Computer-Aided Drafting and Design (CADD) for Civil Engineering, Surveying, & Land Development Technicians using AutoCAD Civil 3D 2026

CEST 85, Section 5664 – Spring 2026 Course Syllabus (Rev2)

Instructor: Jennifer Looper, PLS **email: jlooper@santarosa.edu** **Cell: (831) 234-5018**

Course Goal

The primary goal of this class is for students to acquire a fundamental knowledge of the software used by Civil Engineering and Land Surveying Technicians to map terrain and prepare construction drawings. This class will provide a general understanding of the more common elements used in the Civil 3D software.

Students will be exposed to the concepts identified in the "course outcome" area below as a class. Upon completion of the course, students are not expected to be Civil 3D experts, but they will have acquired a fundamental knowledge of the software. This course is intended to establish a foundation that students can use to broaden their knowledge of AutoCAD Civil 3D.

Course Outcome

- Understand the AutoCAD Civil 3D interface
- Start and set up a new drawing, or open an existing drawing utilizing Civil 3D
- Create, edit, and manage COGO points
- Import and export COGO point data from field surveys and external files
- Create and properly label lines and curves for civil engineering and land surveying projects
- Perform subdivision computations for area and boundary information
- Create a digital terrain model (DTM) surface of the existing ground from point, contour, and breakline data
- Create a finished grade or design surface
- Create, label, and edit contours from DTM surface data
- Create horizontal and vertical alignments for roadways
- Create profiles and cross sections of roadways from alignments or survey data
- Create and define roadway assemblies
- Compute earthwork volumes using alignments, profiles, cross-sections, and corridors
- Create a gravity pipe network
- Create a set of improvement plans, including plan, profile, cross sections, and details using Civil 3D

Student Learning Outcomes

Upon completion of this course, students will be able to:

- Use Civil 3D software to generate technical drawings and design documentation
- Input survey data, such as COGO points, for boundary and topographical mapping
- Generate digital terrain model (DTM) surfaces
- Create parcel boundaries and data for subdivisions
- Create horizontal and vertical alignments for roadways

Course Prerequisites

CEST 51 (Civil Drafting Technology) with a grade of "C" or better, or equivalent.

Other Recommended Prerequisites

Students are required to be relatively proficient with the following AutoCAD topics before taking this class:

- Opening and Saving Files
- Creating and manipulating Layers
- Drawing Lines, Arcs, and Polylines
- Erasing, Trimming, and Extending Lines and Objects
- Creating and using Text Styles
- Creating and using Blocks

Required Reading Materials

- Required reading material will be provided by the instructor via Canvas.

Additional Outside Reading Materials (Recommended but not required)

- AutoCAD Civil 3D 2026 Fundamentals, SDC Publications, by Ascent. Previous versions (2023-2025) are fine also.

Course Schedule

- Class will be held remotely on Fridays from 5:00 PM to 9:50 PM via Zoom and will follow the format below:
  - 5-6:15 PM: Quiz (if scheduled) and first lecture.
  - 6:15-7:30 PM: Lab time for completing the assignment associated with the first lecture.
  - 7:30-8:30 PM: Second lecture.
  - 8:30-9:50 PM: Lab time for completing the assignment associated with the second lecture.
- Dates: 1/16/2026-5/15/2026
- Final Exam Date: 5/22/2026. Time of Exam: 5:00 PM to 8:15 PM. *The final exam is mandatory*. Failure to show up for the final exam will result in an F in the class.

Attendance

- Students are expected to attend all sessions of the course in which they are enrolled. A student may be dropped if they miss more than 10% of the total class time (including lab), which constitutes excessive course absence. Attendance will be taken TWICE during each class.

Tentative Course Schedule

- The objective of the course schedule is to assist you in planning your schedule. Every effort will be made to stay on schedule. However, the instructor may find it necessary to make appropriate adjustments to meet the learning objectives for the entire class. **This includes extended lectures which may result in shorter lab time for that day.**

Student Evaluations

- Graded Assignment files and Computer Examinations will be evaluated on the computer unless instructed otherwise. Assignments must be uploaded to Canvas before the posted due date and time. Late assignments will automatically be docked 25% for ***each day*** the assignment is late (to a maximum of 50%).
- Quizzes and the final exam are computer-based and will be administered via Canvas. Makeup quizzes are generally not given but may be considered under specific circumstances.
- Students are required to plot their class project and submit a final product to the instructor per the Tentative Course Schedule unless otherwise instructed.

- Course grading distribution:

	Pnts Each	% of Grade	Quantity
Graded Assignments:	10	35%	5-7
Quizzes:	10	20%	9
Class Project:	100	20%	1
Final Examination:	100	25%	1

Note: Approximately 20 assignments (2 per week) are required to be completed by the students. After all 20 assignments are completed, a total of **5-7** assignments will be randomly selected by the instructor and graded. ALL lab assignments must be completed and submitted on time to avoid a late penalty.

- A course grade based on the preceding will be given on the following scale:

A = 90% - 100%

B = 80% - 89%

C = 70% - 79%

D = 60% - 69%

F = Below 60%

Communications

If you need to get in touch with me, you may message me through Canvas, or email me at jlooper@santarosa.edu. Please include "CEST 85" in the subject line of the email. You may also reach me on my cell phone at (831) 234-5018. Leave a voicemail message and I will return your call. Please do not text me – I will not respond.

PLEASE READ THIS SYLLABUS THOROUGHLY (INCLUDING ANY LINKS) AND THE INSTRUCTIONS POSTED WITHIN THE CANVAS MODULES BEFORE CONTACTING ME.

Office Hours

- Office hours are conducted online via "Zoom" from 4:30 PM-5:00 PM, and/or 10:00 PM to 10:30 PM on Fridays.

Class Preparation

Students are expected to be thoroughly familiar with microcomputer operations, the Microsoft (MS) Windows Operating System (OS). *MS Windows file management*, MS Windows File Explorer, and Adobe Acrobat Reader. Classes and tutorials are available on the SRJC campus and on YouTube. *Use of Apple computers, the Apple OS, OS emulators and Boot Partitions are not supported and are the sole responsibility of the student if used for classes and coursework.*

Access to a Windows-based computer with Civil 3D installed is key to passing this course. Students must use their own Windows 10/11-based PC and/or utilize the open lab on campus - SRJC is no longer offering remote access to lab computers (Virtual Lab). Students must also have a webcam and a reliable internet connection capable of streaming "real-time" audio and video via Zoom Online Conferencing. Cell phones and/or tablets will not be sufficient, except for viewing PDF files or other NON-CAD files. Please note that you do NOT need to sign up for or download Zoom to join the online class. Zoom can be accessed from a web browser. You

will be emailed an invitation containing a link to join via a compatible web browser such as Mozilla Firefox or Google Chrome. Both are free to download. **Please test your computer equipment and software to ensure that everything is working properly before the first day of class.**

Autodesk provides a free student download of the educational version of Civil 3D 2026. The Autodesk software is available here: https://www.autodesk.com/education/edu-software/. Civil 3D software is very hardware-intensive, so be certain that your computer meets the minimum system requirements before installation. As an alternative, students may utilize SRJC's Virtual Lab. Please be advised that we will be using the **2026** version of AutoCAD Civil 3D, which **may** not be backward compatible with earlier versions. ***When you download the software, be certain to select only the 2026 version.***

When accessing Civil 3D from a laptop, a mouse is strongly recommended - there are functions that are not available when using a trackpad. Recommended inexpensive wireless USB-A mouse: Tecknet.

It is the student's responsibility to consult the SRJC web-based information listed below -- please do so as it is considered a part of this syllabus:

- SRJC Schedule of classes: https://portal.santarosa.edu/SRWeb/MVC.Core2/ScheduleOfClasses2/home
- SRJC Academic Calendar: http://admissions.santarosa.edu/academic-calendar/
- SRJC Rights & Responsibilities: https://rightsresponsibilities.santarosa.edu/
- SRJC Disability Resources: http://drd.santarosa.edu/
- SRJC Online Student Services: https://onlinestudentservices.santarosa.edu/
- SRJC Student Support Guide: https://student-services.santarosa.edu/student-support-guide/

Academic Integrity

I, the instructor, have zero tolerance for academic dishonesty of any kind. Per SRJC Policy 3.11: Academic dishonesty is regarded as any act of deception, benign or malicious in nature, in the completion of any academic exercise. Examples of academic dishonesty include cheating, plagiarism, impersonation, misrepresentation of ideas or fact for the purpose of defrauding, use of unauthorized aids or devices, falsifying attendance records, violation of testing protocol, or inappropriate course assignment collaboration. Academic dishonesty on any homework assignment, lab assignment, quiz, or exam will result in ZERO credit for that assignment. ***UNLESS OTHERWISE INSTRUCTED, ALL ASSIGNMENTS ARE TO BE COMPLETED INDEPENDENTLY. YOUR VIDEO MUST BE TURNED ON DURING ALL QUIZZES AND THE FINAL EXAM. FOR THE FINAL EXAM, YOUR AUDIO MUST ALSO BE UNMUTED.***

Class Conduct & Courtesy

During the Zoom lectures, students should be watching and listening to the presentation. Unless instructed to do so, students shall refrain from working on assignments during the lecture or presentation. The lesson files required to complete each lab assignment will not be made available until after the lecture and/or presentation is over. Disruptive behavior may result in the student being removed from the Zoom session and the loss of points for that day.

Syllabus Purpose and Disclaimers

This syllabus is an agreement. Continued registration in CEST 85 beyond the first class meeting means that you, the student, agree to the policies and procedures outlined in this document. If some aspects of this syllabus are unclear to a student, it is their responsibility to inquire regarding that matter at the beginning of the course.

This syllabus is intended to guide the student on what will be covered during the semester and will be followed as closely as possible. ***However, the instructor reserves the right to modify, supplement or make changes as necessary for the general course needs as the semester progresses.***