

3Ds MAX Fundamentals

Duration: 56 Hours

Overview:

New Horizons are proud to present the 56 Hours technical training course designed to help you learn everything you need to create 3D content using 3DS Max. 3DS Max Fundamentals will focus on learning the basics of modelling, material creation, animation, and scene generation. Learn the capabilities of the interface, how to work efficiently, and how to apply toolset in the workplace. This class will take you past the basic level into an intermediate skill-set.

Target Audience:

This is for people who want to create 3D graphics for print or animation. Target customers are architectural practises, visualisation studios, production houses, advertising agencies or other such departments that work in large organisations.

At Course Completion:

You'll learn how to work in a production environment, understand the mechanics of 3DS Max, be able to create 3D models using a variety of techniques, work with materials to texture your models, understand how to light a scene, be able to create animations, stage a scene, understand cinematography and learn how to create output for use in post-production.

Lesson 1: Getting Started

- Learning Objectives
- Launching 3ds Max
- Working with Startup Templates
- Configuring 3ds Max
- Configuring the Default UI and Presets
- Synchronizing the User Interface and Default Presets
- Customizing Mouse Interaction
- Working with Standards
- Setting Display Units to Architectural
- Configuring and Saving Viewport Layouts
- Creating a Prototype File
- Saving a New Template File
- Maximizing the Workspace
- Navigating Menu Drop-Downs
- Working with Toolbars
- Managing the Ribbon
- Managing Workspaces
- Understanding Object Interaction
- Navigating the Scene Using the View Cube
- Saving ds Max Files
- Using Undo and Redo
- Accessing the Help System
- Accessing the Autodesk Online Portals

Lesson 2: Pre-Production and Planning

- Pre-Planning the Production
- Developing a Sketch-Style Storyboard
- Examining a Sample Storyboard
- Planning Scene Level of Detail
- Understanding Level of Detail
- Planning File Output
- Outputting for Print and Web
- Reviewing Still Image Types
- Examining Animation Output
- Reviewing Animation Output Types
- Understanding Layers
- Working with Layers
- Previsualizing a Scene
- Configuring in Viewport Previsualization with Nitrous

Lesson 3: Modeling

- Modeling in 3ds Max
- Understanding Shapes
- Working with Spline Shapes
- Working with Extended Splines
- Creating New Shapes
- Adjusting Curve Quality and Render Parameters
- Cloning Shapes
- Creating Outline Shapes
- Attaching Shapes
- Editing Closed 3D Shapes
- Trimming and Welding Splines
- Filleting a Vertex
- Understanding Mesh and Poly Objects
- Discovering the Editable Poly Object Type
- Converting Object Types
- Aligning Objects
- Using Select and Place to Locate Objects
- Utilizing the Snap Tools
- Learning to Use the Graphite Modeling Tools
- Using the Generate Topology Tool
- Editing Using Polygon Symmetry Tools
- Understanding Subdivision Surfaces
- Modeling using Open Subdivision Surfaces
- Reducing Polygons using ProOptimizer
- Working with the Paint Deform Tool
- Using the Conform Paint Tool
- Understanding 3D and 3D Objects
- Exploring More Editable Poly
- Modeling Windows
- Modeling Window Frames
- Modeling Window Panes
- Introducing Compound Objects
- Working with ProBoolean
- Using Shape Merge

Lesson 3: Modeling (Cont.)

- Aligning the Road
- Merging Objects
- Examining Modifiers and the Modifier Stack
- Learning About Object Space Modifiers
- Adding a Bevel Profile Modifier
- Editing 3D Shapes
- Stacking Modifiers
- Editing Modifiers
- Chamfering Polygon Edges using the Chamfer Modifier
- Understanding World-Space Modifiers
- Applying the Map Scalar Modifier
- Working with the Chamfer Modifier
- Understanding Object Painting
- Painting a Scene
- Discovering AEC Objects
- Building with AEC Walls
- Adding a Door
- Installing Windows
- Working with Containers

Lesson 4: Materials

- Introducing Materials
- Understanding the ds Max Material Editors
- Creating Schematic Materials
- Working with the Standard Material
- Discovering the Arch and Design Material
- Adjusting Shaders
- Editing Reflectivity
- Assigning a Material
- Using Map Patterns
- Simulating Geometry
- Incorporating Displacement Mapping
- Setting Transparency
- Calculating Map Sizes
- Creating a Tile Map
- Determining Map Coverage
- Adding a UVW Map Modifier
- Working with Unwrap UVW
- Working with Multiple Materials
- Discovering the Multi/Sub-Object Material
- Setting Material IDs
- Editing Material IDs
- Assigning a Multi/Sub-Object Material
- Understanding Blend Materials and Masks
- Using a Blend Material
- Masking with Materials
- Understanding Substance Textures
- Working with Substance Textures
- Baking Textures - Render to Texture
- Painting a Texture with Viewport Canvas
- Working with Vector Graphics
- Discovering Material Libraries
- Understanding the Autodesk Materials Library
- Using an Autodesk Library Material
- Creating a New Library

Lesson 5: Lighting

- Differentiating Standard Lights versus Photometric Lights
- Understanding Direct and Indirect Light
- Discovering Daylight
- Placing a Daylight System
- Adjusting Location
- Adjusting the Physical Sky
- Understanding Photometric Lights
- Enabling Streetlights in a Scene
- Changing Photometric Light Presets
- Understanding Indirect Light
- Calculating Indirect Illumination
- Working with Final Gather

Lesson 5: Lighting (Cont.)

- Setting Final Gather Bounces
- Working with Sky Portals
- Discovering Photon Mapping
- Configuring Interior Night Lighting
- Using Photometric IES Web Files
- Enabling Photon Mapping
- Creating Object Lights
- Understanding Image-Based Lighting
- Creating a Simple Image-Based Lighting Setup
- Rendering Image-Based Lighting with Mental Ray
- Rendering Image-Based Lighting with Iray

Lesson 6: Rendering

- Introducing Rendering
- Discovering the Render Setup Dialog
- Rendering Still Images
- Understanding Still Image Resolution
- Setting Still Image Resolution
- Setting Render Presets
- Understanding Still Image File Types
- Choosing Still Image File Types
- Rendering Animations
- Understanding Image Resolution for Animations
- Setting Animation Resolution
- Understanding Animation File Types
- Creating a Preview Animation
- Rendering Sequential Images
- Using the RAM Player
- Saving with Animation Codecs
- Discovering Mental ray
- Visualizing Realistic Lighting with Mental ray

Lesson 7: Cameras

- Understanding the Camera
- Discovering Traditional Camera Shots
- Identifying Effective Camera Distance
- Changing Viewer Distance
- Discovering Depth of Field
- Adding Depth of Field to Control Focus
- Understanding Camera Angles
- Adjusting Camera Angles
- Discovering Composition Essentials
- Understanding the Rule of Thirds
- Implementing the Rule of Thirds
- Discovering Diagonals
- Establishing Diagonals
- Using Camera Clipping Planes
- Adding a Camera Correction Modifier
- Establishing Perspective Match for Compositing
- Using 3D Pan and Zoom
- Working with the Physical Camera
- Creating a Camera Sequence

Lesson 8: Animation

- Understanding Animation Concepts
- Identifying Controllers and Controller Types
- Discovering Object Animation
- Exploring Keyframe Animation
- Keyframing a Moving Object
- Editing Keyframes Using the Dope Sheet
- Understanding Path Animation
- Animating on a Path
- Discovering Camera Animation Basics
- Separating Camera Position and Rotation Control
- Animating a Dummy on a Path
- Linking a Hierarchy
- Retiming an Animation
- Simulating a Population
- Modifying a Population Simulation

Lesson 9: Effects and Dynamics

- Understanding Particle Effects
- Creating a Particle Flow
- Creating a Particle Flow Fountain
- Creating the Fountain Pillar Particle Flow
- Incorporating Collisions into the Fountain
- Discovering ds Max Dynamics
- Simulating Rigid Bodies
- Simulating with Forces and Constraints
- Creating a Tearable Curtain
- Using Render Effects
- Activating Mental Ray Camera Glare

Lesson 9: Effects and Dynamics (Cont.)

- Adding a Volume Fire Effect
- Generating Grass with Hair and Fur
- Working with Space Warps

Lesson 10: IK and Rigging

- Discovering IK
- Rigging a Mechanical Assembly
- Introducing the Character Animation Toolkit
- Creating a CAT Rig
- Understanding Biped
- Animating a Biped Walking Up Stairs
- Working with the Skin Modifier
- Using Weight Tables with Biped and Skin
- Using Dual Quaternion Skin Weighting
- Buying a Character from the Autodesk Animation Store

Lesson 11: Scripting

- Understanding Maxscript
- Creating Scripted Objects
- Adding a Macroscript to a Button

Lesson 12: Post-Production

- Introducing Post-Production
- Discovering the Concept of Short Scenes
- Discovering Video Post
- Using the Video Post Queue
- Indicating Change of Time or Place
- Adding a Cross Fade Transition
- Using Image Layers
- Understanding Scenes Layering
- Rendering with Passes
- Working with State Sets
- Creating a State Set Composite
- Discovering Autodesk Composite
- Compositing Multiple Layers
- Remapping Color Output

Lesson 13: Program

Interoperability

- Linking to an AutoCAD Model
- Applying Materials to an AutoCAD Model
- Rendering a Linked AutoCAD Model
- Linking a Revit Model
- Rendering a Linked Revit Model
- Importing an Inventor Assembly
- Importing a Sketchup Model
- Incorporating Alembic Cache Files
- Importing a Civil 3D Model
- Understanding the Civil View Explorer
- Adding Signs and Vehicles to the Layout
- Rendering the Civil View Scene
- Importing an FBX File
- Exporting an FBX File

Lesson 14: Output

- Considering Final Output
- Understanding Scene States
- Setting Up Scene States for Rendering
- Understanding Batch Rendering
- Configuring a Batch Rendering Queue
- Outputting Still Images
- Understanding Print Resolution
- Controlling Print Size
- Exploring Gamma Correction
- Setting Gamma Correction
- Creating Special Image Types
- Discovering the Panorama Exporter
- Creating a Panorama File
- Outputting for Cinema
- Saving Open EXR Files

Lesson 15: Lighting Analysis - Lighting the Scene

- Creating a Ground Plane
- Discovering the Daylight System
- Adding a Daylight System
- Configuring the Daylight System
- Exploring Skylight Portals
- Adjusting Exposure Control

Lesson 16: Lighting Analysis - Scene Materials

- Understanding Scene Materials
- Identifying Scene Materials
- Creating a Material for the Ground Plane
- Adding Beige Wall Paint Material
- Adjusting the BRDF Function Curve
- Using the Multi-Object and Sub-Object Materials
- Adding an Autodesk Material Glazing for Windows
- Applying an Autodesk Material Metal for the Window Frame

Lesson 17: Lighting Analysis for Presentation

- Understanding Lighting Analysis for Presentation
- Using the Lighting Analysis Assistant
- Incorporating Light Meters
- Configuring Lighting Analysis Image Overlay

Lesson 18: Lighting Analysis - Render an Analysis

- Rendering a Complete Analysis
- Adjusting Exposure
- Configuring Final Gather
- Setting Common Rendering Settings
- Rendering a Final Image
- Grabbing a Viewport Image