Walk-in Slide: AU 2014 Social Media Feed

1. Click on the link below, this will open your web browser

http://aucache.autodesk.com/social/visualization.html

2. Use “Extended Display” to project the website on screen if you plan to work on your computer. Use “Duplicate” to display same image on screen and computer.

Complex and Organic Shapes Using Surfacing and Free-form Tools in Inventor

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Autodesk Certified Instructor

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Class summary

Inventor 2015 software offers a new modeling approach that gives users more alternatives, flexibility, and freedom to design models with smooth and flowing shapes commonly found in consumer products.

In this class, you will learn how to use the new freeform tools alone or in combination with the conventional surface modeling. You will be able to differentiate the pros and cons of both modeling approaches to select the most appropriate workflow for your designs. Keep in mind that you will end up using one of them or both together when needed.

Key learning objectives

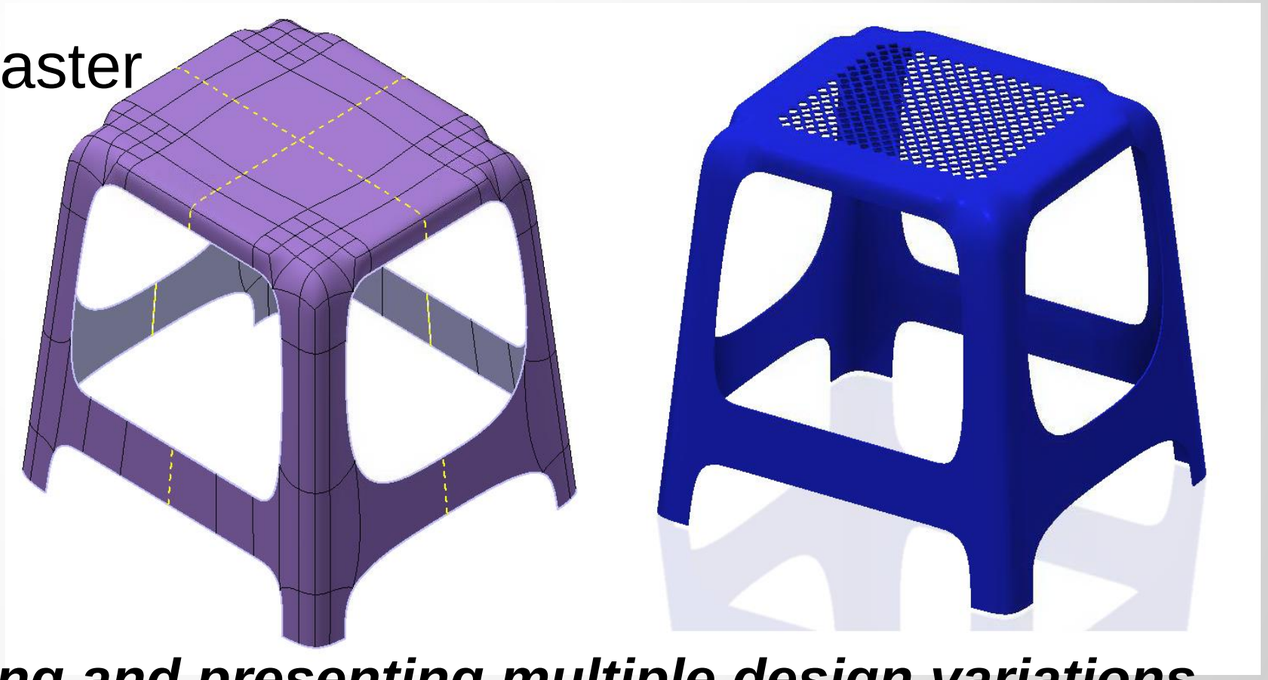
At the end of this class, you will be able to:

- Discover the new flexible modeling method in Inventor 2015 software
- Learn how to define the differences between surfacing and free-form tools
- Discover how to select the most appropriate modeling method for your designs
- Discover how to combine surfacing and free-form tools in a design

New flexible modeling method in Inventor 2015 software

Freeform Modeling

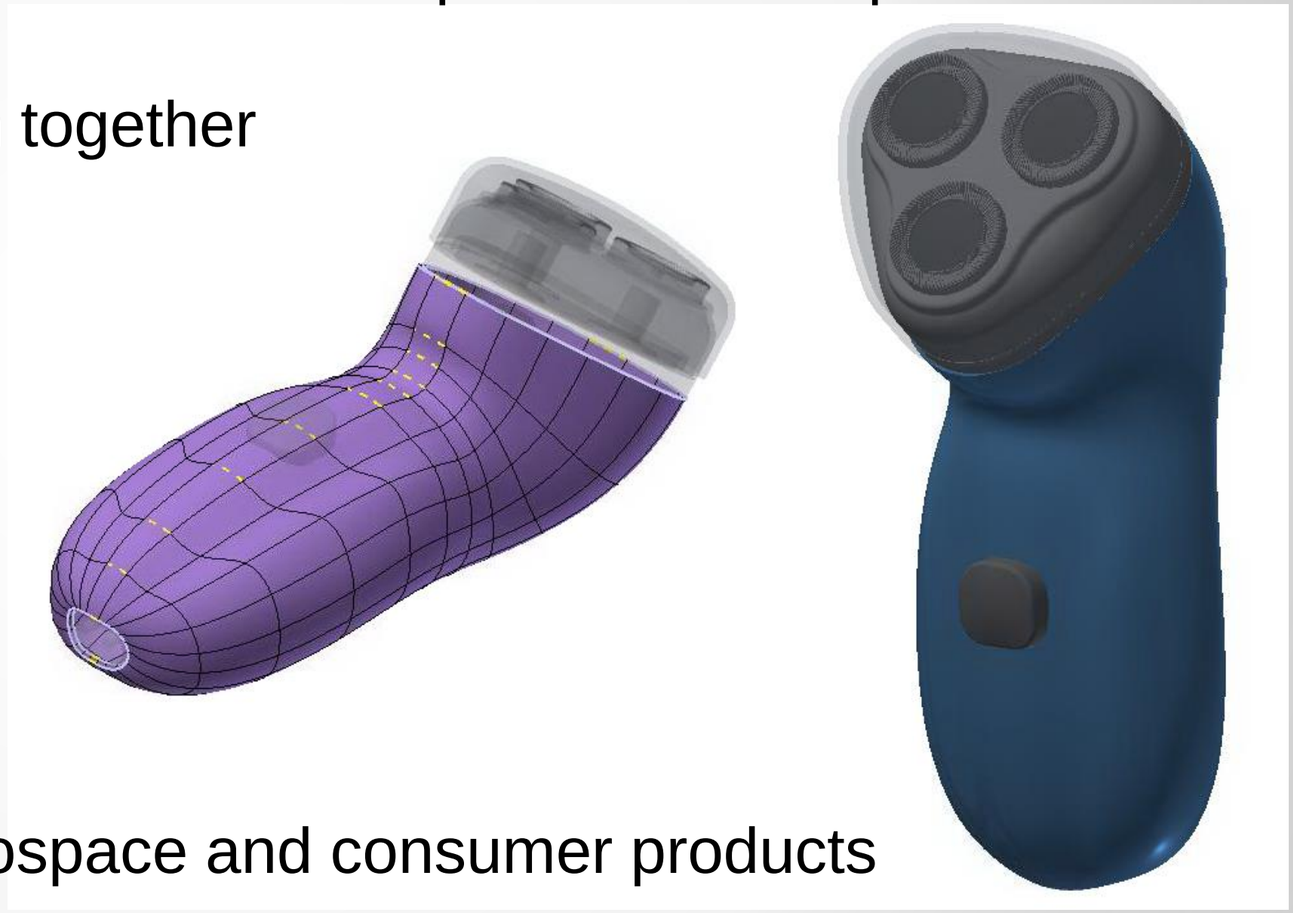
- Easily model complex and organic shapes
- Quickly explore more design concepts
- Share and evaluate concepts far faster
- Accelerate the design process



Become more productive when exploring and presenting multiple design variations

Freeform Modeling

- Direct manipulation method in which the user explores new shapes
- Industrial and mechanical design together
- Blends with parametric modeling



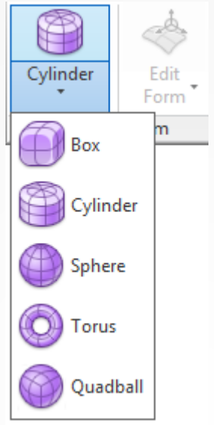
Freeform modeling gives users:

- Flexibility
- Freedom

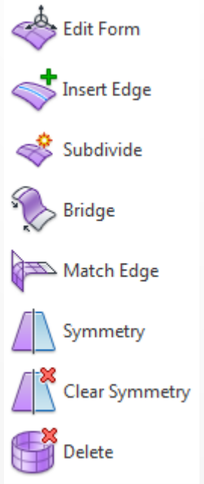
Industries: Automotive, marine, aerospace and consumer products

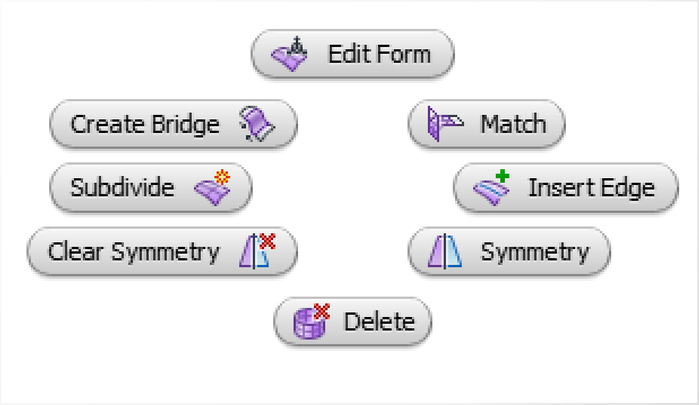
Workflow in Inventor 2015

1. Create the main body



2. Edit the freeform shape





User-defined marking menu

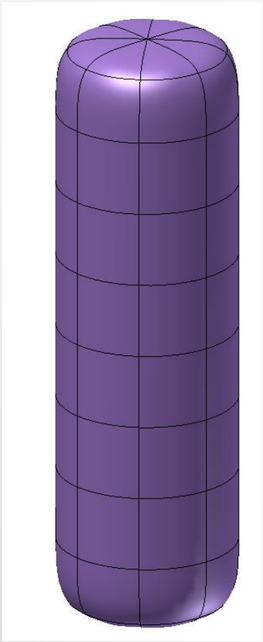
Workflow in Inventor 2015

Closed Shape / Solid Body (Watertight Volume)

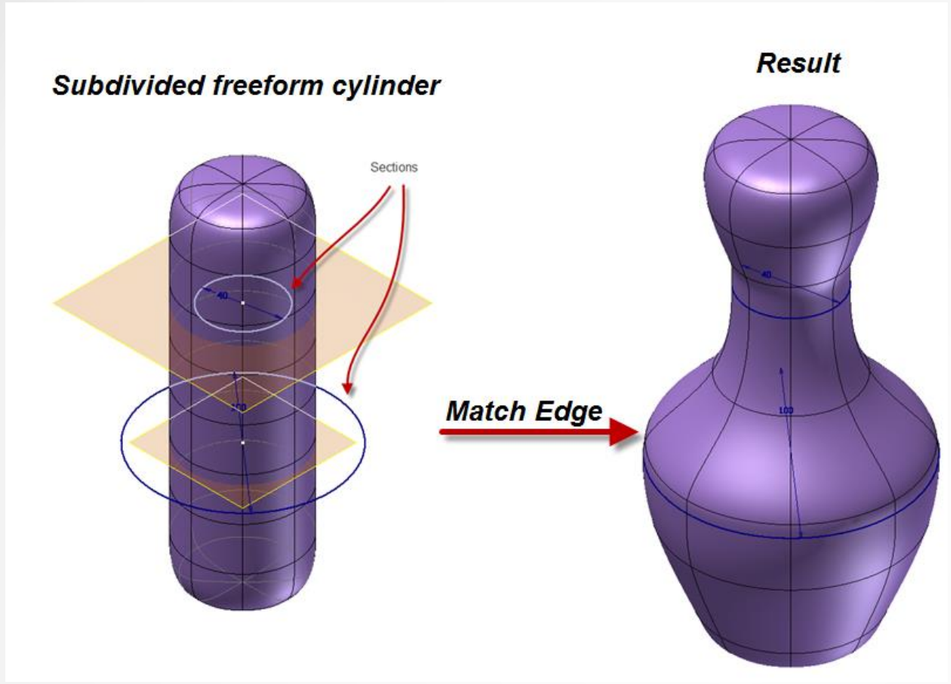
Exit freefom mode

Finish Freeform

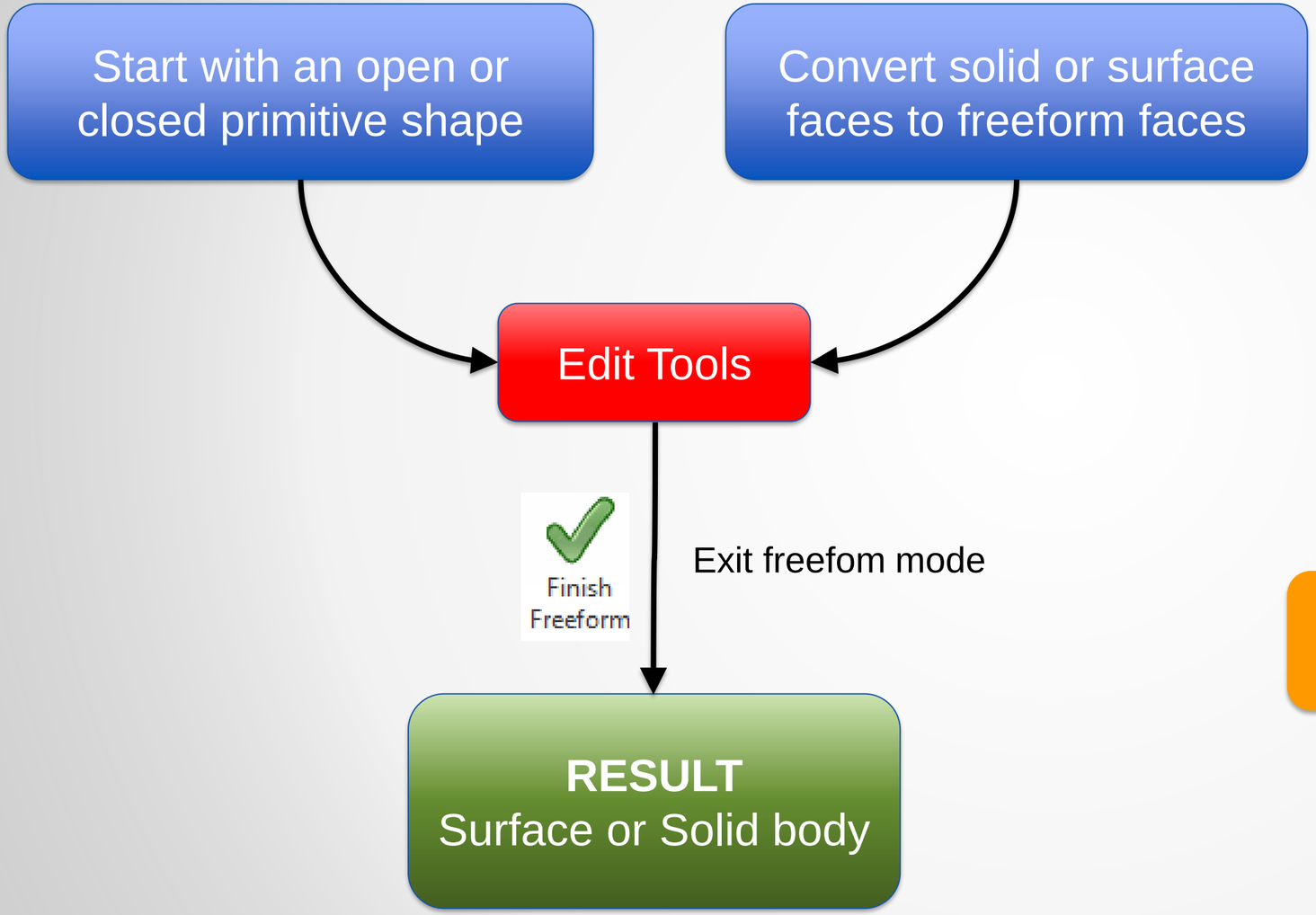
Closed Shape / Solid Body (Watertight Volume)

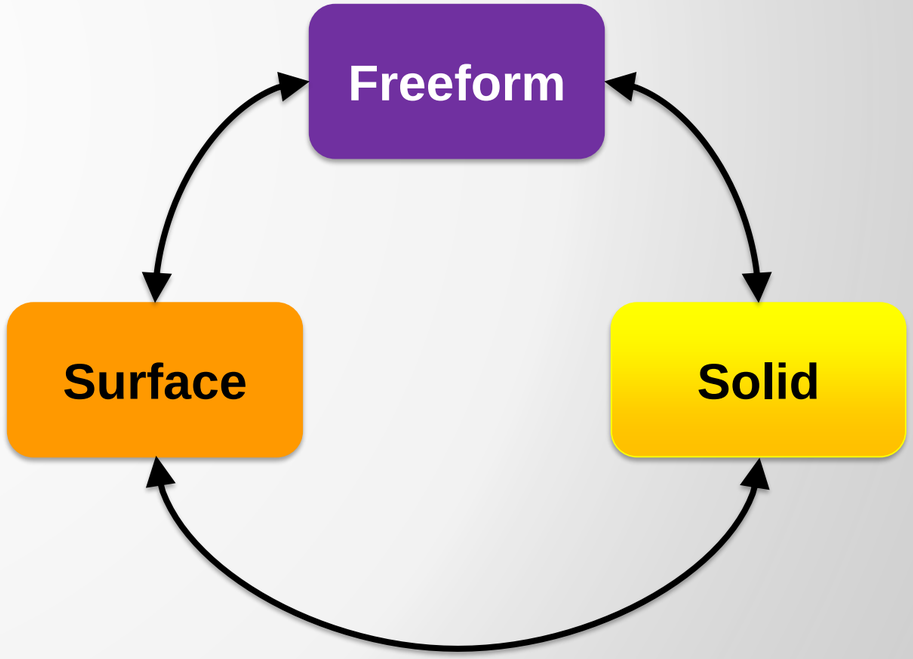


Demo

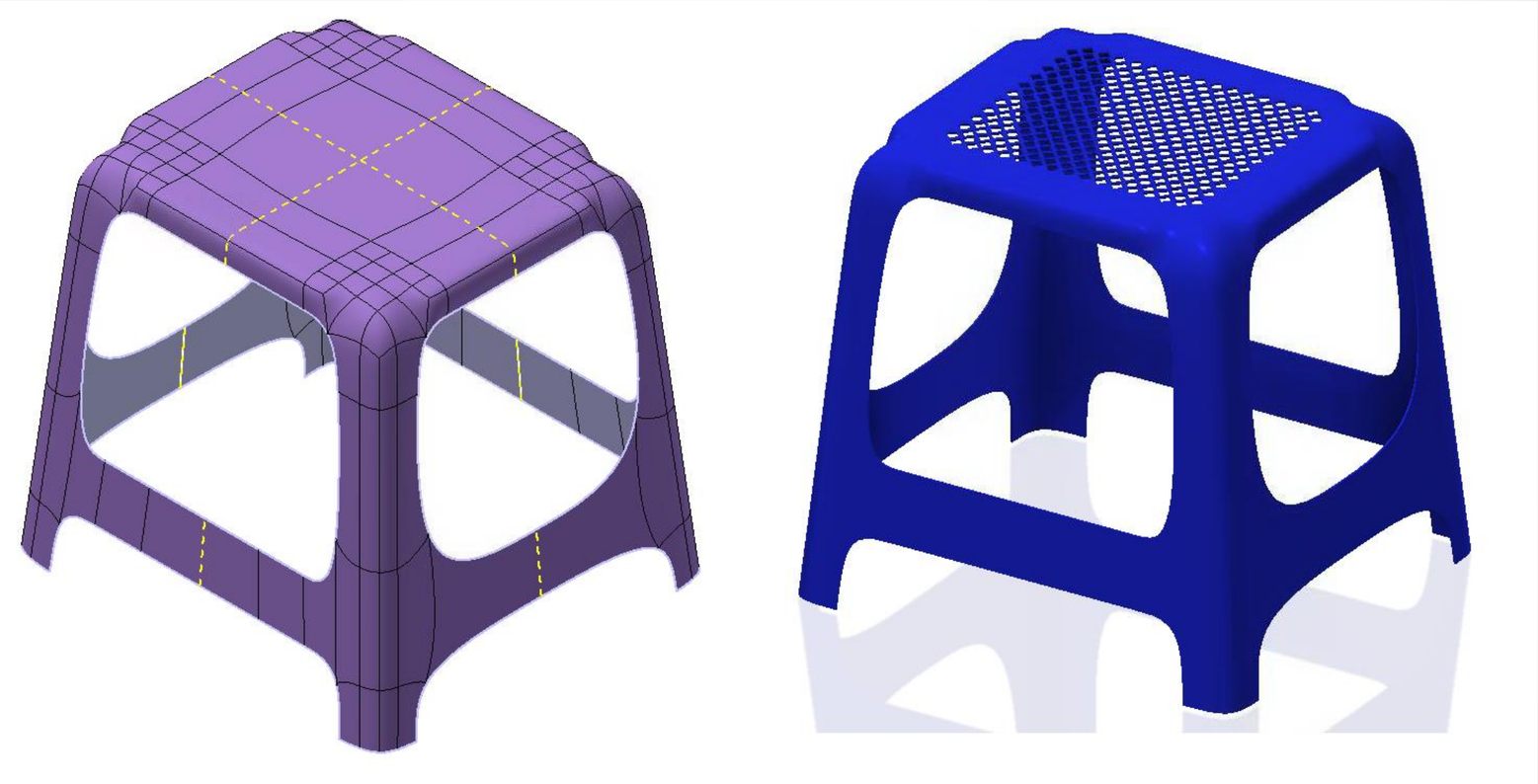


Planned future workflow in Inventor 2016





Demo



Differences between surfacing and free-form tools

Differences

Freeform Modeling

- Very intuitive method
- Shallow learning curve
- Beginners
- Acquire skills in a shorter time
- Spend **less time** on modeling

Surface Modeling

- Complex work required and skillset
- Difficult initial learning process
- Intermediate and advanced users
- Involves longer time to be proficient
- Spend **more time** on modeling

Differences

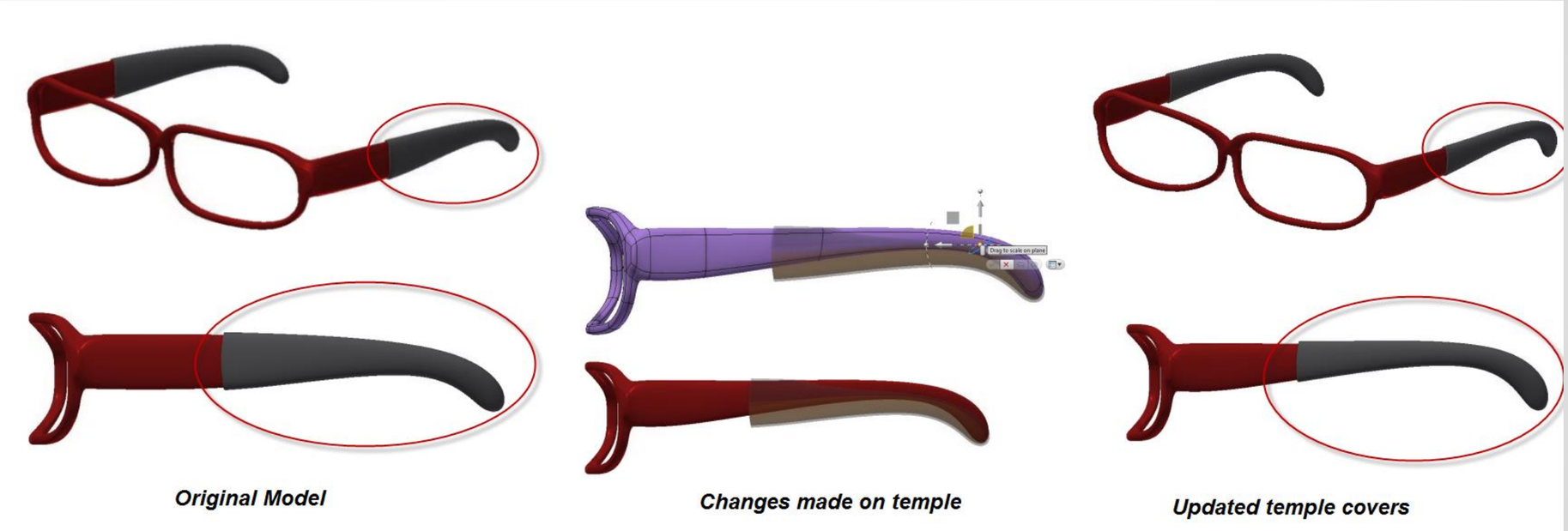
Freeform Modeling

- Rough shapes (Not exact)
- Ideation and Conceptual Design
- No feature history

Surface Modeling

- Very precise shapes
  - Dimensions and geometric constraints
  - Control and continuity (G0, G1, G2, G3)
  - Equation Curves and imported points
- Engineering and Detailed Design
- Relationships and feature history
- Relations between two components
- Repair imported geometry

Demo


Original Model
Changes made on temple
Updated temple covers

Most appropriate modeling method for your designs

Most appropriate modeling method

Freeform Modeling

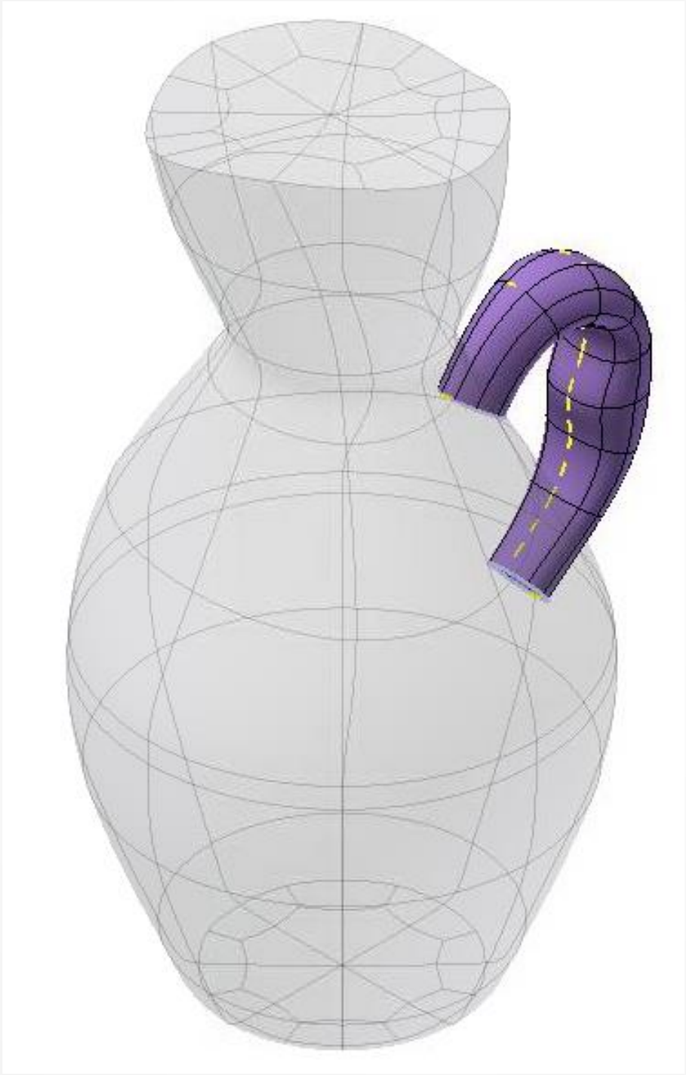
- ✓ Ideation and Conceptual Design
- ✓ Precision is not a concern
- ✓ Explore and present multiple design variations in a very short time

Surface Modeling

- ✓ Engineering and Detailed Design
- ✓ Precision (shape, size and orientation)
  - ✓ Dimensions and geometric constraints
  - ✓ Control and continuity (G0, G1, G2, G3)
  - ✓ Equation Curves and imported points

Combine surfacing and free-form tools in a design

Demo

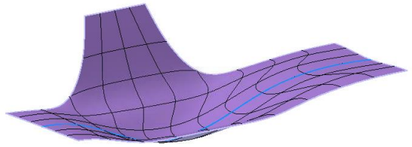


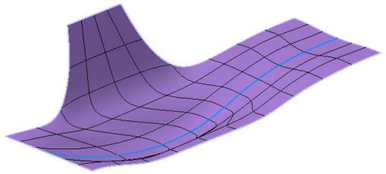
Demo

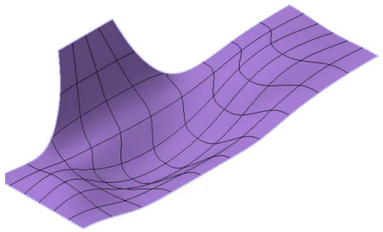
Product

Design Concepts

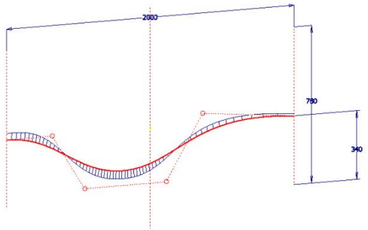
Freeform Models

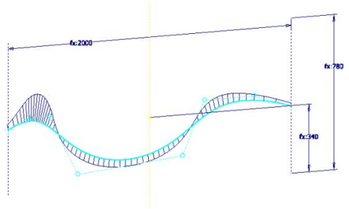


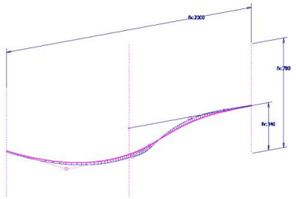




Profiles







Demo

Conclusion

- New freeform modeling approach
  - Very intuitive
  - Flexibility, freedom and more alternatives to create multiple design variations in less time
  - Alone or in combination with parametric modeling
  - Ideation and conceptual design stage
- Surface Modeling
  - Very precise method
  - Engineering and detailed design stage

- Inventor 2015
  - First release with freeform modeling
  - Simpler workflow
- Planned future functionality
  - May give you more alternatives to combine freeform shapes with parametric surfaces and solid bodies

Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2015 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time

Contact Information

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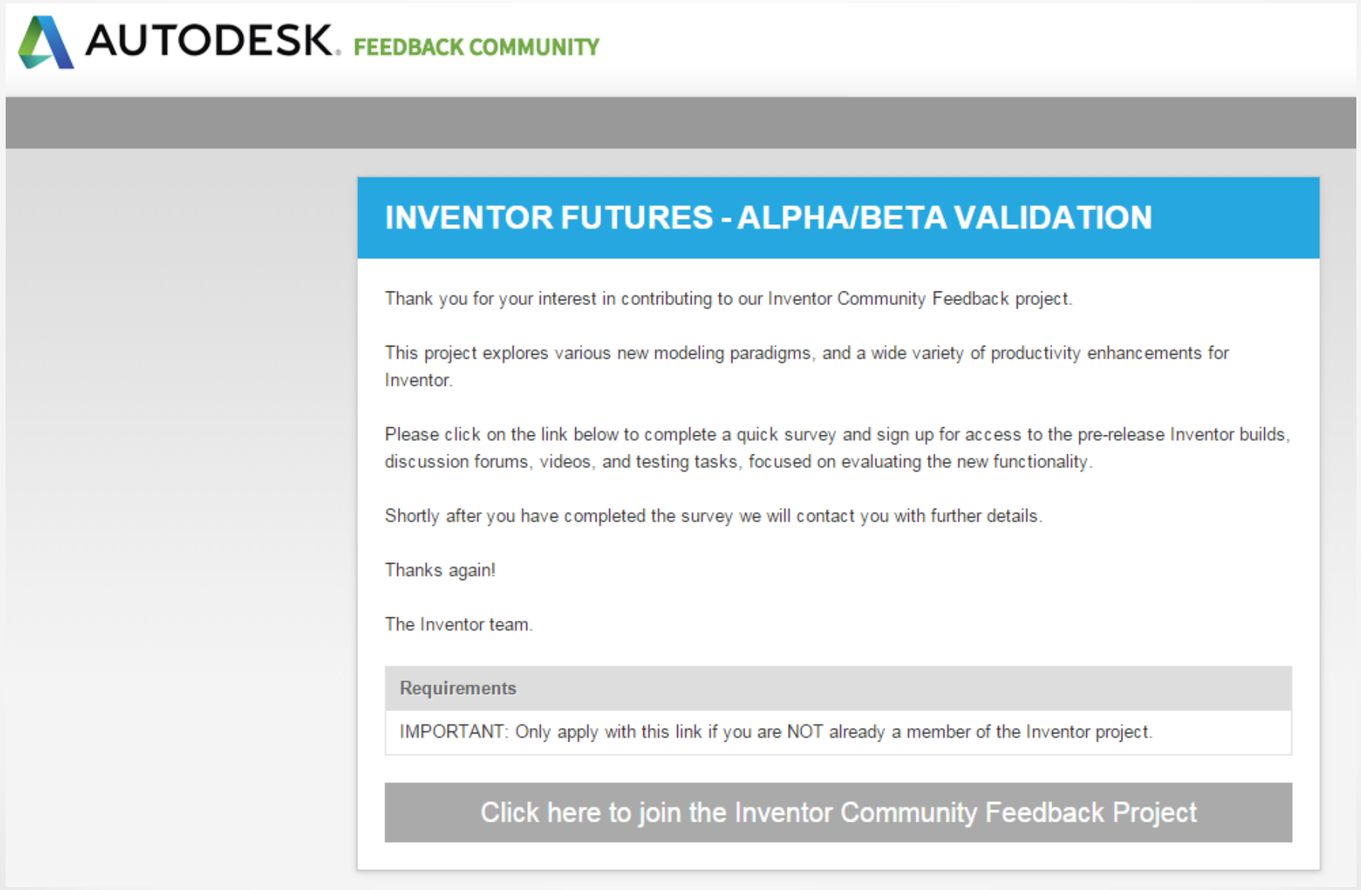
My Next Class

MD6171
Parametric and Free-form Modeling Get Along Very Well
12/3/14 (Wednesday) 4:30 PM - Breakers A, Level 2

Sign up for access to the pre-release Inventor builds

http://bit.ly/InventorBeta



Questions?

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