Autodesk Professional in Civil 3D For Infrastructure Design

Target Audience

This certification course is intended for civil engineers, surveyors, designers, and infrastructure professionals who are new to Autodesk Civil 3D. It provides foundational knowledge and practical skills in using essential tools for the design and management of civil engineering projects, including roads, land development, and utility networks. This course serves as preparation for those seeking to validate their skills through Autodesk's official certification pathways in Civil 3D.

Course Objective

Prepare for real-world success by gaining the skills used by industry professionals and aligning your learning with the **Autodesk Certified Professional in Civil 3D for Infrastructure Design** certification. This course covers key exam topics including points, parcels, surveying, surfaces and grading, alignments and profiles, corridors and sections, pipe networks, and plan production with data management. Through guided lessons, hands-on datasets, and practical exercises, learners will build the confidence and competence needed to pass the certification exam and apply Civil 3D effectively in infrastructure design projects.

Course Outcome

- Work with points and point groups, parcels, surveying tools, surfaces, alignments, and profiles.
- Create corridors, sections, pipe, and pressure networks.
- Use workflows for plan production, such as creating note label styles, view frames and sheets, and data shortcuts.
- Review the topics covered on the Autodesk Certified Professional in Civil 3D for Infrastructure Design exam.

Course Outline: The course comprises **56 -hours** of theory and labs and is divided into **10** different chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Chapter 1. Introduction to AutoCAD Civil 3D

Introduction to AutoCAD Civil 3D
Basic Features of AutoCAD Civil 3D

- Points
- Point Groups
- Surfaces
- Alignments
- Profiles
- Profile Views
- Assemblies and Subassemblies
- Corridors
- Parcels
- Grading
- Sections
- Pipe Networks
- Pressure Pipe Networks
- Superelevation View

Starting AutoCAD Civil 3D
AutoCAD Civil 3D User Interface

- Drawing Area
- Ribbon
- Application Menu
- Command Bar
- Drawing File Tabs
- Status Bar
- TOOLSPACE Palette
- Shortcut Menu
- Layout Tools
- Autodesk Account
- Panorama Window

Civil 3D Workspaces

- Civil 3D
- Drafting & Annotation

- 3D Modeling
- Planning and Analysis

Getting Started with AutoCAD Civil 3D

- Drawing Templates
- Drawing Settings

Chapter 2. Points, parcels, and surveying, Part 1

- Introduction to points
- Create COGO Points
- Specify point parameters
- Assign point styles and point label styles
- Create description key sets
- Rotate point markers and labels
- Create and assign point styles
- Create and assign point label styles
- Edit point properties
- Create point groups
- Change point group display order
- Introduction to the surveying tools
- Work with linework code sets
- Set up a survey database
- Work with the survey figure prefix database

Chapter 3. Points, parcels, and surveying, Part 2

- Work with the Traverse Editor
- Perform a mapcheck analysis
- Introduction to parcel creation
- Create parcels by layout
- Create parcels from objects
- Subdivide existing parcels
- Associate parcels with sites
- Work with parcels

- Label parcels
- Create parcel tables
- Renumber and rename parcels
- Create and modify parcel styles
- Create and modify parcel label styles
- Delete parcels

Chapter 4. Surfaces and grading, Part 1

- Introduction to surfaces
- Define surfaces with data categories
- Control the display of a surface
- Define surface boundary types
- Access and review surface statistics
- Create a TIN surface
- Edit a TIN surface
- Edit the properties of a surface definition
- Create a TIN volume surface
- Create surface labels
- Add contour labels

Chapter 5. Surfaces and grading, Part 2

- Use surface analysis
- Set analysis parameters for surfaces
- Perform a surface analysis
- Create feature lines
- Edit horizontal data for feature lines
- Edit elevations for feature lines
- Work with objects on same site
- Create and modify sites
- Create grading groups
- Create grading with grading creating tools
- Work with grading criteria

Chapter 6. Alignments and profiles, Part 1

- Introduction to alignments
- Create alignments with and without curves
- Add curves, lines, and spirals to an alignment
- Create alignments from objects
- Create an alignment from a pipe network
- Create offset alignments
- Create widenings for an alignment
- Create a surface profile
- Create a profile view
- Compare components of a profile view
- Identify object types in a profile view

Chapter 7. Alignments and profiles, Part 2

- Create a profile with the Quick Profile tool
- Split a profile view
- Create and modify a profile
- Edit layout profiles
- Work in the profile grid view
- Add a vertical curve to a profile
- Grip edit a profile
- Add labels to profile views and alignments
- Add station offset labels to alignments
- Create tag labels for alignments
- Add label sets to alignments and profiles
- Add and edit alignment tables

Chapter 8. Corridors and sections

- Create basic assemblies
- Create a corridor

- Rebuild a corridor
- Create a multiple baseline corridor
- Set targets for corridors
- Remove corridor bowties
- Create objects from a corridor
- Create sample lines
- Edit sample lines
- Create section views
- Create section sheets
- Compute materials

Chapter 9. Pipe and pressure networks

- Review the part catalog and parts list
- Set the part catalog location
- Add and modify parts
- Create a pipe network
- Edit a pipe network
- Place a pipe network in a profile
- Annotate plan and profile pipe networks
- Modify the pipe network flow direction
- Review the pressure parts catalog
- Create a pressure network parts list
- Create and edit a pressure network
- Place a pressure pipe network in a profile
- Annotate plan and profile of the pressure pipe network

Chapter 10. Plan production and data management

- Create view frames
- Create a sheet from a view frame group
- Use data shortcuts and external references
- Manage data shortcuts
- Create a data reference