CONS 50 Course Outline as of Spring 1993

CATALOG INFORMATION

Dept and Nbr: CONS 50 Title: CONSTRUCTION SURVEY Full Title: Construction Surveying and Measurements Last Reviewed: 1/25/2016

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	3.00	10	Lecture Scheduled	30.00
Minimum	2.00	Lab Scheduled	3.00	8	Lab Scheduled	30.00
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	60.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 60.00

Total Student Learning Hours: 120.00

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:

Construction surveying and applications including office and field measurements of distances, elevations, angles and material quantities related to construction layout of building and engineering works.

Prerequisites/Corequisites: AP TECH 90A or MATH 155 or higher, AND AP TECH 55.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:

Description: Construction surveying & applications including office & field measurements of distances, elevations, angles & material quantities related to construction layout of building & engineering works. (Grade Only) Prerequisites/Corequisites: AP TECH 90A or MATH 155 or higher, AND AP TECH 55. Recommended: Limits on Enrollment:

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area Transfer Area	ì		Effective: Effective:	Inactive: Inactive:
IGETC:	Transfer Area			Effective:	Inactive:
CSU Transfer	: Transferable	Effective:	Spring 2009	Inactive:	Fall 2021
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:

Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:

The student will:

- 1. Define and illustrate type of construction measurements and their units as applied to construction surveying.
- 2. Demonstrate the appropriate use and care of instruments used in construction surveying.
- 3. Determine, calculate and demonstrate the appropriate method to be used in the construction staking of buildings, utilities and roads.
- 4. Define and give illustrated examples of the use of horizontal and vertical control as applied to construction surveying.
- 5. When given the appropriate grading plan, determine the volume of material by the contour, grid and average end methods.
- 6. When given a site plan, locate and identify all the elements related to construction layout.
- 7. When given the necessary data, calculate and plot to scale a topographic map including site improvements.
- 8. Demonstrate how to read construction stakes for buildings, utilities and roads.
- 9. When given the appropriate data, calculate slope, horizontal, and vertical distances.

Topics and Scope:

Proposed:

Lecture and Laboratory

- 1. Orientation and lab procedures.
- 2. Construction units of measurement, errors and accuracy.
- 3. Distance measurements by taping, tacheometer, and electronic distance measurement instruments.
- 4. Difference of elevation, levels and leveling techniques.

- 5. Methods and techniques of laying out horizontal and vertical angles.
- 6. Principles and methods of construction layout.
- 7. Stakes, hubs, and control marks for construction control and layout.
- 8. Methods and application of building, trenching, pipelaying, road construction staking.
- 9. Measurement and computation of areas and volumes applicable to construction.
- 10. Principles and application of shafts, tunnels and offshore measurements.
- 11. Geopositioning by satellites.

Assignment:

Assignments:

- 1. Convert decimal feet to equivalent feet and inches and vice versa.
- 2. Determine and identify error of closure and appropriate accuracy.
- 3. Compute elevations using differential, profile, grid and stadia methods.
- 4. Compute cuts and fills.
- 5. Establish by plus-offset, radial and coordinate methods, control points for buildings, utilities and roads.
- 6. Methods and techniques in developing site plans.
- 7. Determine areas and volumes by polar planimeter, Simpson's One-Third Rule, average end, borrow-pit and contour methods.
- 8. Uses and expectations of construction layout by satellite geopositioning.

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.

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

Homework problems, Field work, Lab reports, Exams

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

Field work, Performance exams

Writing 0 - 0%	

Problem solving 20 - 25%

Skill Demonstrations
35 - 45%

Multiple choice, Matching items, Completion, COMPUTATIONAL

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

None

Representative Textbooks and Materials:

Surveying With Construction Applications: Barry F. Kavanagh Prentice-Hall, 2nd Edition. Construction Measurements: B. Austin Barry John Wiley, 2nd Edition. Exams 25 - 30%

Other Category 0 - 0%