

SURV 51 Course Outline as of Fall 2004

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:
Course Completion of SURV 50 (or CEST 50A or CET 50A) OR Course Completion of SURV 50 (or CEST 50A or CET 50A)

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: Course Completion of SURV 50 (or CEST 50A or CET 50A) OR Course Completion of SURV 50 (or CEST 50A or CET 50A)

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

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area			Effective:	Inactive:
CSU GE:	Transfer Area			Effective:	Inactive:
IGETC:	Transfer Area			Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:	Fall 2017
UC Transfer:		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:

Fieldwork:

1. Determine the direction of a line by Astronomic Observations (Solar and Polaris Observations) by field and office procedures.
2. Compute and layout elements and objects of general engineering construction projects.
3. Compute and layout horizontal and vertical curves for highway projects.

Lab & field work:

4. Locate, relocate, establish and research lines, points and surveys used in the U.S. Public Lands Surveys system.
5. Research, survey and perform a property and boundary Surveys
6. Lab reports for all of the above, 2 pages for each assignment.
7. Layout and compute coordinates for horizontal control for Geodetic & Satellite Surveys.
8. Compute the grid and geographic position of points using the California State Plane Coordinate System - NAD 1929 and NAD 1983 and latitude and longitude.
9. Describe and interpret legal descriptions by writing, researching and measurements.
10. Five exams (including the final).
11. Chapter reading assignments from text. Approx. 50 pages per week.
12. Homework problems from text. Approx. 10 problems per week.

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, 10th edition.
Wolf/Ghilani. PrenticeHall, 2002.