SURV 57 Course Outline as of Spring 2010

CATALOG INFORMATION

Dept and Nbr: SURV 57 Title: ADVANCED GPS
Full Title: Advanced Global Positioning Systems
Last Reviewed: 9/21/2009

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	17.5	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00 Total Student Learning Hours: 157.50

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:
This is an advanced course utilizing global positioning system (GPS) principles, applications and equipment. The student will plan, prepare, and perform the applications of different types of surveys using advanced GPS equipment and techniques, including advanced static and real time kinematic surveying applications.

Prerequisites/Corequisites:
Course Completion of SURV 55 OR Course Completion of SURV 56

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: This is an advanced course utilizing global positioning system (GPS) principles, applications and equipment. The student will plan, prepare, and perform the applications of different types of surveys using advanced GPS equipment and techniques, including advanced static and real time kinematic surveying applications. (Grade Only)
Prerequisites/Corequisites: Course Completion of SURV 55 OR Course Completion of SURV

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:	Spring 2010	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. Define and describe the different types of GPS surveys, their attendant methods and applications
2. Set up and collect data in both static and kinematic modes
3. Navigate to a ground feature using advanced GPS methods and techniques
4. Perform a topographic survey using advanced GPS methods and techniques
5. Perform a construction stake-out using advanced GPS methods and techniques
6. Perform a control survey using advanced GPS methods and techniques
7. Develop a project layout using advanced GPS methods and techniques
8. Prepare and present oral/written report for a surveying project that utilized GPS technology

Topics and Scope:

1. Advanced GPS applications
a. Static surveying methods
b. Kinematic surveying methods
c. Real time kinematic (RTK) surveying methods
d. Digital geographic positioning systems (DGPS)

2. Equipment
a. Receivers
b. Data collection and management
c. Observation errors
d. Advanced methods

3. Project planning

a. Horizontal datums, coordinate systems and projections
b. Vertical reference surfaces
c. Ground vs grid applications

4. Surveys
a. Navigation techniques
b. Topographic mapping
c. Construction and layout
d. Control and control networks

5. Post processing methods
a. Single base
b. Continuous Operating Reference Stations (CORS)
c. Online Positioning User System (OPUS)

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. Weekly written lab reports
5. Midterm exam
6. Oral presentation and written report
7. Final exam
8. Final project presentation

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.

Weekly lab reports, final project report	Writing 10 - 20%

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

Problems assigned from textbook or instructor handouts	Problem solving 20 - 30%

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

Weekly field exercises	Skill Demonstrations 30 - 40%

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

Multiple choice, true-false, completion, short answer, mid-term, final	Exams 20 - 30%

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

Oral presentation of final project	Other Category 10 - 20%

Representative Textbooks and Materials:
GPS for Land Surveyors, 3rd Edition, Jan Van Sickle, CRC Publ. 2008
Understanding GPS, 2nd Edition, Kaplan & Hegerty, Artech House, 2006
Instructor prepared materials