

AutoCAD Civil 3D Intermediate – 24.0 Hours (3 Days)

Course Description

Summary

This second class in the AutoCAD® Civil 3D® training series continues in the use of model-based design through the application of road and street profiles and their grading applications, as well as general site grading. Continuing the project introduced in Civil 3D Essentials, and building from the layout and alignment tools introduced in that class, the Civil 3D Intermediate class focuses on the development and grading of proposed conditions through Civil 3D Profiles, Corridors and Site Grading.

This class uses a drawing and project strategy employed successfully in Civil 3D to manage the large proposed models the program creates, isolating them from the resultant grading through the Civil 3D project. The class examines a variety of grading options for basic road and street geometry, as well as other corridor applications. The session then examines site grading applicable to building pads, parking lots, cul-de-sacs or other non-linear grading applications, and volume calculations produced from Civil 3D corridor and surface information.

Note: Day One of this course consists of material applicable to the practice of Land Surveying in New York State; Days Two and Three do not. While New York Land Surveyors are encouraged to attend Days Two and Three, if desired, New York Land Surveyors will receive 7.0 professional development hours (PDHs) for completing this course. New York Professional Engineers will receive 21.0 PDHs for successfully completing this class. Licensees holding both Land Surveyor and Professional Engineer licenses in New York must state which of the two certificates they wish to obtain for the class.

Topics and Schedule

Civil 3D Drawing Organization and the Civil 3D Project

- Design versus Grading Drawing Organization
- Referencing Alignment and Surface Data from the Civil 3D Project
- Working with the Design Base and Drawing/Data Integrity

Profiles in Civil 3D

- Civil 3D Profile Concepts
- Sampling and Existing Ground Profile from a Surface
 - Creating an Existing Profile View
- Profile Display with Profile Styles and Label Styles, Profile View
 - Styles and Label Styles
- Profile View Organization and Management
- Dynamic Data and Data Integrity

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Profiles in Civil 3D (Continued)

- Creating Proposed Profiles by Layout
- Proposed Profile Data
- Profile Editing and Profile Labeling

Corridor and Road Design - Simple Corridors

- Civil 3D Corridor Concepts
- Corridor Subassemblies and Assemblies
- Creating a Two Land Road Corridor Assembly
- Creating a Simple Corridor
- Corridor Surface Creation
- Corridor Volume Analysis

Corridor and Road Design - Complex Corridors

- Creating Variable Width Assemblies
- Complex Corridors and Alignment/Profile Control
- Creating Surfaces from Complex Corridors
- Corridor Editing in Plan
- Corridor Section Editing
- Multiple Baseline Complex Corridors
- Creating Assemblies for Cul-de-sacs and Intersections
- Multiple Baseline Alignment/Profile Controls
- Data Output for Site Grading

Sections in Civil 3D

- Civil 3D Section Concepts
- Creating and Managing Section Sample Lines
- Creating Section Views

Design Data Output to the Civil 3D Project

- Adding Design Base Data to the Civil 3D Project
- Promoting Referenced Surfaces
- Creating the Overall Proposed Surface
- Surface Display in the Grading Base

Site Grading Tools in Civil 3D

- Civil 3D Site Grading and the Design Base
- Grading Interaction with Civil 3D Site Definitions
- Grading Interaction with Profiles and Corridors
- Managing Dynamic Data

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Site Grading with Feature Lines and Grading Groups

- Civil 3D Feature Line Concepts
- Grading Groups and Grading Criteria
- Creating Grading
- Grading Surfaces and Volume Data
- Editing Grading
- Grading Data, Surfaces, and Interactions with the Grading Base
- Creating Volume Exhibits

Complex Site Grading with Feature Lines and Corridor Grading

- Using Site Grading Tools with Corridor Output
- Site Grading Adjacent to Corridors
- Bulk Lot Grading
- Back and Side Lot Grading and Adjustment
- Adding Individual Grading Features
- Output to the Project and Grading Base

Prerequisites

Thorough familiarity with AutoCAD® is essential. Completion of Civil 3D Essentials is required.

Learning Objectives

1. Participants will be able to produce existing and proposed profiles for the road alignments in the sample land development project used in the course.
2. Participants will be able to produce road grading using Civil 3D Corridors using road alignments in the sample land development project used in the course.
3. Participants will be able to produce site grading for pond and lot features in the sample land development project used in the course.
4. Participants will be able to perform volume analysis between existing and proposed site features in the sample land development project used in the course.

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AUTOCAD CIVIL 3D INTERMEDIATE – THREE DAYS

Overall Course Length	24 Hours
Instructional Time	21 HOURS

PROFESSIONAL DEVELOPMENT HOURS (PDHs)

New York State Land Surveyors	7.0 PDHs
New York State Professional Engineers	21.0 PDHs



This course is a registered Continuing Education class with the AIA. Courses taught by CivilTraining, LLC meet continuing education/professional development requirements for Alabama, Delaware Professional Engineers, Georgia, Illinois, Michigan, Missouri, Nevada, New Mexico, Ohio, Pennsylvania, South Carolina, Tennessee Professional Engineers, Texas Professional Engineers, Utah, Virginia, and West Virginia and is approved for 24.0 Professional Development Hours by the State of Delaware Board of Professional Land Surveyors. CivilTraining, LLC is an approved Florida Board of Professional Engineers Continuing Education Provider for Area of Practice courses and is an approved Continuing Education Provider with the Florida Department of Agriculture and Consumer Services for the Board of Professional Surveyors and Mappers. The Indiana State Board of Registration for Professional Engineers has approved this course for continuing education, and CivilTraining, LLC is an approved Land Surveyor Continuing Education Provider by the Indiana State Board of Registration for Land Surveyors Professional Licensing Agency; 12.0 hours can be claimed for continuing education credit. The Kentucky State Board of Licensure for Professional Engineers and Land Surveyors' Committee has approved this course for Continuing Professional Development. CivilTraining, LLC is an approved provider of Continuing Professional Competency (CPC) requirements for Maryland Professional Engineers and Land Surveyors, approved by the Maryland Boards for Professional Engineers and Land Surveyors, and has received preapproval for this course by the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Landscape Architects. The New Jersey State Board of Architects has approved this course for continuing education credits, and this course has received approval for Continuing Professional Competency for Continuing Education of Land Surveying by the New Jersey Board of Professional Engineers and Land Surveyors. CivilTraining, LLC is an approved provider of Continuing Professional Competency courses for New Jersey Professional Engineers by the New Jersey State Board of Professional Engineers and Land Surveyors. CivilTraining, LLC, an approved sponsor of continuing education for Professional Engineers and Land Surveyors in New York State, NYS Sponsor #171, has received approval for the above-referenced PDHs for this course. CivilTraining, LLC is an approved sponsor for North Carolina Engineers and Land Surveyors, approved by the North Carolina Board of Examiners for Engineers and Surveyors, and this course is approved for 8.0 continuing education credits for Rhode Island Professional Land Surveyors by the Rhode Island State Board of Registration for Professional Land Surveyors. The Tennessee Board of Examiners for Land Surveyors has reviewed and approved CivilTraining, LLC's training courses for continuing education.