

CATALOG INFORMATION

Dept and Nbr: SURV 52

Title: INTRO TO PHOTOGRAMMETRY

Full Title: Introduction to Photogrammetry

Last Reviewed: 2/9/2004

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

Total Out of Class Hours: 105.00

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: CEST 52

Catalog Description:
Introduction to the theory and practice of Photogrammetry including image systems and quality, theory of stereo-photography, orientation and design of stereo models. Design and operating principles of stereo plotting, photogrammetric and orthophoto mapping and project planning. All students should have a basic understanding of the principles and practices of plane surveying prior to taking this course.

Prerequisites/Corequisites:
CEST 50B (formerly CET 50B) or equivalent with grade of "C" or better.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Introduction to the theory and practice of Photogrammetry including image systems and quality, theory of stereo-photography, orientation and design of stereo models. Design and operating principles of stereo plotting, photogrammetric and orthophoto mapping and project planning. (Grade Only)

Prerequisites/Corequisites: CEST 50B (formerly CET 50B) or equivalent with grade of "C" or better.

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:	Summer 2008
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 illustrate the general principles and applications of photogrammetry.
2. List and define the photographic process as it applies to aerial mapping.
3. Identify the types of optics used in aerial cameras.
4. Determine and calculate the appropriate geometry for various focal lengths and elevations of cameras relative to terrain conditions.
5. Define and illustrate stereoscopy and its applications to aerial mapping.
6. Identify specific objects and features using aerial photography interpretation techniques.
7. Identify and calculate the appropriate stereo plotting equipment and instruments.
8. Describe and compute ground control and flight planning for aerial mapping projects.

Topics and Scope:

- I. History and applications of photographic processes in surveying and mapping
 - A. History of photographic process
 1. film
 2. digital
 - B. Applications

1. topo mapping
2. planometric mapping
3. GIS (Geographic Information Systems)
- II. Photographic process
 - A. Optics
 - B. Cameras
- III. Photographic geometry in aerial photography
 - A. Focal length
 - B. Ground coverage
 - C. Flying height
- IV. Practical applications of stereoscopy
 - A. Overlap
 - B. Sidelap
- V. Photo interpretation applications
 - A. Mapping
 - B. Orthophoto
- VI. Stereo plotting equipment and instruments
 - A. Types
 - B. Procedures
 - C. Use of
- VII. Project Planning
 - A. Ground control
 - B. Flight planning
- VIII. Special applications
 - A. Analytic photogrammetry
 - B. Bridging
 - C. Orthophoto

Assignment:

1. List and define the photogrammetric applications in topographic and planimetric mapping.
2. Define and calculate the appropriate camera systems for large and small-scale mapping.
3. Compute the photographic scales in aerial photography.
4. Analyze and define objects of vertical aerial photography.
5. Compute flying heights and altitudes of cameras in aerial photography.
6. Compute relief and radial displacement by aerial mapping techniques.
7. Set up and operate Stereoscopic equipment for stereo viewing.
8. Compute and layout flight lines and photographic overlap of neat models.
9. Prepare a flight plan for an aerial mapping project.
10. Compute and layout ground control for mapping projects.
11. Interpret and define objects in aerial photographs used by engineers and surveyors.
12. List and define different remote sensing applications and techniques used in photogrammetry.
13. Textbook reading assignments, approximately 40 - 50 page per week.
14. 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.

Homework problems

Problem solving
30 - 40%

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

Performance exams

Skill Demonstrations
10 - 20%

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

Multiple choice, Matching items, Completion, Problem solving.

Exams
30 - 40%

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

Class Participation

Other Category
0 - 10%

Representative Textbooks and Materials:

Introduction to Modern Photogrammetry. Mikhail, Bethel, McGlone. J. W. Wiley & Sons, 2001.