

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

COURSE OUTLINE

COURSE TITLE: FOREST MAPPING

CODE NO.: FOR115-3 SEMESTER: ONE

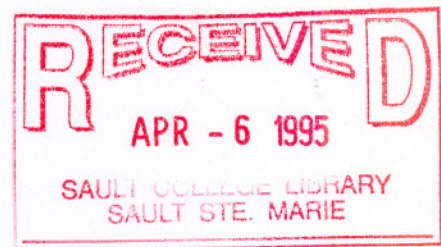
PROGRAM: FORESTRY TECHNICIAN/ABORIGINAL RESOURCE TECHNICIAN

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DATE: MARCH 1995 PREVIOUS OUTLINE DATED: MARCH 1994

APPROVED: *Erwin Goertz*
DEAN

March 30, 1995
DATE



FOREST MAPPING

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TOTAL CREDIT HOURS: 48

PREREQUISITE(S): None

I. PHILOSOPHY/GOALS:

The overall aim of forest mapping is to teach the skills necessary for the professional presentation of a technical map as well as being able to read and interpret map information.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1. Understand and use correct signs and symbols related to mapping forest, water, land and cultural features.
2. Demonstrate skill in free hand and mechanical lettering.
3. Use and interpret various types of maps. e.g. forest stand map, base map, topographic map and OBM map.
4. Use basic drafting equipment such as T-square, metric scale, imperial scale, Ames lettering guide and mechanical lettering set.
5. Demonstrate skill in line work, area determination (dot grid, line transect method, planimeter), and drafting a complete map.

III. TOPICS TO BE COVERED:

1. Free hand lettering using single stroke Commercial Gothic lettering.
2. Using an Ames lettering guide for drawing lettering guidelines.
3. Units of measurements used in Forestry and appropriate conversions.
4. Using an Engineer's (imperial) scale and a metric scale.
5. Using a navigational protractor for direction measurements.
6. Understand the UTM projection.
7. Reading contour elevations and applying topographic maps (NTS, OBM) for gradient determination and profile mapping.
8. Using a technical pen and mechanical lettering set.
9. Understanding forest stand map symbols, line types & descriptions.
10. Area determination using dot grids, equations and planimeters.
11. Applying field notes in map preparation (mapping a closed traverse).

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IV. LEARNING ACTIVITIES:

LEARNING ACTIVITY:

REQUIRED STUDENT RESOURCES:

1. LETTERING STYLE

1. Correctly letter upper and lower case letters and numbers in the single stroke commercial Gothic lettering style.
2. Correctly letter the alphabet and numbers, both diagonally (slanted) and vertically.

- 4H, H pencils
- white bond paper
- eraser
- T-square
- Set square

2. AMES LETTERING GUIDE

1. Use the Ames Lettering Guide effectively to create guidelines for letters of different heights in both imperial and metric units.
2. Understand the difference between the three right most columns of holes on the lettering guide.
3. Use the lettering guide to draw vertical and diagonal (slanted guidelines).

- 4H, H Pencils
- White bond paper
- Masking tape
- Eraser
- T-square
- Set square
- Ames lettering guide

3. FORESTRY UNITS OF MEASUREMENT AND CONVERSIONS

1. Be familiar with metric units in general and be able to identify the units used for forestry measurements.
2. Be able to convert metric units to imperial units and vice versa.
3. Be able to round decimal fractions.

- 4H, H pencils
- Calculator
- Ames lettering guide
- Masking tape
- Eraser
- T-square

4. ENGINEER'S SCALE AND METRIC SCALE

1. The student will be able to use the Engineer's Scale for distance measurements.
2. The student will be able to use the Metric Scale for distance measurements.
3. The student will recognize the difference between map scales, be able to convert map scales and recognize which Scale (Engineer's or Metric) is appropriate for the distance measurement.

- 4H, H pencils
- Engineer's scale
- Metric scale
- eraser
- Calculator

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IV. LEARNING ACTIVITIES: (cont'd)

LEARNING ACTIVITY:

STUDENT REQUIRED RESOURCES:

5. NAVIGATIONAL PROTRACTOR

1. The student will be able to identify the difference between azimuths and bearings.
2. The student will know what magnetic declination is and how it affects direction readings.
3. The student will be able to identify the difference between true distance readings and magnetic distance readings.
4. The student will be able to use a navigational protractor in order to find directions on maps and be able to convert between a true azimuth, true bearing, magnetic azimuth and a magnetic bearing.

- 4H, H pencils
- Engineer's scale
- Metric scale
- eraser
- navigational protractor
- T-square
- masking tape
- Ames Lettering Guide

6. GRID NETWORKS

1. The student will know how to geographically reference the location of any point in Ontario using both the geographic projection system (longitudes/latitudes) and the UTM projection system.
2. The student will know the applications of the UTM projection system as it relates to different disciplines in forestry.

- 1:50,000 (NTS)
Topographic map #41K/9
- Metric Scale
- T-square
- Imperial Square

**7. TOPOGRAPHIC MAPS AND READINGS
CONTOURS**

1. Students will be able to read a topographic map and recognize individual contour line elevations.
2. Using the rules for contour lines, students will be able to draw a contour map using spot heights.
3. Students will be able to draw a topographic profile from one point to another.
4. Students will be able to calculate the gradient of slopes.

- 4H, H pencils
- Topographic Map #41K/9
(1:50,000)
- Navigational Protractor
- Engineer's Scale
- Metric Scale

LEARNING ACTIVITY:

REQUIRED STUDENT RESOURCES:

8. TECHNICAL PEN

1. Student will be able to disassemble, clean and reassemble a technical pen.
2. Student will know how a technical pen operates along with its peculiarities.
3. Student will know how to properly use a technical pen and how to store it properly.

- Technical Pen Set (0.35 tip and 0.50 tip) including black drawing ink
- Ames Lettering Guide
- 4H pencil
- T-square

9. FOREST STAND MAP SYMBOLS AND LETTERING AIDS

1. Students will be able to identify all lines, numbers and symbols on a Forest Stand Map and be able to explain what they mean.
2. Students will be able to professionally letter maps using the lettering template or the mechanical lettering set.

- 4H, H pencils
- Technical pens
- Lettering template or Mechanical Lettering set
- T-square
- Blank paper
- Tape

10. AREA DETERMINATION PART I

1. The student will be able to determine ground areas using maps at scales of 1:10,000, 1:15,840, 1:20,000 and 1:50,000 in either acre or hectare units.
2. The student will be able to determine ground areas using a dot grid, using the line transect method or using basic area equations.

- 4H, H pencils
- eraser
- Scales or rule
- Calculator

11. AREA DETERMINATION PART II

1. Students will be able to determine actual ground areas using either a conventional planimeter or digital planimeter for maps which are at different scales.

- 4H, H pencils
- eraser
- digital planimeter or conventional planimeter
- calculator
- masking tape