Rhino 5 Features

Rhino can create, analyze, edit, render, document, translate and animate NURBS* curves, surfaces, and solids and polygon meshes. There are no limits on complexity, precision, size, or degree .

New Rhino 5 Features include:
   Architectural Visualisation
   Sweep Improvements
   Rendered Shadows
   Shell Polysurface
   Shutline & Curve Piping

Other features include:

Uninhibited free-form 3-D modeling tools like those found only in products costing 20 to 50 times more. Model any shape you can imagine.

Accessible. So easy to learn and use that you can focus on design and visualization without being distracted by the software.

Fast, even on an ordinary laptop computer. No special hardware is needed.

Affordable. Ordinary hardware. Short learning. Priced like other Windows software. No maintenance fees.

Accuracy needed to design, prototype, engineer, analyze, and manufacture anything from an airplane to jewelry.

Compatibility with all your other design, drafting, CAM, engineering, analysis, rendering, animation, and illustration software.

Read and repair extremely challenging IGES files.

User interface: extremely fast 3-D graphics, unlimited viewports, shaded, working views, perspective working views, coordinate read-out, named views, floating/dockable command area, pop-up recently-used commands, clickable command options, auto-complete command line, customizable pop-up commands, pop-up layer manager, synchronize views, camera-based view manipulation, perspective match image, configurable middle mouse button, customizable icons and user workspace, customizable pop-up toolbar, transparent toolbars, context sensitive right-click menu, dockable dialogs, multiple monitor support, Alt key copy and OpenGL hardware support with anti-aliasing.

Construction aids: unlimited undo and redo, undo and redo multiple, exact numeric input, units including feet and inches and fractions, .x, .y, .z point filters, object snaps

with identifying tag, grid snaps, ortho, planar, named construction planes, next and previous construction planes, orient construction plane on curve, layers, layer filtering, groups, background bitmaps, object hide/show, show selected objects, select by layer, select front most, color, object type, last object, and previous selection set, swap hidden objects, object lock/unlock, unlock selected objects, control and edit points on/off, and points off for selected objects.

Create surfaces: from 3 or 4 points, from 3 or 4 curves, from planar curves, from network of curves, rectangle, deformable plane, extrude, ribbon, rule, loft with tangency matching, developable, sweep along a path with edge matching, sweep along two rail curves with edge continuity, revolve, rail revolve, blend, patch, drape, point grid, heightfield, fillet, chamfer, offset, plane through points, TrueType and Unicode (double-byte) text.

Edit surfaces: control points, handlebars, change degree, add/remove knots, match, extend, merge, join, untrim, split surface by isoparms, rebuild, shrink, make periodic, Boolean (union, difference, intersection), unroll developable surfaces, array along curve on surface.

Create curves: point, line, polyline, polyline on mesh, free-form curve, circle, arc, ellipse, rectangle, polygon, helix, spiral, conic, TrueType text, point interpolation, control points (vertices), sketch.

Create curves from other objects: through points, through polyline, extend, fillet, chamfer, offset, blend, from 2 views, cross section profiles, intersection, contour on NURBS surface or mesh, section on NURBS surface or mesh, border, silhouette, extract isoparm, projection, pullback, sketch, wireframe, detach trim, 2-D drawings with dimensions and text, flatten developable surfaces, extract points.

Edit curves: control points, edit points, handlebars, smooth, fair, change degree, add/remove knots, add kinks, rebuild, refit, match, simplify, change weight, make periodic, adjust end bulge, adjust seam, orient to edge, convert to arcs, a ployline, or line segments.
Create solids: box, sphere, cylinder, tube, pipe, cone, truncated cone, ellipsoid, torus, extrude planar curve, extrude surface, cap planar holes, join surfaces, TrueType text.

Edit solids: fillet edges, extract surface, Booleans (union, difference, intersection).

Create meshes: from NURBS surfaces, from closed polyline, mesh face, plane, box, cylinder, cone, and sphere.

Edit meshes: explode, join, weld, unify normals, apply to surface, reduce polygons.

Edit tools: cut, copy, paste, delete, delete duplicates, move, rotate, mirror, scale, stretch, align, array, join, trim, split, explode, extend, fillet, chamfer, offset, twist, bend, taper, shear, orient, orient planar object on curve, flow along curve, smooth, project, object properties.

Annotation: arrows, dots, dimensions (horizontal, vertical, aligned, rotated, radial, diameter, angle), text blocks, leaders, hidden line removal, Unicode (double-byte) support for text, dimensions, and notes. Dimensions in perspective views are supported.

Analysis: point, length, distance, angle, radius, bounding box, normal direction, area, area centroid, area moments, volume, volume centroid, volume moments, hydrostatics,

surface curvature, geometric continuity, deviation, nearest point, curvature graph on curves and surfaces, naked edges, working surface analysis viewport modes (draft angle, zebra stripe, environment map with surface color blend, show edges, show naked edges, Gaussian curvature, mean curvature, and minimum or maximum radius of curvature).

Rendering: shade, shade (OpenGL), shade selected objects, raytrace render (with textures, bumps, highlights, transparency, spotlights with hotspot, angle and direction control, point lights, directional lights, rectangular lights, linear lights, and shadows, and customizable resolution), render preview (OpenGL), render preview selected objects, turntable, RIB export, POV export, rendering plug-in support, settings saved in file.

File formats supported: DWG/DXF(AutoCAD 200x, 14, 13, and 12), SAT (ACIS, export only), DGN, FBX, X_T (Parasolid, export only), 3DS, LWO, STL, SLC, OBJ, AI, RIB, POV, UDO, VRML, BMP, TGA, CSV (export properties and hydrostatics), uncompressed TIFF, STEP, VDA, GHS, GTS, KML, PLY, SketchUP.

IGES (Alias, Ashlar Vellum, AutoFORM, AutoShip, Breault, CADCEUS, CAMSoft, CATIA, Cosmos, Delcam, EdgeCAM, FastSurf, FastSHIP, Integrity Ware, IronCAD, LUSAS, Maya, MAX 3.0, MasterCAM, ME30, Mechanical Desktop, Microstation, NuGraf, OptiCAD, Pro/E, SDRC I-DEAS, Softimage, Solid Edge, SolidWorks, SUM3D, SURFCAM, TeKSoft, Unigraphics), NASA GridTool, Yamaha ESPRi, Tebis.

File management: Notes, templates, merge files, export selected objects, save small, incremental save, bitmap file preview, Rhino file preview, export with origin point, worksessions, blocks, file compression for meshes and preview image, send file via e-mail.

Plug-ins: The Rhino SDK exposes most of the internal workings of Rhino, making it possible for third-party developers to create powerful plug-ins and add-ons, programmer's I/O tool kit with source code is available on openNURBS web site.

Scripting: VBScript support exposes most of the internal workings of Rhino, making it possible to develop powerful scripts.

The RhinoScript ActiveX object can be accessed by many different programming languages including Visual Basic, Microsoft Word VBA, and Excel VBA.

Rhino can be run in the background by an application via the RhinoScript ActiveX object.

3-D digitizing support: MicroScribe, FaroArm, and Romer/Cimcore.

Input devices: Support for SpaceBall and SpaceMouse.

*NURBS, Non-Uniform Rational B-Splines, are mathematical representations of 3-D geometry that can accurately describe any shape from a simple 2-D line, circle, arc, or curve to the most complex 3-D organic free-form surface or solid. Because of their flexibility and accuracy, NURBS models can be used in any process from illustration and animation to manufacturing.

What is new in Rhino 5
http://www.rhino3d.com/new