Autodesk Civil 3D: Fundamentals for Land Developers (Grading)

Course Length: 2 Days

The Autodesk Civil 3D software supports a wide range of civil engineering tasks and creates intelligent relationships between objects. The Autodesk Civil 3D: Grading course is recommended for users that are required to create site grading plans using the Autodesk Civil 3D software. This training course is also suited for managers who require an overview and understanding of this aspect of the Autodesk Civil 3D software.

Students use feature lines, grading tools, and corridors to create a commercial site containing a parking lot, building pads, pond, and simple sewage lagoon. An existing road has been included in the survey and a survey team collected the existing conditions. Users also work on a residential site to grade a small subdivision for proper grading of each lot.

Topics Covered:

- Introduction to Grading
- Parcel Grading
- Grading using Feature Lines
- Grading using Grading Objects and Grading Groups
- Grading using Corridors
- Combining Surfaces
- Visualization in Autodesk InfraWorks

Prerequisites:

Experience with AutoCAD® or AutoCAD-based products and a sound understanding and knowledge of civil engineering terminology.

Course description shown for Autodesk Civil 3D 2022. Topics, curriculum, and/or prerequisites may change depending on software version.

Learning Guide Contents

Chapter 1: Introduction to Grading

- 1.1 Overview
- 1.2 Tools in Autodesk Civil 3D
- 1.3 Settings and Defaults
- 1.4 Feature Line Styles
- 1.5 Grading Group Styles
- 1.6 Grading Criteria Sets
- 1.7 Surface Styles
- 1.8 Sites Overview
- 1.9 Autodesk Civil 3D Projects
- 1.10 Using Data Shortcuts for Project Management

Chapter 2: Parcel Grading

- 2.1 Setting Parcel Line Elevations
- 2.2 Retaining Walls
- 2.3 Editing Surfaces
- 2.4 Feature Line Interactions with Parcel Lines

Chapter 3: Building Pad Design

- 3.1 Feature Lines Overview
- 3.2 Create Feature Lines from Objects
- 3.3 Grading Creation Tools
- 3.4 Editing the Grading
- 3.5 Grading Volume Tools

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Chapter 4: Parking Lot Design

- 4.1 Draw Feature Lines
- 4.2 Create a Temporary Surface
- 4.3 Edit Feature Line Geometry
- 4.4 Copy or Move Feature Lines from One Site to Another
- 4.5 Create a Transitional Grading Group
- 4.6 Create a Grading Surface
- 4.7 Add Feature Lines to a Grading Surface

Chapter 5: Parking Lot Option

- 5.1 Assembly Overview
- 5.2 Modifying Assemblies
- 5.3 Creating a Corridor
- 5.4 Corridor Properties
- 5.5 Corridor Editing
- 5.6 Reversing Feature Lines
- 5.7 Corridor Surfaces

Chapter 6: Pond Design

- 6.1 Feature Line Review
- 6.2 Edit Elevations
- 6.3 Create Feature Lines from Corridors
- 6.4 Edit Geometry
- 6.5 Creating Complex Grading Groups
- 6.6 Pond Staging Volumes

Chapter 7: Combining Surfaces

- 7.1 Autodesk Civil 3D Projects
- 7.2 Sharing Data
- 7.3 Data Shortcuts

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Chapter 8: Using InfraWorks for Visualization

- 8.1 Building Information Modeling
- 8.2 Overview of the Interface
- 8.3 Creating an InfraWorks Model
- 8.4 Connect to Data Sources
- 8.5 Configure and Display Data Sources
- 8.6 Share Design Elements with Autodesk Civil 3D
- 8.7 Create Water Features in a Model
- 8.8 Create City Furniture in a Model
- 8.9 Add Vegetation to a Model

Appendix A: More Grading with Corridor Models

- A.1 Corridor Baselines
- A.2 Profiles
- A.3 Create Grading Assemblies
- A.4 Creating Complex Corridors
- A.5 Modify Corridor Grading

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