Course Description – 3D-Dig Basics & Blasting Course

This course introduces you to the basics of 3D-Dig. Following an introduction to theoretical foundations and some essential structures and tools, you will learn how to work with surfaces and features. Also, the unique concept of blasting in 3D-Dig will be described.

Setting Up Module

This module will introduce you to settings that affect the import, transformation and appearance of surface data used in 3D-Dig designs. Also, you will learn about essential navigation tools.

Settings & Import

An initial introduction to 3D-Dig.
General Settings and basics for design work with 3D-Dig are introduced.
Use of Data Files, explanation of how to import terrain surface data.

Dialog Boxes

Settings for triangulating, gridding, and viewing surface data are introduced and a summary of surface information is shown in this lesson.
Introduction to dialog boxes: *Surface Information*, *Triangulation Parameters*, *Grid Parameters*, *Terrain Appearance*.

Model Surfaces

Explanation of concepts for *Terrain Surface* and *Inner Surfaces*.
The procedure of importing and loading of *Inner Surfaces*.
Concepts of *Triangulation* and *Grid* in 3D-Dig.
Explanation of how 3D-Dig sets the default folder when loading and saving files.

Edit Surfaces

Ways to reduce the file size by editing surface data and cropping the design work area are demonstrated in this lesson.
Explanations of *Delete Info* option and *Reorder Surfaces* option in the *Edit Surface* dialog box.
Explanation of difference in *3dd* files sizes in respect to the saved data.
Explanation of decreasing file size via the *crop region* procedure in the *Terrain Editor Settings* dialog box.

Navigation Tools

This lesson reviews some settings relevant to *View Navigation*. It also gives an introduction to *View Navigation Tools*.
Explanation of settings for *View Navigation*.
Explanations of the buttons from *View Navigation Group*.

Navigation Details

3D-Dig *Navigation Tools* are covered in this lesson through detailed demonstrations of their use.
A detailed explanation of the following buttons from the *View Navigation Group*: *Center Cursor and Rotation*, *Fit All or Zoom to Extents*, and *Undo View Navigation*.

Features Module

In this module, you will make acquaintance with settings and methods used to edit *surface features* and manage their complexity, including importing features, and how to work with customized features.

Surface Features

Introduction of *Surface Features*.
Explanation of how to import, create and edit *Surface Features* (basics).
Creation and copying of a *Surface Feature*.

Edit Features

Many useful methods of editing, copying, projecting, and deleting surface features are demonstrated in this lesson.
Explanation of *Copy Parallel Whole*, *Project Parallel Whole* and *Rarefy* options for the Surface Features.
Explanation of *Offset Distance* and *Replication Number* parameters from the *Angle and Offset of Copied Feature* dialog box.
The procedure for deleting *Surface Features*.

Import Features

In this lesson, you will learn how to import *Surface Features*.
Introduction to importing and creating *Surface Features* for the project.
Introduction to *Custom Features Types*.
A detailed explanation of the *Data* page of the *Terrain Appearance* dialog box relating to feature colors.

Customize Features

A way to manage the complexity of many surface features, by grouping and categorizing them into *Custom Features Types*, is presented in this lesson.
A detailed explanation of the *Features&Block Lines* page of the *Terrain Appearance* dialog box.
Explanation of *Customize Features/Polygons* dialog box.

Structures and Tools Module

A variety of structures and methods used in visualizing and analyzing 3D-Dig designs will be described in this module. Also, you will learn how to work with data logs and how to use restore points.

Layers

This lesson provides an introduction to *Cross Sections*, and describes how to set up *Layers*. Also, the settings used to display *Layers* on the *Terrain Surface* and in *Cross Sections* are explained.
A detailed explanation of the *Edit Layers* dialog box.

Cross Sections

Many settings and methods of working with *Terrain Cross Sections* are dealt with in this lesson.
The procedure of drawing a *Cross Section*.
Use of the *Add Section* button.
A detailed explanation of the *Section Window*.

Explanations of the *General*, *Inner Surfaces*, *Layers* and *Axes* pages of the *Section Settings* dialog box.
The procedure of copying a *Cross Section*.

Block Lines

This lesson describes *Block Lines*, *Material Logs*, and *Restore Points* and demonstrates how to set up *Block Lines*.
The preparation for the excavation process in 3D-Dig.
Creation and work with *Block Lines*.
Explanation of the *Generate Block Lines* dialog box.
Explanation of the *Block Lines* section on the *Features&Block Lines* page of the *Terrain Appearance* dialog box.

Logs & Restore Points

Material Logs and a *Restore Point* are set up in this lesson.
Creation and work with the *Material Logs*.
A detailed explanation of the *Logged Material* window.
Creation of the *Terrain Restore Point*.
Explanation of the *Terrain Restore Points* concept within the Project.

Blast Wizard Module

This module will introduce you to the concept of blasting in 3D-Dig, and will describe how a user-defined two-dimensional blast profile is applied along a section of topo, to simulate the effect of blasting in three dimensions.

Concepts

The theoretical introduction to the *Blast Wizard* theme is given in this lesson: the concepts behind the calculations in the *Blast Wizard*, including local mass balance and correct treatment of swell to ensure an accurate, real-life result.

Cast Blast

In this lesson, the *Blast Wizard* is applied to model a cast blast with a depth of overburden varying significantly along the pit.
Modelling of the cast blast on the ramp in accordance with the instructions.
Explanation of the settings and options in the window *Blast Wizard - Set Parameters*.
Explanation of the parameters in the windows *Blast Wizard - Draw Profile* and *Blast Wizard - Blast Volumes*.

Another Blast

Blasting of the strip is completed by simulating the blast on the shallower side of the fault (in comparison with the deep side of the fault, which was blasted in the previous lesson).
Explanation of how the *Recognition of Blasted Spoil* concept works in 3D-Dig.

Rehandle Module

This module will describe the concept of "Prime" and "Rehandle" in 3D-Dig. In this module you will learn the essential terminology and useful applications, like the "Mark Rehandle" function and how to remove the rendering of geology from spoil.

Introduction

In the introductory lesson you will make acquaintance with the terminology, related to the concept of "Prime" and "Rehandle" in "3D-Dig". You will see how these terms are connected with excavation process, and how they will be reflected in material logs.

Prime Surface

In this lesson, the comments are given of how 3D-Dig delineates "Prime" and "Rehandle", using a special surface called the "Prime Surface". The detailed explanation will be presented, also illustrated in the section view.

Mark Rehandle

The advantages of applying the "Mark Rehandle" function alongside with the "Spoil Layer" function will be shown in this lesson. You will learn how to remove the rendering of geology from spoil.

Geology in Spoil

In the concluding lesson of this module, you will accomplish the procedure of removing the rendering of geology in spoil, initiated in the previous lesson. You will see the importance of the spoil layer in this process, and how to work with the related settings in the "Edit Layers" window.