

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: SURVEYING

CODE NO. : SUR 235 **SEMESTER:** II

PROGRAM: CIVIL/CONSTRUCTION ENGINEERING TECHNICIAN

AUTHOR: S. IENCO

DATE: Jan - 08 **PREVIOUS OUTLINE DATED:** Jan - 07

APPROVED:

	CHAIR	DATE
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TOTAL CREDITS: 4

PREREQUISITE(S): SUR 101

LENGTH OF COURSE: 16 WEEKS **TOTAL CREDIT HOURS:** 64

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 For additional information, please contact Corey Meunier, Chair
 School of the Natural Environment, Technology and Skilled Trades
 (705) 759-2554, Ext. 2610

I. COURSE DESCRIPTION:

This course is designed to provide you with a basic understanding of Geographical Information Systems (GIS), and its integration to Global Positioning Systems (GPS). The course culminates with a one-week practical surveying field camp.

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.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Display a basic knowledge of Geographical Information Systems.

Potential Elements of the Performance:

- define a GIS
- discuss applications to specific fields of endeavour
- describe the various components of a GIS
- describe vector and raster spatial referencing techniques

2. Search and query a GIS for a variety of applications.

Potential Elements of the Performance:

- use the ArcView software interface for moving around and displaying spatial information
- apply fundamental file management techniques for storing and retrieving GIS files
- demonstrate an ability to relate attribute information to spatial information
- define and describe the components of topology
- search and query a GIS database for a variety of applications

3. Produce charts, graphs and presentation maps using a desktop GIS mapping system.

Potential Elements of the Performance:

- prepare charts and graphs for presentation

Potential Elements of the Performance Continued:

- prepare presentation plans including maps, charts, tables, graphs and other appropriate map information
- prepare a presentation layout for a small GIS project

4. Describe spatial referencing systems.

Potential Elements of the Performance:

- define projection systems
- demonstrate an understanding of the Universal Transverse Mercator projection

5. Display a basic understanding of data input, output and data management methods.

Potential Elements of the Performance:

- demonstrate spatial and attribute data input
- digitise spatial information
- describe fundamental data security, integrity and updating issues

6. Display a basic knowledge of Global Positioning Systems (GPS)

Potential Elements of the Performance:

- describe the evolution of GPS
- define the segments of a Global Positioning System
- explain how GPS systems measure
- identify the GPS coordinate system
- discuss satellite geometry, accuracies and errors
- list the various applications in GPS
- demonstrate keypad usage and data entry for a handheld GPS unit
- collect waypoints
- collect routes
- collect tracks
- download GPS data into ArcView GIS

7. Participate in a one-week surveying field camp

Potential Elements of the Performance:

- Collect elevations and waypoints along a given route using a level and a GPS unit
- Establish control points and building coordinates using a total station
- Produce an ArcGIS base map of the college property

Potential Elements of the Performance Continued:

- Load into ArcGIS the coordinate points that you surveyed with the Total Station.
- Create using ArcGIS an attribute table of the surveyed college buildings
- Create using ArcGIS a profile with the collected elevations and waypoints
- Produce a layout in ArcGIS of the college and all associated field activities

III. TOPICS:

1. Introduction and GIS Fundamentals
2. GIS Software
3. Presentation of Charts, Tables, Graphs and Layouts
4. Spatial Referencing
5. Data Input, Output and Management
6. Global Positioning Systems
7. Survey Field Camp

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Getting to Know ArcGIS desktop
ESRI Press

V. EVALUATION PROCESS/GRADING SYSTEM:

You will be assigned a final grade based on successful completion of assignments, quizzes and tests, weighted as follows:

Assignments/Quizzes	20%
Field Camp	30%
Two tests of equal weight	<u>50%</u>
TOTAL	100%

Each assignment and quiz carries equal weight. Late submittals receive only a maximum grade of 50%. However, assignments handed in later than one week will receive a grade of 0%.

Quizzes are given on a surprise basis at the beginning of a lecture. The content of each quiz is relevant to one or two week's stretch of lectures. You are not permitted to write a missed quiz unless you present the instructor with a written letter explaining the extenuating circumstance why you were unable to write the quiz.

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 placement or non-graded subject areas.	
U	Unsatisfactory achievement in field 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:

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 703 so that support services can be arranged for you.

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.

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.

VII. **ACADEMIC / CLASSROOM CONDUCT**

Introduction: Sault College students, faculty members, employees and Ray Lawson Hall Residents constitute an academic community committed to training and education that will enhance effectiveness in the workplace and quality of life. The College community expects all members to discipline themselves, individually and collectively, and it requires adherence to the standards of conduct appropriate for an academic community.

Sault College considers its students adults and as such obligated to make responsible decisions. The Student Code of Conduct exists to assist in the effort of providing the best possible learning and living environment for all students. It is the obligation of students to treat all other members of the academic community with dignity and respect – including other students, faculty members, employees, visitors and neighbours of the College. The enforcement of the Student Code of Conduct is critical to the existence of such an environment for all members of the academic community. Ignorance of the rules or of the law is not a defence against disciplinary action. The College reserves all rights to criminal action where it deems necessary. Lack of intention to violate College policy will not generally excuse an infraction.

Academic Dishonesty:

Students shall submit written or other work in a course that shall be the product of their own efforts. "Academic Dishonesty" includes, but is not limited to, the following:

- a. Copying from another student's paper.
- b. Using material not authorized by the person administering the test or assignment.
- c. Collaborating with another student during a test without permission.
- d. Plagiarism (i.e. representing the work of another, as one's own, inclusive of purchases of a commercial nature).
- e. Collusion (i.e. obtaining from or giving to another student unauthorized assistance in course work).
- f. Falsification (i.e. modification, without authorization, of any examination paper, record, assignment, or report).

Academic Dishonesty Continued:

- g. Knowingly using, buying, selling, stealing, or soliciting contents of a test, examination paper, record, assignment, or report.
- h. Representing oneself as another student for the purpose of taking a test or examination or allowing oneself to be represented by another for the same.
- i. Attempting to bribe or otherwise coerce a professor/instructor to obtain favours.
- j. Cheating (i.e. any misrepresentation by a student of their performance in a College subject for the purpose of obtaining credit to which they are not entitled).
- k. Any act designated by the President or his/her designate.

(Student Code of Conduct – Article 2, Section 2)

Attendance:

Students are expected to attend 100% of their classes. Attendance will be recorded within the first 15 minutes of each class.

Leaving or Entering During Class:

Students should exercise respect for faculty and students when leaving or entering a class that is already in session. Leaving or entering should be done with a minimal amount of interruption.

Disruption:

Students shall not obstruct or disrupt, or attempt to obstruct or disrupt, teaching, administration, disciplinary procedures, or other College activities.

(Student Code of Conduct – Article 2, Section 9)

Use of Electronic Devices:

General: Taking photos or making audio/video recordings on Sault College property without permission in ANY context in which the person being photographed or recorded has a reasonable expectation of privacy is prohibited. Examples include but are not limited to:

Classrooms: The use of cell phones, photographically capable cell phones, pagers and other communication/electronic devices during classes, clinical or field placement is prohibited unless authorized by faculty.

Examinations: The use of cell phones, photographically capable cell phones, pagers and other communication/electronic devices during exams and midterms is prohibited unless authorized by faculty in charge.

(Student Code of Conduct – Article 2, Section 31)

SANCTIONS

College staff may impose sanctions in accordance with their responsibilities. Sanctions, which are imposed, may become part of the student's official record and are removed one year and one term after the student's last academic activity at Sault College.

The College shall make sanctions concerning students' actions and offences occurring within or affecting people on Sault College owned or controlled property, including but not limited to Ray Lawson Hall Residence, Sault College Aviation Hangar, off-campus at a College-sponsored event, or when such actions or offences at a non-College event off-campus have a direct impact on students' on-campus. The College reserves the right to assess any sanction it may deem appropriate. A serious breach or continuation or a repetition of behaviour in violation of the Student Code of Conduct will be cause for further sanctions up to and including expulsion.

Sanctions for Academic Dishonesty may include the following:

1. A professor/instructor may assign a sanction as defined below, or make recommendations to the Dean for disposition of the matter. The professor/instructor may:
 - issue a verbal reprimand
 - make an assignment of a lower grade with explanation
 - require additional Academic assignments and issue a lower grade upon completion, to the maximum grade "C"
 - make an automatic assignment of a failing grade
 - recommend to the Dean, dismissal from the course with the assignment of a failing grade
 - recommend to the Dean, dismissal from the College for a definite or indefinite period of time with a failing grade.

2. If the student denies the allegation of academic dishonesty the student should discuss the matter with the Director of Student Services immediately. If the matter cannot be resolved the student should file an Academic Appeal within three (3) working days. The appeal would automatically move to Step Two – Academic Appeal.

(Student Code of Conduct – Article 4)

Testing Absence

If a student is unable to write a test for medical reasons on the date assigned, the following procedure is required:

- In the event of an emergency on the day of the test, the student may require documentation to support the absence and must telephone the College to identify the absence. The college has a 24 hour electronic voice mail system (759-2554) Ext. 2600.
- The student shall provide the Professor with advance notice preferably in writing or e-mail of his/her need to miss the test.
- The student may be required to document the absence at the discretion of the Professor.
- All decisions regarding whether tests shall be re-scheduled will be at the discretion of the Professor.
- The student is responsible to make arrangements, immediately upon their return to the College with their course Professor in order to make-up the missed test prior to the next scheduled class for the course in question.

VIII. 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.

XI. 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.