

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



Sault College

**COURSE OUTLINE**

**COURSE TITLE:** SURVEYING

**CODE NO. :** SUR235 **SEMESTER:** II

**PROGRAM:** CIVIL ENGINEERING TECHNOLOGY

**AUTHOR:** F.E.WALL

**DATE:** JAN 3, 2002 **PREVIOUS OUTLINE DATED:**

**APPROVED:**

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DEAN

\_\_\_\_\_  
DATE

**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*

*School of Technology, Engineering and Technical Trades*

*(705) 759-2554, Ext.600*

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Code No.**I. COURSE DESCRIPTION:**

This course is a continuation of SUR101. Students will apply the knowledge gained previously in the operation of surveying instruments in practical exercises on and off campus. In addition, students are introduced to expressing direction in terms of azimuths and bearings along with traverse computations and co-ordinate calculations using latitudes and departures. Highway curves inclusive of circular curve geometry and related calculations are also introduced.

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

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

1. Review angular and bearing/azimuth calculations.

Potential Elements of the Performance:

- Review of angular arithmetic.
  - Define azimuths, bearings and meridians.
  - Identify the derivation of reference lines in terms of astronomic or magnetic origins.
  - Compute and convert between azimuths and bearings.
  - Calculate angular closure of a polygon.
2. Reduce traverse data, calculate closures and balance random errors using computer software.

Potential Elements of the Performance:

- Setup project based drawings
- Manipulate point database
- Define opened and closed traverses common to plane surveying.
- Perform traverse closure calculations using computer software.
- Calculate co-ordinates from latitudes and departures.
- Apply Co-ordinate Geometry to traverses.

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3. Calculate curves using survey data.

Potential Elements of the Performance:

- Perform simple curve calculations using computer software.
- Perform curve computations used in field layout.
- Perform co-ordinate calculations of key elements of a curve using computer software.

4. Participate in a one-week field camp.

Potential Elements of the Performance:

- Run a level loop and calculate closure.
- Set a tribrack over a point using an optical plumb.
- Observe multiple sets of angles.
- Observe and close the angles of a five-sided polygon using a total station.
- Reduce field notes.

**III. TOPICS:**

1. Bearings and Azimuths
2. Traverses, Closures and Adjustments
3. Highway Curves
4. Field Camp

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**  
SURVEYING WITH CONSTRUCTION APPLICATIONS  
BARRY F. KAVANAGH  
PRENTICE HALL  
Student Field Book

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## V. EVALUATION PROCESS/GRADING SYSTEM:

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

Field Projects	20%
Field books	10%
Assignments	20%
Attendance	10%
Tests	<u>40%</u>
<b>TOTAL</b>	<b>100%</b>

Late submittals receive only a maximum grade of 60%. However, projects or assignments handed in later than one week will receive a grade of 0%.

An average of 60% on projects/assignments and 60% on tests is required for successful completion of this course.

The following semester grades will be assigned to students in postsecondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00
A	80 - 89%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
R (Repeat)	59% 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. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies &amp; Procedures Manual – Deferred Grades and Make-up</i> ).	
NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has been impossible for the faculty member to report grades.	

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Code No.**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 E1204 or call Extension 493, 717, or 491 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.

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, as may be decided by the professor. 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.

Testing Absence

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

- The student shall provide the Professor with advance notice preferably in writing 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 return to the College with his/her course Professor related to make-up of the missed test prior to the next scheduled class for the course in question.
- 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)

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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.

Substitute course information is available in the Registrar's office.

**VII. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the instructor. Credit for prior learning will be given upon successful completion of the 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.