

Intermediate Level

NURBS modeling with Rhino

Course Outline

This course is geared to individuals who will be using Rhino. In this comprehensive 2-day class you'll learn to create and edit accurate free-form 3-D NURBS models. This fast-moving class covers most of Rhino's functionality, including advanced surfacing commands.

Duration

2 days

Prerequisites

Basic knowledge of Rhino needed.

Day 1—AM

Quick review of the Foundation and Precision Modeling. The student should already know this part.

- Navigate around the Rhino model
- Create 2-D lines, polylines, and NURBS curves
- Modeling setup and mode functions: ortho, grip, snap, and planar
- Fast 3-D solids and surfaces
- The Rhino layering system
- Delete objects
- Discover display commands used to view different parts of the model.
- Pan, zoom and reset model views
- Draw with absolute, relative rectangular, and polar coordinates
- Distance and angle constraints
- Using object snaps
- Analysis commands: length, distance, angle, radius
- Smart tracking and constraints
- Elevator mode
- Drawing circles, arcs, rectangles, ellipses and polygons
- Model free-form curves

Day 1—PM

Basic Editing

Use edit commands to produce complex and detailed variations on the curves. Loft and extrude curves into surfaces and solids. Learn additional editing commands and use them to build practice models. Reinforce concepts of model setup and drawing accurate 2-D geometry to build precision 3-D shapes.

- Edit curves with fillet and chamfer
- Loft and extrude curves
- General editing: move, copy, rotate, mirror, scale
- Array polar and rectangular
- Boolean union, difference, and intersection
- Offset curves and surfaces
- Trim and split for curves and surfaces
- Extend and extend to surface
- Practice modeling and editing

Day 2—AM

Intermediate Edit and Surfacing Commands

Learn additional editing commands and use them to build practice models. Reinforce concepts of model setup and drawing accurate 2-D geometry to build precision 3-D shapes.

- Introduction to NURBS modeling concepts and terminology
- Free-form curves
- Control point editing of curves and surfaces
- Rebuild curves and surfaces
- Use the nudge modeling aid
- Create deformable shapes
- Curve creation through projection
- Split surfaces with curves and surfaces
- Blend between two surfaces
- Create solid primitives and solid text
- Viewports, construction planes, and modeling in 3-D space

Day 2—PM

Solids and Surfacing

Learn how to model with solids and solid text. Use Booleans to shape your model.

Extrude, loft, and revolve curves into surfaces. Use sweeps to create surfaces.

Use advanced surfacing techniques like blend, match, and surface from network of curves.

- Model with pipe and extrude
- Modifying solids with Booleans
- Extrude and loft surfaces
- Generate curves from objects—contour, duplicate edge, project, section
- Revolve curves into surfaces
- Sweep 1 and 2 rail curves
- Surface with network of curves