Autodesk User 3ds Max

Target Audience

This course is designed for aspiring 3D artists, animators, and visualization specialists who want to develop foundational skills in 3D modeling, animation, texturing, lighting, and rendering using Autodesk 3ds Max. It is ideal for individuals planning to enter the film, television, gaming, architectural visualization, or product design industries, and for those looking to validate their skills at an entry-level industry standard.

Course Objective

This course equips participants with essential knowledge and practical skills in Autodesk 3ds Max, enabling them to confidently create and manipulate 3D models, animate objects and characters, apply realistic materials, set up cameras and lighting, and render high-quality images and animations for professional presentations. The course content is aligned with the competencies required for the **Autodesk Certified User in 3ds Max** certification, preparing learners to validate their foundational skills and achieve industry-recognized certification.

Course Outcome

- **3D Modeling and Surface Editing** – Gain expertise in creating polygon-based models, using modifiers, and editing complex surfaces.
- **Rigging and Animation Fundamentals –** Learn to rig models with bones, apply constraints, and animate objects and characters using keyframes and paths.
- **Material and Texture Application –** Develop skills to create, assign, and adjust materials and textures using advanced material editors.
- **Lighting and Rendering Techniques –** Understand light setup, shadow types, and configure rendering settings for high-quality outputs.
- **Scene and Camera Management –** Master organizing scenes, managing hierarchies, and setting up cameras for various visualization needs.

Course Outline: The course comprises **40 hours** of **theory and practical labs** and is divided into **9** comprehensive chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Chapter 1. Scene Management

Setting Up Projects and Scenes
• Using the Project Window (defining paths and folders)
• Creating new projects (empty, default, from current)
• Setting the active project
Setting Scene Preferences
• Changing grid spacing and scene units
• Setting display units and frame rate
Managing Scene Objects
• Using Scene Explorer, selection sets, and Display panel
• Grouping, parenting, and using Layer Explorer for visibility and organization
• Navigating and rearranging hierarchies
Modifying Object Properties
• Changing multiple object properties (instance, copy, reference)
• Adjusting object parameters (size, segments)
Transforming Objects and Pivot Management
• Using Transform tools (reference coordinate systems)
• Aligning, arraying, and mirroring objects
Changing Viewport Display
• Shading and lighting modes
• Determining poly count

Chapter 2. Polygon Modeling

Creating and Modifying Polygon Primitives
• Creating primitives and manipulating parametric properties
• Applying modifiers
Editing Polygon Surfaces
• Converting to editable poly
• Identifying and adding sub-objects (loops, edges, chamfers)
• Manipulating sub-objects (move, rotate, scale, extrude, bevel, bridge, divisions)

• Checking and flipping normals, using see-through mode, cutting, welding
Using Modeling and Selection Tools
• Symmetry modifier
• Soft selection and its parameters
• Object operations (attach/detach, MSmooth, Boolean)

Chapter 3. UVW Coordinates and Mapping

Configuring UVW Projections
• Using UVW Map modifier (box, planar, cylindrical, spherical projections)
• Changing UVW projection properties
Using Unwrap UVW Modifier
• Understanding UVW sub-objects and elements
• Transforming elements (cut, stitch, unfold, relax, layout, weld)
• Using manipulation aids (checker patterns, distortion checks)

Chapter 4. Materials and Shading

Working with Materials
• Choosing materials and shaders for different render engines
• Creating and assigning materials to objects and polygons
Modifying Material Properties
• Using material editors (compact and slate editors)
• Applying maps (2D, 3D, bitmap, color, normal)
• Changing shader-specific properties

Chapter 5. Rigging

Using Bone Tools
• Creating and editing bones (parameters, hierarchy checks)
• Applying forward kinematics (FK) and inverse kinematics (IK)
Using the Skin Modifier
• Editing envelopes
Applying Constraints
• Identifying and applying constraint types (link, position, path, orientation)
• Viewing hierarchies in Schematic View
Using Character Studio

• Applying biped and physique

Chapter 6. Cameras

Working with Cameras
• Understanding camera types (Free, Target, Physical; perspective vs orthographic)
• Creating and activating cameras
• Adjusting camera views (Dolly, Truck, Roll, Orbit/Pan)
• Using Walkthrough Assistant
Modifying Camera Properties
• Near and far clip planes
• Lens, focal length, field of view
Displaying Guides
• Safe frames, title safe, action safe, user safe areas

Chapter 7. Animation

Animation Timeline and Configuration
• Setting keyframes (Auto Key, Set Key)
• Changing time slider range and playback settings
• Creating preview animations
Animating Along Paths
• Creating splines/curves and animating objects along paths
• Controlling axis and banking, modifying path percentage
Editing Animations with Track View
• Working with tangent types, breaking/unifying tangents
• Using Dope Sheet to manipulate multiple keyframes

Chapter 8. Lighting

Working with Lights
• Creating standard light types (spot, direct, omni, skylight)
• Changing parameters using Light Lister (color, multiplier)
• Using Include/Exclude tools to control object illumination
Working with Shadows
• Differentiating shadow types (shadow map, ray-traced, area, advanced ray-traced)

• Adjusting parameters (color, density)

Chapter 9. Rendering

Understanding Renderers
• Built-in renderers (QuickSilver, ART, Scanline, VUE, Arnold)
Configuring Render Settings
• Common settings (view, output size, frame range, render region)
• Renderer-specific settings (sampling, ray depth)
Rendering Outputs
• Rendering still images and animation sequences