

Essentials

Autodesk Official Training Courseware (AOTC)

AutoCAD[®]

Civil 3D[®] 2009

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Introduction

Welcome to the *AutoCAD Civil 3D 2009: Essentials* Autodesk Official Training Courseware (AOTC), a training course for use in Authorized Training Center (ATC®) locations, corporate training settings, and other classroom settings.

Although this courseware is designed for instructor-led courses, you can also use it for self-paced learning. The courseware encourages self-learning through the use of the AutoCAD® Civil 3D® Help system.

This introduction covers the following topics:

- Course objectives
- Prerequisites
- Using this courseware
- CD contents
- Installing the exercise data files from the CD
- Imperial and metric datasets
- Notes, tips, and warnings
- Using this courseware to prepare for Autodesk Certification exams
- Feedback

This courseware is complementary to the software documentation. For detailed explanations of features and functionality, refer to the Help in the software.

Course Objectives

After completing this course, you will be able to:

- Describe the AutoCAD Civil 3D working environment.
- Use Survey functionality in Civil 3D.
- Create and manage points.
- Create and edit surfaces.
- Generate subdivision parcels.
- Create alignments for subdivision roads.
- Create profiles for subdivision roads.
- Model a subdivision road with a cul-de-sac.
- Design the grading for a subdivision site.
- Create and edit a storm sewer pipe network.
- Create alignments using design criteria for a transportation facility.
- Create and edit a corridor model with a varying lane width.
- Calculate corridor volumes and show design sections.
- Share data using data shortcuts, reference objects, and Autodesk® Vault.

Courseware Overview

The courseware consists of 14 chapters.

Chapter 1 introduces you to the different components of the AutoCAD Civil 3D design environment. The Civil 3D user interface consists of many different components, and you must be familiar with the toolbars, windows, and menus prior to completing the lessons in this courseware.

Chapters 2 through 4 describe the pre-engineering data collection and reduction role of a total station or GPS survey crew. Survey crews involved with land development and capital infrastructure projects are usually tasked with providing engineering design teams with information such as a pre-engineering base plan, an existing ground surface model, and point data in reduced coordinate format.

Chapters 5 through 10 discuss site design and address the typical requirements of a site design project involving parcels, alignments, profiles, roads, pipes, and grading for a residential subdivision. The methodologies presented in these chapters offer one approach for completing a residential subdivision design in Civil 3D. In particular, the lessons describe how the corridors set the elevations for grading adjacent land parcels in a subdivision.

Chapters 11 through 13 address the typical requirements of transportation projects exploring transportation-specific alignments, and corridors. Topics such as design criteria, superelevation, modeling parallel lanes with tapers, production of volume reports, and design cross sections are covered. While there may be some overlap of topics with the Site Design chapters, the intent in these chapters is to focus on topics particular to transportation projects.

Chapter 14 addresses data management and data sharing. This chapter describes plan production tools which automate the process of generating plan and profile construction sheets, data sharing using data shortcuts, reference objects, and Autodesk Vault.

Prerequisites

This course is designed for civil designers and engineers.

- You must have AutoCAD Civil 3D 2009 installed on your computer.
- It is recommended that you have a working knowledge of:
 - Civil engineering principles and processes.
 - Microsoft® Windows® 2000 or Microsoft® Windows® XP.

Using This Courseware

The lessons are independent of each other, although the lessons do follow a typical civil engineering work flow. However, we recommend that you complete these lessons in the order that they are presented unless you are familiar with the concepts and functionality described in those lessons.

Each chapter contains:

- **Lessons** – Usually two or more lessons in each chapter.
- **Exercises** – Practical, real-world examples for you to practice using the functionality you have just learned. Each exercise contains step-by-step procedures and graphics to help you complete the exercise successfully.

CD Contents

The CD attached to the back cover of this book contains all the data and drawings you need to complete the exercises in this course.

Installing the Exercise Data Files from the CD

To install the data files for the exercises:

1. Insert the courseware CD.
2. When the setup wizard begins, follow the instructions on screen to install the data.
3. If the wizard does not start automatically, browse to the root directory of the CD and double-click *Setup.exe*.

Unless you specify a different folder, the exercise files are installed in the following folder:

C:\Documents and Settings\All Users\Autodesk Learning\Civil 3D 2009\Essentials

After you install the data from the CD, this folder contains all the files necessary to complete each exercise in this course.

Imperial and Metric Datasets

In exercises that specify units of measurement, alternative files are provided as shown in the following example:

- Open *I_Pipe Networks.dwg* (imperial) or *M_Pipe Networks.dwg* (metric).

In the exercise steps, the imperial value is followed by the metric value in parentheses as shown in the following example:

- For Length, enter **13'2"** (**4038** mm).

In the exercise steps, the unitless value is specified as shown in the following example:

- For Length, enter **400**.

Notes, Tips, and Warnings

Throughout this courseware, notes, tips, and warnings are called out for special attention.



Notes contain guidelines, constraints, and other explanatory information.



Tips provide information to enhance your productivity.



Warnings provide information about actions that might result in the loss of data, system failures, or other serious consequences.

Using this Courseware to Prepare for Autodesk Certification Exams

This book supports preparation for Autodesk Certification Exams. If you are planning to become Autodesk Certified on AutoCAD Civil 3D 2009 this book can help you prepare. The learning objectives of the lessons and exercises in this book map directly to the objectives and questions on the Autodesk Certification Exams. For more guidance on how to use this book to prepare for the exams, visit www.autodesk.com/certification.

Feedback

We always welcome feedback on Autodesk Official Training Courseware. After completing this course, if you have suggestions for improvements or if you want to report an error in the book or on the CD, please send your comments to AOTC.feedback@autodesk.com.