



**I. COURSE DESCRIPTION:**

Students will gain skills in orienteering and navigating in forested areas using a magnetic hand compass, topographic map, OMNR standard aerial photographs and global positioning systems (GPS). Students will use a navigational protractor and metric scale in the planning and presentation of field exercises. Students will be introduced to pacing and distance measurement devices (30 m tape, hip-chain, GPS) in order to measure distances.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

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

1. **Be able to use a magnetic hand compass and navigate to a destination.**

Potential Elements of the Performance:

- determine true and magnetic azimuths and convert from one to the other
- understand and set magnetic declination on a compass

2. **Be able to determine distances by pacing and measuring distances using a 30 m or 50 m tape.**

Potential Elements of the Performance:

- determine pacing factor and be able to pace distances in summer and winter
- be able to maintain and properly store equipment

3. **Be able to use OMNR aerial photographs, OBM and NTS maps in order to travel from one location to another using a magnetic hand compass.**

Potential Elements of the Performance:

- understand scales of photographs and maps
- identify major features on aerial photographs and cover type changes
- be able to measure distances and directions on aerial photographs and maps
- be able to calculate directions on a map and aerial photograph using a navigational protractor

4. **Be able to use and understand the principles of Global**

## **Positioning Systems (GPS)**

### Potential Elements of the Performance:

- understand the accuracy of GPS receivers (GPSr)
- be able to mark (enter) a field position in the GPSr while in the field
- be able to enter a field position using map co-ordinates
- be able to navigate to waypoints entered into the GPS using a compass and the GPSr
- be able to record positions from the GPSr onto a map

5. **Be able to determine areas on maps using a dot grid, the line transect method and computer software.**

### Potential Elements of the Performance:

- understand how to use a dot grid for measuring areas
- know how to handle dots that fall on the area's boundary line
- be able to measure areas using a compass and the line transect method
- be able to measure area using computer software

6. **Use and interpret topographic maps (OBM, NTS). This includes being able to accurately reference any point using latitude/longitude as well as UTM co-ordinates.**

### Potential Elements of the Performance:

- recognize the different ways of expressing scale
- identify all lines, numbers and symbols on maps
- recognize the divisions used on a map to measure long/lats and UTM co-ordinates
- draw topographic profiles, create digital topographic profiles and calculate gradients
- be able to read contour lines and determine elevations and major topographic features

7. **Use basic equipment including the metric scale, distance measurement devices, and navigational protractor.**

### Potential Elements of the Performance:

- use the metric scale for distance measurements on a variety of maps with various scales
- measure directions and apply magnetic declination on maps using a navigational protractor
- properly use a distance measurement device.

**III. TOPICS:**

1. Introduction to course, units of measurement and conversions.
2. Compassing
3. Global positioning system (GPS)
4. Measuring distances outdoors
5. Determining directions indoors and outdoors
6. Measuring distances with maps
7. Grid Networks
8. Navigating with aerial photos
9. Area determination
10. Contours and elevation
11. Topographic maps and reading contours

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

- Outdoor Navigation course manual
- NTS 1:50 000 Topographic Map Sheets #41 K/9
- Metric Scale (1:500 to 1:2500)
- Navigational Protractor
- Calculator
- Clipboard
- Dot Grid (provided by instructor)
- Personal Safety Whistle (Fox 40 fluorescent orange)
- Suunto MC-2 Magnetic Hand Compass

**V. EVALUATION PROCESS/GRADING SYSTEM:**

Evaluation will be based on weekly quizzes, assignments handed out in class, assignments to be completed in the field and tests.

1. Quizzes	10%
2. Assignments	40%
3. Tests (2)	<u>50%</u>
	<b>100%</b>

Quizzes are given at the beginning of each class. Students who are late for class will forfeit the quiz mark. Assignments which are conducted in the field must have a passing grade of 50%. Assignments are due on specific dates. The instructor will review and correct the answers for the questions on late assignments, however, the student may forfeit the marks for these. Under special circumstances, which will be verified, students may be given credit for late assignments. Students will repeat any unsatisfactory assignments until satisfactorily completed. Students must wear appropriate safety gear (hardhat, safety vest, safety boots, safety whistle) when conducting field exercises as well as carry a compass and safety whistle with them at all times.

**Note:** For a breakdown of individual marks by assignment by week refer to the course syllabus on LMS.

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% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field/clinical placement or non-graded subject areas.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject areas.	
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:

### 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.