AutoCAD Civil 3D 2009 Residential Grading

Courseware Description

Students use AutoCAD® Civil 3D® 2009 to complete the engineering tasks on a residential grading design. The courseware guides students through one possible grading design process from the examination of existing site conditions to a final grading solution. The primary focus is to teach students how AutoCAD Civil 3D 2009 can be used as a tool to perform common engineering tasks in the grading process with greater accuracy and efficiency.

Suggested Course Duration:	2 days
Pages:	220
Trial CD:	No
Onscreen Exercises Included?	No

Objectives

The primary objective of this courseware is to teach students the recommended workflows and basic skills needed to create and modify grading design in AutoCAD Civil 3D 2009. After completing this course, students will be proficient in creating and working with grading tools.

Who Should Attend

This courseware is designed for experienced civil engineers and designers with a firm grasp of the fundamental features of AutoCAD Civil 3D and engineering principles.

Prerequisites

Before using this courseware, students should have completed an *AutoCAD Civil 3D Essentials* course or have in-depth knowledge of AutoCAD Civil 3D features and functionality. In addition, students should have working knowledge of the following:

- Civil engineering processes and terminology.
- Microsoft® Windows® XP or Microsoft® Windows® 2000.

Course Outline

Day 1

Examining Site Conditions
- Examining Existing Site Conditions
- Determining Slope and Flow Patterns
- Labeling Elevations at Key Locations
- Defining the Limits of Grading Activity

Creating Detention Basins
- Creating, Grading, and Analyzing Detention Basins
- Creating Detention Basins
- Grading Detention Basins
- Analyzing Detention Basin Earthwork Volumes

Designing Roadway Grading
- Designing Prefinal Roadway Grading
- Creating an Existing Ground Profile
- Creating a Finished Ground Profile
- Defining Roadway Cross Sections
- Creating a Road Surface Model

Working with Earthwork Volumes
- Calculating Prefinal Earthwork Volumes
- Refining the Corridor Model and Knuckle Design
- Creating Prefinal Earthwork Calculation Surfaces
- Adjusting the Corridor Model
- Calculating Earthwork Volumes

Balancing Earthwork
- Balancing Earthwork
- Refining the Final Grading Design
- Modifying Basin Grading

Day 2

Refining Surface Grading
- Refining Final Surface Grading
- Setting Spot Elevation Labels
- Adjusting the Corridor Surface Model
- Establishing Lot Grade and Top of Foundation Elevations
- Grading Rear Lot Lines

Creating and Grading Swales

- Grading Rear-Yard Perimeter Swales
- Analyzing Prefinal Surface Flow Patterns
- Creating a Pad Buffer
- Creating a Swale

Grading Open Areas

- Grading Open Areas
- Designing a Detention Basin Overflow Route
- Creating Berms
- Adding Berms to the Proposed Top Surface

Revising the Design

- Revising the Grading Design
- Modifying the Proposed Road Profile
- Updating Lot Grading

Rendering the Design

- Rendering the Design
- Analyzing the Slope
- Viewing Surfaces in 3D

Completing Plans

- Labeling and Annotating the Plan and Profile
- Labeling Contours
- Creating Profile Sheets

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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