

AutoCAD Civil 3D Course Outline

Overview

The AutoCAD® Civil 3D® 2018: Fundamentals learning guide is designed for Civil Engineers and Surveyors who want to take advantage of the AutoCAD® Civil 3D® software's interactive, dynamic design functionality. The AutoCAD Civil 3D software permits the rapid development of alternatives through its model-based design tools. You will learn techniques enabling you to organize project data, work with points, create and analyze surfaces, model road corridors, create parcel layouts, perform grading and volume calculation tasks, and layout pipe networks.

Topics Covered

Learn the AutoCAD Civil 3D user interface.
Create points and point groups and work with survey figures.
Create, edit, view, and analyze surfaces.
Create and edit alignments.
Create data shortcuts.
Create sites, profiles, and cross-sections.
Create assemblies, corridors, and intersections.
Create grading solutions.
Create gravity fed and pressure pipe networks.
Perform quantity takeoff and volume calculations.
Use plan production tools to create plan and profile sheets.

Prerequisites

Experience with AutoCAD® or AutoCAD-based products (such as Autodesk® Land Desktop) and a sound understanding and knowledge of civil engineering terminology.

Course Outline

Chapter 1: The AutoCAD Civil 3D Interface

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

Chapter 2: Survey

- 2.1 Survey Workflow Overview
- 2.2 Survey Figures
 - Practice 2a Creating Figure Prefixes
- 2.3 Points Overview
 - Practice 2b Point Marker Styles
- 2.4 Point Settings
- 2.5 Creating Points

Practice 2c Creating AutoCAD Civil 3D Points

2.6 Description Key Sets

Practice 2d Creating a Description Key Set

2.7 Importing Survey Data

Practice 2e Importing Survey Data

2.8 Point Groups

Practice 2f Creating Point Groups

2.9 Reviewing and Editing Points

Practice 2g Manipulating Points

2.10 Point Reports

Chapter 3: Surfaces

3.1 Surface Process

3.2 Surface Properties

3.3 Contour Data

3.4 Other Surface Data

Practice 3a Creating an Existing Ground Surface

3.5 Break lines and Boundaries

Practice 3b Add Additional Data to an Existing Ground Surface

3.6 Surface Editing

3.7 Surface Analysis Tools

Practice 3c Surface Edits

3.8 Surface Labels

3.9 Surface Volume Calculations

3.10 Surface Analysis Display

Practice 3d Surface Labeling and Analysis

3.11 Point Cloud Surface Extraction

Practice 3e (Optional) Create a Point Cloud Surface

Chapter 4: Alignments

4.1 Roadway Design Overview

4.2 AutoCAD Civil 3D Sites

4.3 Introduction to Alignments

Practice 4a Creating Alignments from Objects

4.4 Alignments Layout Tools

Practice 4b Creating and Modifying Alignments

4.5 Alignment Properties

4.6 Labels and Tables

Practice 4c Alignment Properties and Labels

Chapter 5: Profiles

5.1 Profiles Overview

5.2 Create a Profile View Style

5.3 Create Profiles from Surface

5.4 Create Profile View Wizard

Practice 5a Working with Profiles Part I

5.5 Finished Ground Profiles

5.6 Create and Edit Profiles

Practice 5b Working with Profiles Part II

Practice 5c Working with Profiles Additional Practice

Chapter 6: Corridors

- 6.1 Assembly Overview
- 6.2 Modifying Assemblies
 - Practice 6a Creating Assemblies
 - Practice 6b Creating Assemblies Additional Practice
- 6.3 Creating a Corridor
- 6.4 Corridor Properties
 - Practice 6c Working with Corridors - Part I
- 6.5 Designing Intersections
 - Practice 6d Working with Corridors - Part II
- 6.6 Corridor Surfaces
- 6.7 Corridor Section Review and Edit
 - Practice 6e Working with Corridors - Part III
- 6.8 Corridor Visualization
 - Practice 6f Working with Corridors - Part IV

Chapter 7: Grading

- 7.1 Grading Overview
- 7.2 Feature Lines
 - Practice 7a Working with Feature Lines
- 7.3 Grading Tools
 - Practice 7b Create Grading Groups
- 7.4 Modifying AutoCAD Civil 3D Grading
 - Practice 7c Modify Grading and Calculate Volumes

Chapter 8: Pipe Networks

- 8.1 Pipes Overview
- 8.2 Pipes Configuration
 - Practice 8a Configuring Pipe Networks
- 8.3 Creating Networks from Objects
 - Practice 8b Creating Pipe Networks by Objects
- 8.4 The Network Layout Toolbar
 - Practice 8c Creating Pipe Networks by Layout
- 8.5 Network Editing
 - Practice 8d Editing Pipe Networks
- 8.6 Annotating Pipe Networks
- 8.7 Pressure Pipe Networks
 - Practice 8f Create a Pressure Pipe

Chapter 9: Quantity Take Off/Sections

- 9.1 Sample Line Groups
 - Practice 9a Creating Sections - Part I
- 9.2 Section Volume Calculations
 - Practice 9b Quantity Take Off - Part I
- 9.3 Pay Items
 - Practice 9c Quantity Take Off - Part II - Integrated Quantity Takeoff
- 9.4 Section Views
 - Practice 9d Creating Sections Part II

Chapter 10: Plan Production

- 10.1 Plan Production Tools
- 10.2 Plan Production Objects
- 10.3 Plan Production Object Edits

Practice 10a Plan Production Tools I
10.4 Creating Sheets
Practice 10b Plan Production Tools II
10.5 Sheet Sets
Practice 10c Plan Production Tools III

Note: *The suggested course duration is a guideline. Course topics and duration may be modified by the instructor based upon the knowledge and skill level of the course participants.*

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