CEST 85 Course Outline as of Fall 2023

CATALOG INFORMATION

Dept and Nbr: CEST 85 Title: CADD CIVIL SURV LAND DEV
Full Title: CADD for Civil, Surveying and Land Development
Last Reviewed: 10/24/2022

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	6	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:	CET 85

Catalog Description:
In this course students will be introduced to Computer-aided Drafting and Design (CADD) for civil engineering, surveying, and land development technicians. Industry standard civil engineering software application will be utilized in this course. Areas covered include input of surveying data for boundary and topography, creation of a digital terrain model, roadway alignments, earthwork, grading plans, plan view, profile view and cross section drawings as they relate to the professions of civil engineering, land surveying, and land development.

Prerequisites/Corequisites:
Course Completion of CEST 51

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: In this course students will be introduced to Computer-aided Drafting and Design (CADD) for civil engineering, surveying, and land development technicians. Industry standard civil engineering software application will be utilized in this course. Areas covered include input

of surveying data for boundary and topography, creation of a digital terrain model, roadway alignments, earthwork, grading plans, plan view, profile view and cross section drawings as they relate to the professions of civil engineering, land surveying, and land development. (Grade Only)
Prerequisites/Corequisites: Course Completion of CEST 51
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 1995	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. Use three-dimensional (3D) civil engineering software to generate technical drawings and design documentation
2. Generate digital terrain surface models from survey data
3. Create parcel boundaries and data for subdivisions
4. Create horizontal and vertical alignments for roadways

Objectives:
At the conclusion of this course, the student should be able to:
1. Create, edit, and manage point data including importing and exporting
2. Create and properly label lines and curves for civil engineering projects
3. Perform basic subdivision computations for area and boundary information
4. Create a digital terrain model surface of the existing ground from point, contour, fault line, and break line data
5. Create a finished grade or design surface
6. Create, label, and edit contours from digital terrain model surface data
7. Create horizontal and vertical alignments for roadways
8. Create profiles and cross sections of roadways from alignments or survey data
9. Draw and define roadway assemblies
10. Compute earthwork volumes using alignments, profiles, cross sections, and corridors
11. Use civil engineering software to create a set of improvement plans, including plan, profile, cross sections, and details

Topics and Scope:

Lecture-Related Topics and Scope:
I. An Overview of CADD in Civil Engineering, Surveying, and Land Development
II. Drawing Setup
III. Creating and Managing Points, Lines, Labels, Curves, and Tables
IV. Parcel Computations and Labeling
V. Terrain Surface Modeling and Contours
VI. Creating Alignments with Stationing
VII. Creating Profile and Cross Section Views
VIII. Volume Computations
IX. Creating Assemblies
X. Creating Improvement Plans for Civil Engineering and Land Development Projects

Laboratory-Related Topics and Scope:
Instructor Provided Lab Exercises Using AutoDesk Civil 3D (C3D) Software Application
I. C3D User Interface
II. Basic Techniques
III. Working with C3D Points
IV. Lines and Curves (AutoCAD vs. C3D)
V. Setting Styles
VI. Parcels
VII. Surfaces
VIII. Grade(s), Grading, and Grading Groups
IX. Shortcuts and X-refs
X. Alignments
XI. Profiles
XII. Assemblies
XIII. Corridors
XIV. Cross sections
XV. Pipes
XVI. Plan Production Tools
XVII. Civil Survey Tools Add-on Pack

Assignment:

Lecture-Related Assignments:
1. Weekly textbook chapter readings (1-2)

Lab-Related Assignments:
1. Lab exercises using CADD technology (10-17)

Lecture and Lab-Related Assignments:
1. Analysis and computation assignments (3-6)
2. Quizzes (4-8)
3. Exam(s) (1-2)
4. 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.

Analysis and computational assignments	Problem solving 10 - 25%

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

Lab exercises using CADD technology	Skill Demonstrations 40 - 60%

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

Quizzes; exam(s); final exam	Exams 30 - 50%

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

None	Other Category 0 - 0%

Representative Textbooks and Materials:
An Introduction to Civil 3D. Coleman, Geoffrey J. SDC Publications. 2014 (classic).
Mastering AutoCAD Civil 3D 2016 Davenport, Cyndy and Voiculescu, Ishka. Sybex Publications. 2015 (classic).