

## Pro/ENGINEER Interactive Surface Design

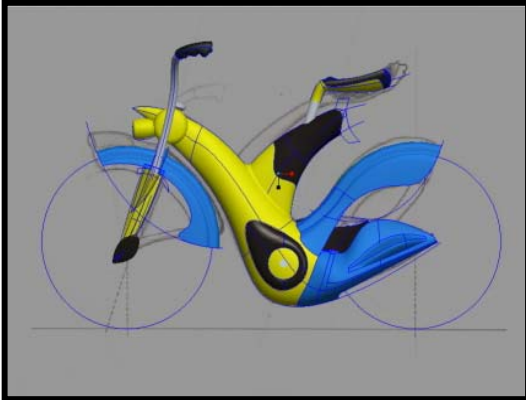
Pro/ENGINEER Interactive Surface Design represents the ultimate integration of design and engineering. By combining the power of parametric modeling with the flexibility of free form surfacing, this powerful module allows designers and engineers to create complex, free form curves and surfaces, directly in an intuitive and interactive design environment.

In today's fast paced product development market, designers and engineers are facing unprecedented challenges ranging from developing proficiencies with various software tools, to managing the ongoing modifications prompted by customers and defining the free form surfaces popular with today's successful products. Pro/ENGINEER Interactive Surface Design is a complete design solution, created to eliminate these challenges, and provide the Pro/ENGINEER user with a new way to develop innovative products.

Pro/ENGINEER Interactive Surface Design combines industry leading free form surfacing tools within the parametric modeling environment of Pro/ENGINEER, for designers and engineers to create conceptual designs and free form surfaces while having the ability to model specific engineered components essential in every successful product. Pro/ENGINEER Interactive Surface Design takes full advantage of all the Pro/ENGINEER Design Solutions such as behavioral modeling, drafting, simulation and manufacturing making it the ultimate tool for the product development process.



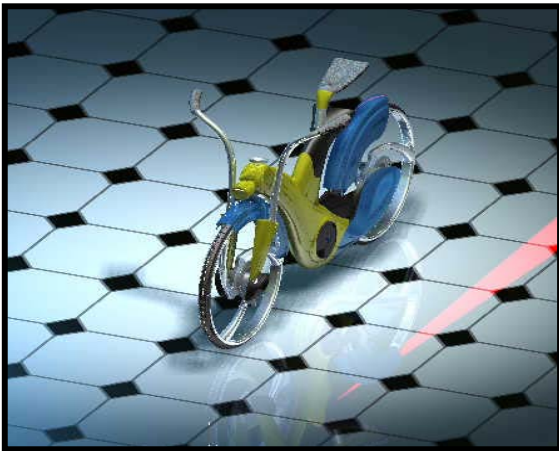
With Pro/ENGINEER Interactive Surface Design, designers can start conceptually by developing geometry from scratch, a sketch, scan sets or other reference data, gradually developing the concept into the production model. Users can also incorporate the Pro/ENGINEER Interactive Surface Design "Style" feature with other Pro/ENGINEER features to create a model that combines the power of parametrically driven features with freeform surfacing. This allows many design alternatives to be considered while design, engineering and manufacturing information will be updated as changes occur regardless of their complexity.



### Intuitive, Interactive, Curve and Surface Modeling

Instead of a sequential modeling environment, Pro/ENGINEER Interactive Surface Design enables a unique parallel modeling environment, where designers and engineers work with a unique four-view modeling window that supports the direct creation, manipulation, and control of curves, surfaces, and connections. The flexibility of parallel modeling also allows the user to establish a parent-child relationship between curves and surface elements if desired. This enables designers and engineers to build free form geometry at any point in the design, and to model curves and surfaces with as many or as few constraints as desired. By

maintaining the focus on value added design, not data transfer and interpretation, Pro/Engineer Interactive Surface Design helps users quickly define and maintain design intent throughout the entire product development process.



### The advanced functionalities of PRO/ENGINEER INTERACTIVE SURFACE DESIGN

#### Include:

Note: Pro/ENGINEER Interactive Surface Design = Pro/ENGINEER Interactive Surface Design + Pro/ENGINEER Advanced Surface

Pro/ENGINEER Interactive Surface Design

Curve Create

Create 3D curves by specifying interpolation or control points

In one or more views.

Set up references dynamically by snapping to any object

Create Planar curves

Create COS's (Curve on surface)

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- Sketch on surface
  - Project on surface
  - Create style curve copies of imported or native Pro/ENGINEER curves/edges.

### **Curve Edit**

- Move control points dynamically or numerically
- Edit multiple curves simultaneously
- Interactively delete or change references to any object
- Modify tangent constraints dynamically or numerically
- Connect curves and surfaces with a positional, tangent, and curvature continuity.
- Add interpolation or control points interactively
- Extend dynamically with or without constraints
- Delete individual points or curve segments.
- Combine and split curves
- View dynamic curvature plots
- change curve types from free to planar or COS
- Unlink curves, curve segments or individual points from references

### **Surface Create**

- Create surfaces from any curve, surface edge, solid edge and imported geometry
- Add multiple internal curves in two directions
- Create surfaces from un-trimmed boundaries

### **Surface Edit**

- Real time surface regeneration
- 3 curve triangular surfaces
- Automatic surface connections
- Reshape surfaces by editing the defining curves
- Add or remove multiple internal curves in two directions
- Replace boundary curves/edges to redefine surface shape
- View surface connections interactively to define the following Connections
  - G0 Positional
  - G1 Tangent
  - G2 Curvature continuous
  - Establish leader/follower relationships (G1 or G2)

### **Modeling Environment**

- Work within a 4 view window
- Reference defining geometry such as points, planes, curves, surfaces and solids
- Create reference geometry asynchronously while modeling
- Work directly off imported geometry, facets and sample data
- Drive model changes through parametric modifications
- Optimize designs using Behavioral modeling (BMX) (Available separately)
- Benefit from downstream use for additional geometry creation, engineering, simulation and manufacturing

### **Scan Tools**

Scantools provides you with a set of tools to transform imported surfaces, quilts, triangulation data or raw data into manufacturable models.

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Scantools lets you perform the following tasks:

- Import, generate and filter raw data
- Import geometry, including curves, surfaces, and faceted data
- Create and modify curves
- Heal geometry manually or automatically (with a license for only Import Data Doctor)
- Collapse geometry from later features into the style feature (with a license for Import Data Doctor)

Note: When you redefine an Import feature in the Scantools environment, you can use Scantools functionality in addition to the standard Redefine Import tools.