

## AutoCAD Civil 3D Essentials – 24.0 Hours (3 Days)

### Course Description

#### Summary

This class introduces the model-based design technology in AutoCAD® Civil 3D®, and provides the core for its application in civil engineering and survey projects of any type. The class examines the Civil 3D interface and environment, the management of settings and styles, and the development of civil project data, both from information developed within Civil 3D and from interaction with other products.

The Civil 3D Essentials class moves from an examination of the Civil 3D interface and concepts through the start of a typical survey and design project. Consideration is given to the best way to organize drawings and data for Civil 3D and to the organization and creation of a Project through the Civil 3D program. The class then proceeds through Existing Conditions Surface Modeling, the processing and display of Point Data, the layout, creation and editing of Alignments, and the creation of Parcels for ROW, lot and open space areas within the project.

#### Topics and Schedule

##### Civil 3D Concepts and Environment

- Civil 3D and AutoCAD® Interface
- Civil 3D Object Concepts
- Civil 3D Settings Hierarchy and Control of Civil 3D

##### Creating Data in Civil 3D - Existing Surface from Aerial Drawing

- Critical Surface Feature Settings
- Data Types for Digital Terrain Modeling
- Adding Spot Elevation Data
- Adding and Managing Contour Data
- Changing the Civil 3D Surface Appearance with Object Styles
- Creating Breakline Data from Drawing Information
- Surface Editing and Adding Surface Boundaries
- Surface Management in Civil 3D and Data Integrity

##### Working with Civil 3D Point Data

- Civil 3D Point Data Concepts
- Creating Point Data in Civil 3D
- Civil 3D Point Data Display with Object Styles and Label Styles
- Point Description Keys and Point Management
- Manipulating Point Display with Point Groups
- Importing Point Data from ASCII Files
- Point Data Editing

##### Working with Civil 3D Point Data (Continued)

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- Point Data Organization with Point Groups
- Point Data Security and Civil 3D Point Locking
- Using the Civil 3D Survey Point Database for Project Points

### Surface Creation from Civil 3D Point Data

- Point Management for Surface Creation
- Breakline Creation from Civil 3D Points
- Merging Civil 3D Surfaces
- Surface Contour Display and Labeling with Surface Label Styles
- Surfaces and Volumes in Civil 3D

### Civil 3D Project Management

- Civil 3D Project Management Concepts and Tools
- Adding Surface Data to the Civil 3D Project
- Starting Multiple Drawings in the Project with Point and Surface Data
- Creating a Slope Analysis Drawing from Project Surface Data

### Civil 3D Alignments

- Civil 3D Alignment Concepts and Definition Options
- Civil 3D Alignment Feature Settings
- Alignment Display with Object Styles, Label Styles and Label Style Sets
- Civil 3D Site Concepts and Site Definition
- Creating Alignments by Layout
- Alignment Editing
- Managing Alignment Labels and Label Options
- Adding Alignments to the Civil 3D Project
- Referencing Alignments from the Civil 3D Project
- Project Drawing Organization and Alignment Use

### Civil 3D Parcels

- Civil 3D Parcel Concepts
- Parcel Object Styles and Label Styles
- Parcel Organization within Civil 3D Sites
- Parcel Interactions with AutoCAD Map and Map Topologies
- Creating Parcels from Drawing and Map Data
- Creating Parcels by Layout and Lot Sizing
- Parcel Numbering and Labeling
- Parcel Inverse, Map Check and Reporting Functions

### Prerequisites

Thorough familiarity with AutoCAD is essential.

### Learning Objectives

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1. Participants will be able to produce Digital Terrain Models from photogrammetric and surveyed data in the sample land development project used in the course.
2. Participants will be able to import, manage and stylize surveyed point data provided in the sample land development project used in the course.
3. Participants will be able to create and stylize baseline alignments for road centerlines in the sample land development project used in the course.
4. Participants will be able to size, create and annotate parcels and lots in the sample land development project used in the course.