

SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLOGIES AND SKILLED TRADES DIVISION
Land Surveying/GIS/Civil Engineering Technology Program
Revision Date: March 2026

I. CATALOG DESCRIPTION

Course Number: LSCE2646
Course Title: Civil CAD 3D
Prerequisite(s): LSCE1326
Catalog Description: Study of advanced civil computer aided design. Use of engineering software, Autodesk Civil 3D, and ERSI GIS software to draft a complete subdivision set of plans from field to finish. Surveying field projects in electronic data collection are downloaded into the computer using AutoCAD Civil 3D and/or Magnet Field. Complete Field to Finish Project set of plans.
Credit Hours: 3.0
Class Hours: 15
Lab Hours: 90
Total Contact Hours: 105

II. COURSE OBJECTIVES: *Course will:*

- A. Use dynamic objects for points, alignments, profiles, terrain models, pipework's and more.
- B. Demonstrate the use of AutoCAD Civil 3D that supplies with tools for expediting timely tasks related to civil engineering and land surveying.
- C. Equip land surveyors with the basic knowledge needed to use AutoCAD Civil 3D efficiently in a typical daily workflow.
- D. Cover data collection, least square analysis and traverse adjustment.
- E. Demonstrate the topics that increase efficiency in styles, proper AutoCAD drafting techniques, methodology needed to create linework effectively for variables used in defining symbology, and efficient use of surfaces.
- F. Categorize points and importing imagery on State Plane Coordinates from Google Earth and ERSI GIS maps.
- G. Develop a full set of working plans associated with a subdivision construction from field to finish.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Use the functions of the Prospector Tab.
 - 2. Use the functions of the Settings Tab.
 - 3. Use Civil 3D to develop parcels.
 - 4. Create a network.
 - 5. Create a new description key set entry.
 - 6. Import an ACSII file using the Create Point toolbar.
 - 7. Export a Lat Longs point file.
 - 8. Set the survey database and import points.
 - 9. Create point reports.
 - 10. Import a field book into the network.
 - 11. Prepare for Survey Data and import field data using the correct survey equipment, figure prefix library, field codes.

12. Setup survey figure database path to point to a different location.
13. Set up a network and import a survey.
14. Translate the survey database.
15. Review the preliminary results of an adjusted traverse.
16. Perform a slope analysis.
17. Create a project-based Data Shortcuts folder, revise Data Shortcuts and revise original referenced objects.
18. Create a finished ground profile.
19. Create the corridor assembly containing daylight.
20. Create the collector road subassembly.
21. Create the residential road subassembly.
- B. General Education Learning Outcomes (GELOs)
 1. GELO #3: Critical Thinking & Problem Solving
Outcome 1: Collect, identify, interpret, and analyze data.
 2. GELO #6: Career and Life Skills
Outcome 4: Use digital technology effectively to access, manage, integrate, evaluate, and present information.

IV. CONTENT/TOPICAL OUTLINE

- A. Survey Level 2 (Civil 3D for Surveyors Module 3)
 1. Overview
 2. Import Field Data
 3. Figure Prefix Database
 4. Field Codes
 5. Survey Data – Figures
 6. Survey Data – Line Code
 7. Translating a Survey Database
- B. Parcels Level 1 (Civil 3D Fundamentals Module 2)
 1. Introduction to Carlson Survey Software
- C. Processing UAV and Scanned Data
- D. Final: Draft a Subdivision Complete Set of Plans

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Required Text(s): Exploring AutoCAD Civil 3D 2023 12th Edition, CADCIM Technologies, ISBN 978-1-64057-150-1
- B. Storage Device

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 1. Lectures
 2. Classroom demonstrations
 3. Classroom discussions
 4. Hands-on lab projects
 5. Lab demonstrations
 6. Lab assistance
 7. Instructional handouts
 8. Video presentations
 9. PowerPoint presentations

VII. METHODS OF EVALUATION

- A.** Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1.** Homework and CAD Drafting
 - 2.** Tests
 - 3.** Participation

VIII. SPECIFIC COURSE REQUIREMENTS

- A.** A minimum grade of “C” or higher is required in all courses designated or starting with LSCE to progress through or graduate from the program.