area.
3. The student will perform a closed traverse of a recent plantation and using conventional computer software determine the area of the cutover and closure error. Students must meet a pre-determined closure error.
4. The student will estimate the number of seedlings present in the plantation.

Description:

A two man crew will perform a closed traverse on a cutover using a compass and 50 m chain and acquire distances and directions. This information will be input into a laptop computer in order to determine the percentage error in closure as well as the area of the plantation. A pre-determined closure error, no greater than 5%, must be met in order to satisfactorily complete the exercise. The student will then determine the number of trees present in the plantation.

Grading:

Students are graded on their closure error for the closed traverse as well as their estimation of the number of trees in the plantation.

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**IV. LEARNING OBJECTIVES: (cont'd)**

**SILVICULTURE:**

1. Expose student to Boreal Forest Silviculture including the following:
  - review of aerial seeding
  - Donaren power disc trencher scarification
  - review proposed thinning sites using brush saws
  - view areas where aerial pesticide spraying has taken place
  - view Areas of Concern
  - examine Jiffy pot and paper pot plantings
  - view harvesting operation
2. Students will conduct a two (2) year tree survival assessment and make recommendations for further action.

Description:

A tour of the Wenebegan area will be conducted in order to give students an appreciation of the variety of forestry activities taking place in a Boreal Forest situation. Harvesting operations will be visited and subsequent scarification and planting methods will be discussed. Aerial seeding and various types of container stock will be evaluated in the field. An examination of several areas of concern (A.O.C.) will give students an appreciation of present day environmental concerns and how these affect the management of an area as well as industry responsibilities.

Grading:

Students will be tested on the material covered during the tour of the management unit. A quiz will be given to the students upon return to Wenebegan Junior Ranger Camp.

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IV. LEARNING OBJECTIVES: (cont'd)

**PARKS TOUR:**

A tour and discussion will be led by staff of the Wakami Lake Provincial Park.

The student will be able to name and define the classifications and objectives of Ontario Provincial parks and recognize how they relate to the park visited and to the overall objectives of Integrated Resource Management within the MNR.

The student will be able to recognize major components of a provincial park management plan and normal operating plan.

A tour of the logging museum will give students an appreciation of past logging equipment. A quiz relating to the park tour will be held upon return to the Wenebegon J.R. Camp.

**NURSERY TOUR:**

A tour of a local container stock tree nursery in the Sault Ste. Marie area will be given.

1. The student will be able to describe the following operations used in the production of containerized nursery stock; filling and seeding, growing, hardening, and overwintering.
2. The student will identify and describe the following systems and facilities used in forest container nurseries; watering, fertilizer application, heating, cooling, lighting, hardening and overwintering facilities.

A quiz relating to the tour will be held upon completion of the tour.

**MNR HANGAR TOUR:**

1. Students will gain an appreciation of the role of the provincial air service in forest fire fighting.
2. Students will learn to identify the purpose and function of various aircraft.
3. Students will come to understand the shift from fixed wing aircraft to rotary winged aircraft for the purpose of fire fighting as well as the shift from water based operations to land based operations.
4. Students will get an appreciation of the work area, the tools and the general tidiness of a hangar.

Grading:

Students will be tested on the material covered during the tour.



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IV. LEARNING OBJECTIVES: (cont'd)

LEVELLING:

1. Students will be able to identify the components of a surveying level.
2. Students will be able to use a surveying level and rod accurately.
3. Students will be able to take proper field notes in order to complete a closed traverse.
4. Students will be able to compile field note information.
5. Students will gain an understanding of levelling applications as applied to forestry.

Description:

The introduction to levelling will be held at Sault College with three (3) hours of indoor instruction and seven (7+) hours of outside instruction and use.

Grading:

Students will be graded on their closed traverse as well as a quiz at the end of the traverse exercise.

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V. METHOD OF EVALUATION:

The fall camp course grade will comprise both exercises held at the Wenebagon Junior Ranger Camp as well as the Sault area. The breakdown of marks is as follows;

Wenebagon Junior Ranger Camp	Soils	10	
	Photogrammetry	15	
	FRI cruise	15	
	Mensuration measurements	10	
	Closed traverse	10	
	Silviculture tour	5	
	Park tour	<u>5</u>	
			70%
Sault College	Nursery tour		
	MNR hangar tour	5	
	Timber cruise	10	
	Levelling	<u>15</u>	
			30%
			<u>100%</u>

Students must have a passing grade (60%) on the Wenebagon J.R. Camp exercises (42/70) and a passing grade (60%) on the Sault area exercises (18/30) in order to successfully complete the 2nd year field camp.

VI. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with a camp instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.