



Course Outline

2026-2027 Catalog

AET 26 - Basic Surveying

Catalog Description

Transfer Status: CSU

Unit(s): 3.00

Lecture: 34.00 Contact hours/68.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

Lab: 51.00 Contact hours/0.00 Out of class hours/51.00 Total hours/1.00 Unit(s)

Total: 85.00 Contact hours/68.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

Course Description: This is a basic surveying course. Topics will include selection, care and use of tapes and levels; field observations, note taking and office computations; use of surveying instruments and equipment for land measurement and mapping; practice in differential, profile, and contour leveling; building foundation layout; horizontal angles; cut and fill measurements and calculations for land grading. Laser and Global Positioning System (GPS) technology will be introduced at the basic level.

Objectives

Upon successful completion of this course, the student should be able to:

1. Explain applications of surveying.
2. Properly use and care for instruments and equipment.
3. Conduct accurate field observations and keep complete field notes.
4. Categorize and calculate required data accurately and completely.
5. Create a contour map.
6. Estimate cut and fill for a surveyed tract.
7. Communicate and work cooperatively with others.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction to Surveying	2.00
Note-taking and Distance Measurement	3.00
Using Surveying Equipment	3.00
Differential Leveling	6.00
Profile Leveling	5.00
Contours and Graded Ditch	3.00
Grading Land	4.00
Angles and Directions	2.00
Building Layout	2.00
Land Surveys and Descriptions	2.00
Global Positioning Systems	2.00

Total Hours: 34.00

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction to Surveying	4.00
Note-taking and Distance Measurements	4.00
Using Surveying Equipment	4.00
Differential Leveling	9.00
Profile Leveling	6.00
Contours and Graded Ditch	4.00
Grading Land	6.00
Angles and Directions	4.00
Building Layout	4.00
Land Surveys and Descriptions	3.00
Global Positioning Systems	3.00

Total Hours: 51.00

Methods of Instruction

- A. Class Activities
- B. Collaborative Group Work
- C. Demonstrations
- D. Discussion
- E. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- F. Lecture
- G. Multimedia Presentations
- H. Reading Assignments

Methods of Evaluation

- A. Exams/Tests
- B. Quizzes
- C. Projects
- D. Demonstration
- E. Homework
- F. Class participation
- G. Final Examination
- H. Written Assignments
- I. Laboratory evaluation will include problem solving exercises or skill demonstrations.

Examples of Assignments

Reading Assignments

1. Read the text material on profile leveling and be prepared to discuss in class.
2. Read the chapter in your book on using the average profile method for land leveling and be prepared to discuss in class.

Writing Assignments

1. Write out and define the surveying terms on the list provided by the instructor.
2. In a two-page paper explain the object and uses of the surveying techniques for producing a contour map.

Out-of-Class Assignments

1. Practice making maps of your street or ranch as you would for a survey. Be prepared to share your maps with the class.
2. Use the Internet to find an article about compass directions. Explain the difference between cardinal directions and azimuth directions.

Recommended Materials of Instruction

Other Learning Materials

Reference: Salo, Glenn W. Agricultural Surveying AE 131. San Luis Obispo: California Polytechnic State University, Blake Printery. 1981.
Materials: Field notebook, 3H hard pencil, straight edge rule, calculator (square root capable)

Minimum Qualifications

Agricultural Engineering
Agriculture (Masters Required)

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