

CATALOG INFORMATION

Dept and Nbr: SURV 51            Title: PLANE SURVEYING APPS  
Full Title: Plane Surveying Applications  
Last Reviewed: 1/26/2015

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	3.00	17.5	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable  
Grading:            Grade Only  
Repeatability:    00 - Two Repeats if Grade was D, F, NC, or NP  
Also Listed As:  
Formerly:        CEST 50B

**Catalog Description:**  
Theory and practice of plane surveying, including principles of position, horizontal and vertical curves, construction staking, alignments, field procedures, U.S. Public Land Survey System, Boundary Surveying, use and care of surveying equipment.

**Prerequisites/Corequisites:**  
Completion of SURV 50 (or CEST 50A or CET 50)

**Recommended Preparation:**

**Limits on Enrollment:**

**Schedule of Classes Information:**  
Description: Theory and practice of plane surveying, including principles of position, horizontal and vertical curves, construction staking, alignments, field procedures, U.S. Public Land Survey System, Boundary Surveying, use and care of surveying equipment. (Grade Only)  
Prerequisites/Corequisites: Completion of SURV 50 (or CEST 50A or CET 50)  
Recommended:  
Limits on Enrollment:

Transfer Credit: CSU;  
Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>			Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>			Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>			Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:	Fall 2017
<b>UC Transfer:</b>		Effective:		Inactive:	

### **CID:**

#### **Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

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

1. Summarize the proper procedures and use of surveying equipment for control, layout and boundary surveys.
2. Identify the use and dissemination of data and information through proper surveying note keeping and plat preparation.
3. Perform complex surveying computations to determine vertical and horizontal positions, directions of lines, distances between points and location of property boundary.
4. Define and compute State Plane Coordinate Systems for California.
5. Define and compute the direction of lines by astronomic and satellite observations.
6. Calculate the necessary data and layout horizontal and vertical curves as they relate to roadway and boundary surveys.
7. Summarize and identify the procedures used in the Public Lands Survey System.
8. Summarize and identify the proper procedures for determining boundary lines for property surveys.
9. Prepare a boundary plat from record and surveying data/information.
10. Prepare and interpret legal descriptions.

### **Topics and Scope:**

- I. Use and Dissemination of Data and Information
  - A. Proper surveying note keeping
  - B. Plat preparation
- II. Astronomic Observations for direction of lines
  - A. Solar observation
  - B. Polaris observation
- III. Control and Geodetic Reductions

- A. Ground measurements
- B. Grid measurements
- IV. State Plane Coordinates
  - A. NAD 27 (North American Datum 1927)
  - B. NAD 83 (North American Datum 1983)
- V. Horizontal curves
  - A. Geometry
  - B. Layout
- VI. Vertical Curves
  - A. Geometry
  - B. Layout
- VII. Earthwork
  - A. Area
  - B. Volumes
- VIII. Surveys of the Public Lands
  - A. History
  - B. Procedures
- IX. Boundary Surveys
  - A. Research
  - B. Field procedures
  - C. Computations
  - D. Mapping
- X. Legal Descriptions
  - A. Preparation
  - B. Interpretation

**Assignment:**

1. Read approximately one chapter of the textbook per week
2. Homework: 6 to 10 problems assigned from textbook or instructor handouts
3. Weekly field exercises
4. Midterm exams: 4
5. Final exam

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Lab reports

Problem solving  
15 - 25%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Field work, Performance exams

Skill Demonstrations  
30 - 40%

**Exams:** All forms of formal testing, other than skill performance exams.

Multiple choice, Matching items, Completion, Computational

Exams  
25 - 35%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Class Participation

Other Category  
0 - 10%

**Representative Textbooks and Materials:**

ELEMENTARY SURVEYING: An Introduction to Geomatics, 12th edition.  
Wolf/Ghilani. PrenticeHall, 2007.