SURV 60 Course Outline as of Spring 2017

CATALOG INFORMATION

Dept and Nbr: SURV 60 Title: INTRO PLANE SURVEYING
Full Title: Introduction to Plane Surveying
Last Reviewed: 1/25/2021

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	8	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:	

Catalog Description:
Introduction to the principles and practice of plane surveying, including measurements for distance, direction, elevation and position, topographic and planimetric mapping, use and care of surveying equipment.

Prerequisites/Corequisites:

Recommended Preparation:
Course Completion or Concurrent Enrollment in APTECH 90A, APTECH 191, MATH 154, or MATH 155

Limits on Enrollment:

Schedule of Classes Information:
Description: Introduction to the principles and practice of plane surveying, including measurements for distance, direction, elevation and position, topographic and planimetric mapping, use and care of surveying equipment. (Grade Only)
Prerequisites/Corequisites:
Recommended: Course Completion or Concurrent Enrollment in APTECH 90A, APTECH 191,

MATH 154, or MATH 155
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 2015	Inactive:	
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Describe the concepts of Plane Surveying, including the Public Land Survey System
2. Properly set up and operate plane surveying equipment
3. Interpret and record data and field notes
4. Analyze and compute survey and engineering findings

Objectives:
Upon successful completion of this course, the student will be able to:
1. Define the different types of land surveying and their uses.
2. Summarize the proper procedures and use of surveying equipment used in this course.
3. Prepare proper surveying notes and information.
4. Perform surveying computations involving angles, directions, distances, areas, volumes, and vertical and horizontal positions.
5. Calculate horizontal measurements by manual and electronic methods.
6. Determine the elevation difference between points using multiple survey leveling methods.
7. Lay out, measure, analyze and adjust level runs, field traverses and topographic side shots.
8. Compute direction of a line from field data and record data using magnetic and geodetic information.
9. Compute the relative position of points by traversing.
10. Calculate basic curve data and layout basic horizontal curves.
11. Prepare a topographic map from surveying data and information.
12. Identify the characteristics of and summarize basic procedures used in the Public Land Survey System.

Topics and Scope:

Lecture and Laboratory

I. Introduction to Plane Surveying
   A. Procedures
   B. Equipment
   C. Units of Measure
II. Field Notes: Preparation and Use of Field Notes
   A. Purpose and Preparation
   B. Proper Composition in the Field
   C. Office Use of Field Notes
III. Land Surveying and Measurement Error
   A. Basic Error Specification and Determination
   B. Basic Error Management and Correction
IV. Leveling
   A. Theory
   B. Equipment
   C. Vertical Datums
   D. Process
   E. Computations
V. Distance Measurement
   A: Theory
   B. Process
   C. Horizontal Datums
      1. NAD 27 (North American Datum 1927)
      2. NAD 83 (North American Datum 1983)
   D. Methods
      1. Taping
      2. Electronic
VI. Horizontal Curves
   A. Alignment geometry and basic calculations
   B. Defining and calculating basic curve elements
   C. Layout
VII. Vertical Curves
   A. Alignment geometry and basic calculations
   B. Defining and calculating vertical curve elements
   C. Layout
VIII. Electronic Instruments and Electronic Measurements
   A. History of survey measurement equipment
   B. Use and care of electronic measurement equipment
IX. Traversing
   A. Procedures
   B. Computations and Adjustments
   C. Computing Area
   D. Field notes
X. Mapping Surveys
   A. Types and Methods
   B. Mapping and Simple Plat Preparation
XI. Introduction to Public Lands Survey System (PLSS)

Assignment:

1. Textbook reading per week (1-2 chapters per week)
2. Homework problem sets (10-20)
3. Weekly field exercises, performance evaluations, and reports

4. Exams (3-5)
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 problem sets, Field exercises and reports	Problem solving 15 - 25%

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

Field exercises, Performance evaluations	Skill Demonstrations 30 - 40%

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

Multiple choice, True/false, 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, 14th ed. Wolf/Ghilani, Prentice-Hall, 2014
Instructor prepared materials