

**Course Title:** Civil 3D for Surveyors

**Course Code:** CIV\_1SFF

**Duration:** 2 Days

## Courseware Description

This in-depth 2 day training course is for surveyors and survey technicians that do not necessarily need all of the functionality that is taught in the AutoCAD Civil 3D Fundamentals course. This course equips the surveyor with the basic knowledge needed to use Civil 3D efficiently in a typical daily workflow. Students learn how to import the converted field equipment survey data into a standardized environment in Civil 3D and to use the automation tools to create an Existing Condition Plan. Data collection, least square analysis, and traverses are also covered. Other topics that help in increasing efficiency include styles, proper AutoCAD drafting techniques, the methodology needed to create linework effectively for variables used in defining symbology, surfaces, categorizing points, and importing imagery. The AutoCAD Civil 3D Fundamentals course is designed for Civil Engineers and Surveyors who want to take advantage of AutoCAD Civil 3D's interactive, dynamic design functionality. AutoCAD Civil 3D 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, create parcel layouts.

## Objectives

Upon completion of the course, students will be able to:

- The AutoCAD Civil 3D Interface
- Points overview and styles
- Importing points and coordinate transforms
- 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
- Survey Least Squares analysis
- Traverses and their adjustment
- Traverse Loop and Closed Connected Loop adjustments
- Surface overview
- Surface editing
- Surface labels and analysis

## Who Should Attend

This course is designed to teach new users the essential elements of AutoCAD Civil 3D for creating, analyzing, and managing civil engineering drawings and projects.

## Prerequisites

It is recommended that students have a working knowledge of:

- Completion of **ACAD-1** course or equivalent working knowledge of the content this course on a current or last release of AutoCAD.
- Microsoft® Windows® 7, Vista, XP or 2000

## Course Outline

### The AutoCAD Civil 3D Interface

- **AutoCAD Civil 3D Interface**

Product Overview  
AutoCAD Civil 3D Workspaces  
AutoCAD Civil 3D User Interface  
AutoCAD Civil 3D Toolspace  
AutoCAD Civil 3D Panorama

### Survey Level 1

- **Civil 3D Survey Toolspace**

Survey Workflow Overview  
Introduction to the Survey Toolspace  
The Survey Toolspace  
Survey Networks  
▪ **Civil 3D Points**  
Points Overview  
Point Label Styles

Styles and Templates  
Point Settings  
Creating Points  
Transparent Command  
Description Key Sets  
Importing and Exporting Points  
Point Groups  
Reviewing and Editing Points  
Locking/Unlocking Points  
Point Locking and Editing  
Point Reports

- **Civil 3D Survey Figures**

Survey Figures  
Importing a Field Book  
Working with Figures

### Survey Level 2

- **Survey Workflow**

Overview

- **Prepare for Survey Data**

Survey Equipment 3-9  
Import Field Data  
Figure Prefix Database  
Field Codes

- **Obtain and Create Survey Data**

Survey Data – Figures  
Survey Data - Line Code  
Translating a Survey Database

- **Adjust, Analyze, and Output Survey Data**

Least Squares  
Least Creating a Least Squares Input File  
Traverses Basics  
Defining a Traverse  
Multiple Network Surveys

### Surfaces

- **Civil 3D Surface Overview**

Surface Process  
Surface Properties  
Contour Data  
Other Surface Data  
Breaklines and Boundaries  
Surface Analysis Tools

- **Civil 3D Surface Editing**

Surface Editing  
Adjusting Surfaces through Surface Properties  
Viewing Surfaces in 3D

- **Civil 3D Surface Labels and Analysis**

Surface Labels  
Surface Volume Calculations  
Surface Analysis Display