SURV 55 Course Outline as of Spring 2005

CATALOG INFORMATION

Dept and Nbr: SURV 55 Title: INTRO GPS CIV SURV LAND
Full Title: Introduction to GPS for Civil, Surveying & Land Development
Last Reviewed: 8/23/2004

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	3.00	17	Lecture Scheduled	51.00
Minimum	2.00	Lab Scheduled	3.00	4	Lab Scheduled	51.00
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	102.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 102.00 Total Student Learning Hours: 204.00

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 55

Catalog Description:
Principles and applications of control surveys, coordinate systems, and global positioning systems including concepts and practice of navigation, location, data collection, processing and adjustment. All students should have a basic understanding of the principles and practices of plane surveying prior to taking this course.

Prerequisites/Corequisites:
Course Completion of SURV 51 (or CEST 50B or CET 50B)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Principles and applications of control surveys, coordinate systems, and global positioning systems including concepts and practice of navigation, location, data collection, processing and adjustment. (Grade Only)
Prerequisites/Corequisites: Course Completion of SURV 51 (or CEST 50B or CET 50B)
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 2011
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. Identify types of control surveys and their applications in civil engineering and surveying.
2. Operate global positioning system equipment for navigation and survey grade location.
3. Use conventional electronic surveying instruments (total stations) as well as the GPS equipment for control surveys, navigation and mapping.
4. Determine and utilize appropriate field procedures for horizontal and vertical control of surveys.
5. Define and give illustrative examples of map projections and the data associated with them.
6. Determine the geographic coordinates and plane coordinates of points within the two California Coordinate Systems.
7. Determine the direction of a line by Astronomic Observation.
8. Summarize the proper use of electronic surveying equipment such as total stations global positioning systems.
9. Analyze and compile GPS data by using post-processing software.

Topics and Scope:

I. Introduction to GPS
 A. Principles
 B. Applications
 C. Skills
 D. Equipment
II. Control Surveys
 A. Types
 B. Civil engineering and land surveying applications

III. State Plane and Geographic Coordinate Systems
  A. Map projections
  B. Data
  C. Computations
IV. Planning a Survey
V. GPS Fundamentals
VI. GPS Receivers and equipment
VII. Navigating
VIII. Observing
IX. Surveying
X. Post-processing data
XI. Mapping

Assignment:

1. Compute the positions of points used in horizontal and vertical control.
2. Determine the appropriate datum, coordinates system, and projection for surveying and mapping projects.
3. Set up and operate GPS receivers.
4. Do project planning for a GPS Survey using GPS software.
5. Navigate to points with GPS.
6. Determine the position of points by static GPS methods.
7. Compute the survey grade position of points by post-processing survey data with GPS software.
8. Prepare a topographic map by kinematic GPS methods.
9. Chapter readings in textbook, approximately 40 - 50 pages per week.
10. Three to five exams, including final.

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.

Field work, computations; navigate to points; project plan.	Problem solving 25 - 45%

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

Field work, navigate to points; set up/operate receivers.	Skill Demonstrations 30 - 55%

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

Multiple choice, Matching items, Completion, COMPUTATIONAL	Exams 15 - 30%

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

None	Other Category 0 - 0%

Representative Textbooks and Materials:
GPS for Land Surveyors 2nd Edition. Van Sickle, Jan. Taylor and Francis, 2001.