

# ATLB-2200: SURVEYING TECHNIQUES AND APPLICATION

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## Cuyahoga Community College

### Viewing: ATLB-2200 : Surveying Techniques and Application

**Board of Trustees:**

2003-05-22

**Academic Term:**

Spring 2019

**Subject Code**

ATLB - AIT-Construct/Hazard Material

**Course Number:**

2200

**Title:**

Surveying Techniques and Application

**Catalog Description:**

Study of modern surveying techniques, applications, and methodology. Includes equipment, data collection methods, field records, plane transformations, software, and routine procedures.

**Credit Hour(s):**

3

**Lecture Hour(s):**

3

## Requisites

**Prerequisite and Corequisite**

Completion of 6 credit hours in ATLB, ATCT, ATBL, or ATCM coursework.

## Outcomes

**Course Outcome(s):**

N/A

**Objective(s):**

1. Organize equipment to match appropriate task.
2. Evaluate accuracy of a theodolite set up.
3. Formulate correct field data collection procedures and prepare coordinates.
4. Design a field record system, using sketches, notes, lines, and numbering systems.
5. Assess and evaluate plane transformation adjustments.
6. Assess and revise, if required, geodetic coordinates.
7. Analyze common data integrity check procedures.
8. Diagram network requirements, estimate network performance, and prepare input devices.
9. Demonstrate knowledge of digital terrain modeling and GIS software by surveying a site.

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**Methods of Evaluation:**

1. Quizzes
2. Exams
3. Classroom participation
4. Demonstration of assigned projects

**Course Content Outline:**

1. Equipment
  - a. Total surveying station
  - b. SOKKIA
  - c. Lietz® Equipment
  - d. Electronic theodolite
  - e. Electronic distance meter
  - f. Portable computer
  - g. Prism reflectors
2. Field data collection
  - a. Roles of team
  - b. Communications
  - c. Use of prism pole
  - d. Photographs
  - e. Set up procedures
  - f. Set up coordinates
  - g. Reflector use
3. Field records
  - a. Sketches and notes
  - b. Locations and lines
  - c. Numbering system
4. Plane transformations
  - a. Adjustments
  - b. Geodetic coordinates
  - c. Use of survey software
  - d. Perceived vs. reliable coordinates
  - e. Data integrity checks ( triangulation)
5. Equipment
  - a. Performance requirements
  - b. Networking requirements
  - c. Input devices
6. Software
  - a. AutoCAD® use
  - b. Digital terrain modeling
  - c. GIS software

**Resources**

Harbin, Andrew. *Land Surveyor Reference Manual*. Belmont: Professional Publications, 2001.

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Kavanagh, Barry F. *Surveying: Principles and Applications*. Upper Saddle River, New Jersey, 2003.

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Lane, Kenneth. "Fundamental Land Workbook"

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