

SAULT STE. MARIE, ON
SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

COURSE OUTLINE

COURSE TITLE: _____ SURVEYING

CODE NO.: SUR101 _____ SEMESTER: ___ L

PROGRAM: _____ CIVIL TECHNICIAN

AUTHOR: _____ D. J. ELLIOTT

DATE: SEPT 1994 PREVIOUS OUTLINE DATED: AUG 1987

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APPROVED: _____
—DEAN 1 _____ DSTE _____

SURVEYING
COURSE NAME

SUR101
COURSE CODE

TOTAL CREDFT HOURS: 64

PREREQUISITE(S): None

I. PHILOSOPHY/GOALS:

This course will introduce the student to basic suireying principles. The topics covered will deal with the theory, application and care of a level, transit and chain.

n. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):

Upon successful completion of this course the student will:

- 1) Identify different types of surveys and survey equipment, and choose the most appropriate equipment for each application
- 2) Perform and effectively record linear measurements using several different techniques and equipment
- 3) Perform and effectively record basic leveling surveys
- 4) Perform and effectively record basic angle measurement and angle computations

IU. TOPICS TO BE COVERED:

- 1) Introduction and Survey Fundamentals
- 2) Linear Measurement
- 3) Leveling
- 4) Engineer's Transit

IV. LEARNING AdTVITIES/REQUIRED RESOURCES

1. General

Learning Activities: In class instruction and practical illustrations on:

- Types and purposes of surveys
- Surveying instruments
- Accuracy and precision of measurements

Resources: Chapter 1
Handouts and overheads

2. **Linear Measurements**

Learning Activities: In class instruction, practical exercises and assignments on:

- Terms and definitions
- Different methods of linear measurement
- Units of measurements
- Standard conditions of steel tape
- Taping accessories
- Temperature affects on chaining
- Duties of head and rear chainperson
- Electronic distance measurement

Resources: Chapters 2 and 5
Handouts, overheads and demonstrations

3. **Leveling**

Learning Activities: In class instruction, practical exercises and assignments on:

- Introduction to leveling
- Leveling instruments and their uses
- Leveling rods and accessories
- Definitions
- Theory of differential leveling
- Leveling procedures and equations
- Field notes
- Reduction of Field notes
- Sources of errors and necessary precautions
- Bench mark leveling
- Profile leveling

Resources: Chapter 3
Handouts and overheads

4. **Engineer's Transit**

Learning Activities: In class instruction, practical exercises and assignments on:

- Basic principles
- Types of transits
- Methods of use
- Verniers
- Measuring horizontal angles
- Care of transit
- Basic computations using angles

Resources: Chapters 4 and 5
Handouts and overherds

SURVEYING
COURSE NAME

SURIOI
COURSE CODE

V. EVALUATION METHODS: (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS, ETC.)

A final grade will be derived as follows:

Field Book	20%
Assignments	20%
Midterm Test	25%
Final Test	35%
Total	100%

The grading system used will be as follows:

A+	90% - 100%
A	80% - 89%
B	70% - 79%
C	55% - 69%
R	Repeat

- 1) Field books will be collected periodically to check for neatness and layout of work. In addition, field books will be collected at the end of the semester for marking.
- 2) Minimum acceptable grade for this course is 55%.
- 3) If at the end of the semester the overall mark is below 55%, then it will be up to the Instructor whether or not a rewrite test will be granted. The criteria employed for arriving at that decision is class attendance, class participation and overall grade, which should be at least 45%.
- 4) In the case a rewrite is granted, it will be permitted only once, it will cover the entire course outline and will limit the maximum obtainable grade for the course to 60%.

VI. **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 requirements of the Prior Learning Assessment Process (PLA) as defined in the Course Analysis Form provided for this course.

Vn. **REQUIRED STUDENT RESOURCES**

Required Text Surveying: with Construction Applications
Barry F. Kavanagh
Prentice Hall

SURVEYING
COURSE NAME

SUR101
COURSE CODE

Vra. SPECIAL NOTES

Students with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

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

IX. COURSE ANALYSIS SHEET (see attached)

COURSE ANALYSIS FORM

Course Title and No.	SURVEYING		SURIOI
Learning Outcomes	Broad Areas of Content	Indicator of Importance (if applicable)	Indicators of Success
L Identify survey methods and equipment. Select appropriate equipment for survey applications.	- Horizontal and vertical control - Survey equipment		Demonstrate a knowledge of survey equipment and methods.
2. Perform and record linear measurements utilizing several different techniques and equipment	- Methods of linear measurement - Chaining - Electronic distance measurement		Perform chaining operations. Demonstrate a knowledge of chainperson duties, error sources and other methods of measurement.
3. Perform and effectively record leveling surveys.	- Leveling		Perform differential level surveys using a variety of instruments. Demonstrate a thorough knowledge of field note reduction, error sources and equipment.
4. Perform and record angle measurement and angle computations.	- Angle measurement and computations - Engineer's transit		Perform angle measurement surveys using a variety of instruments. Demonstrate an ability for angle computation and a knowledge of record keeping, error sources and equipment.

Assessment Process

- Registration and payment

Assessment Tools

- Challenge exam(s) and/or assignments
- Practical demonstrations of skills by student
- Evaluation of record keeping abilities
- Evaluation of survey experience portfolio and/or letters of reference offered by student

Supports

- Classroom for challenge exam(s)
- Surveying equipment, field books and accessories as required
- Instructor's time

Requirements for Successful Completion of Course

- Pass challenge exam(s) with a grade of 60% or more
- Physically demonstrate abilities using survey equipment for assigned exercises
- Provide acceptable survey records for challenge exercises
- Acceptable experience portfolio and/or letters of reference

A challenge process for this course can be made available to learners within a reasonable period of time following a learner's request.

Signatures:

Professor

Program Coordinator or Dean

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