



Autodesk Civil 3D: Fundamentals for Surveyors

Course Length: 2 Days

The Autodesk Civil 3D: Fundamentals for Surveyors course is for surveyors and survey technicians that do not necessarily need all of the functionality that is taught in the Autodesk Civil 3D: Fundamentals course. This course equips the surveyor with the basic knowledge required to use Autodesk Civil 3D efficiently in a typical daily workflow. You will learn how to import converted field equipment survey data into a standardized environment in Autodesk Civil 3D and to use the automation tools to create an Existing Conditions Plan.

Data collection and traverses are also covered. Other topics that help in increasing efficiency include styles, correct AutoCAD drafting techniques, the methodology required to create linework effectively for variables used in defining symbology, surfaces, categorizing points, and using online maps.

Topics Covered:

- The Autodesk Civil 3D interface
- Points overview and styles
- Importing points and coordinate transformations
- Creating points and drafting
- Point groups, grips, and reports
- Point security and editing
- Introduction to data collection in the field
- Introduction to Civil 3D Survey and automated linework
- Survey networks
- Coordinate Geometry Editor for entering traverse information or legal descriptions
- Surface overview
- Surface editing
- Surface labels and analysis

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

Prerequisites:

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

Learning Guide Contents

Chapter 1: The Autodesk Civil 3D Interface

- 1.1 Product Overview
- 1.2 Autodesk Civil 3D Workspaces
- 1.3 Autodesk Civil 3D User Interface
- 1.4 Autodesk Civil 3D Toolspace
- 1.5 Autodesk Civil 3D Panorama
- 1.6 Autodesk Civil 3D Templates, Settings, and Styles

Chapter 2: Survey Setup

- 2.1 Survey Workflow Overview
- 2.2 Collecting Field Data
- 2.3 Introduction to the Survey Toolspace
- 2.4 Survey User Settings vs. Drawing Template
- 2.5 Templates
- 2.6 Survey Figures
- 2.7 Points Overview
- 2.8 Description Key Sets
- 2.9 The Survey Database

Chapter 3: Entering Linework

- 3.1 Survey Workflow Overview
- 3.2 Lines and Curves
- 3.3 Online Maps Service
- 3.4 Traverse Editor
- 3.5 Traverse Adjustment

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Chapter 4: Field Book Files

- 4.1 Survey Networks
- 4.2 Importing a Field Book
- 4.3 Traverse Basics
- 4.4 Defining a Traverse
- 4.5 Multiple Network Surveys
- 4.6 Working with Figures

Chapter 5: Points with Connective Codes

- 5.1 Field Codes
- 5.2 Survey Data - Figures
- 5.3 Figure Prefix Database
- 5.4 Survey Data - Line Code
- 5.5 Adjusting Figures
- 5.6 Translating a Survey Database

Chapter 6: Points

- 6.1 Point Settings
- 6.2 Creating COGO Points
- 6.3 Transparent Commands
- 6.4 Importing and Exporting Points
- 6.5 Point Groups
- 6.6 Reviewing and Editing Points
- 6.7 Locking/Unlocking Points
- 6.8 Point Reports
- 6.9 Filtering a Survey Database

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Chapter 7: Surfaces

- 7.1 Surface Process
- 7.2 Surface Properties
- 7.3 Surface Data
- 7.4 Breaklines and Boundaries
- 7.5 Surface Editing
- 7.6 Surface Analysis Tools
- 7.7 Surface Labels
- 7.8 Surface Analysis Display

Chapter 8: Field to Finish

- 8.1 Field to Finish Overview
- 8.2 Fieldwork Standards
- 8.3 Civil 3D Settings
- 8.4 Survey Toolspace
- 8.5 Drawing Production
- 8.6 Project Workflow
- 8.7 Share

Appendix A: Additional Tools

- A.1 Least Squares
- A.2 Creating a Least Squares Input File
- A.3 Querying Survey Database Points with the Survey Command Window

Appendix B: Connecting to Geospatial Data

- B.1 Introduction to the Planning and Analysis Workspace
- B.2 Coordinate Systems
- B.3 Geospatial Data Connection
- B.4 Create a Surface from GIS Data

Appendix C: Additional Surface Tools

- C.1 Surface Volume Calculations
- C.2 Point Cloud Surface Extraction

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