

EDU[**CAD**]TION **STUDY GUIDE**

How to Edit 3D Parts in CAD Using Parametric Tools

Chapter 1, Lesson 9

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Editing Sketches

- One of the easiest ways to make changes is by editing the original sketch. You'll right-click your sketch in the browser and select '**Edit Sketch**' (see Figure 1.1)
- Additionally, you can also use your timeline. In the bottom left hand corner you'll see the start of your '**Timeline**' (see Figure 1.2). You can also right-click your sketch in the timeline and select '**Edit Sketch**' (see Figure 1.3).
- You'll notice your '**Extrusion Process**' and '**Component**' are greyed out. It essentially rewinds us back to the point in time that we created the sketch.
- This allows us to make changes to our drawings that propagate all the way to 3D.

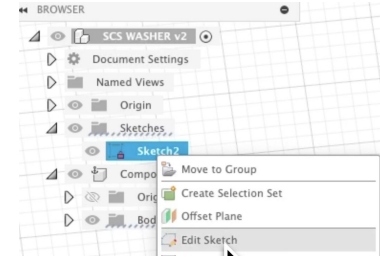


Figure 1.1



Figure 1.2

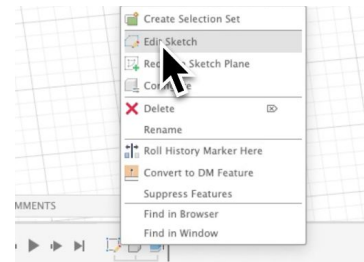


Figure 1.3

Modify Tools in 3D

- If you want to add features such as rounded (fillet) or beveled (chamfer) corners, use the Modify tools. These tools allow you to refine 3D geometry without returning to the original sketch, making edits more efficient and flexible. These are found under the '**Modify**' dropdown in the toolbar (see Figure 1.4).
- **Fillet:** The '**Fillet**' tool rounds corners by applying a radius to selected edges. You'll select '**Fillet**' underneath '**Modify**' and a new window will appear where you can select your radius type (see Figure 1.5). Once the feature is applied, the sharp edge is replaced with a smooth curve, improving both strength and appearance. After you've added a feature, a new step is automatically added to your timeline, allowing you to revisit and edit it at any time.

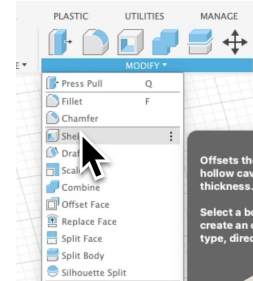


Figure 1.4

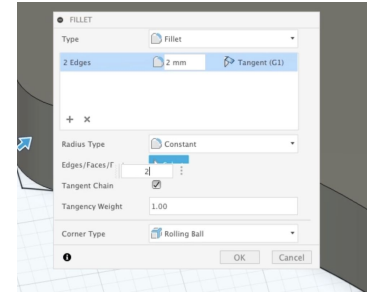


Figure 1.5

Modify Tools Contd.

- **Chamfer:** The '**Chamfer**' tool adds a straight, angled edge instead of a rounded radius. You'll select '**Chamfer**' underneath '**Modify**' and a new window will appear where you can choose the type, such as equal distance, two distances, or distance with an angle, and then enter the values you need. This feature is useful for replacing sharp corners with a beveled edge, giving your part both functional and aesthetic improvements (see Figure 1.6).
- **Shell:** The '**Shell**' tool hollows out a solid body, leaving a uniform wall thickness and essentially creating a pocket. You'll select '**Shell**' underneath '**Modify**' and a new window will appear where you can define the thickness of the walls. Once applied, the tool removes the selected face or faces and offsets the remaining geometry, making it an efficient way to create lightweight, hollowed-out parts (see Figure 1.7).

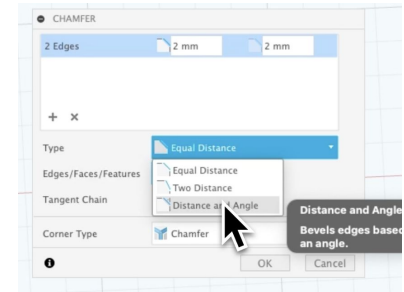


Figure 1.6

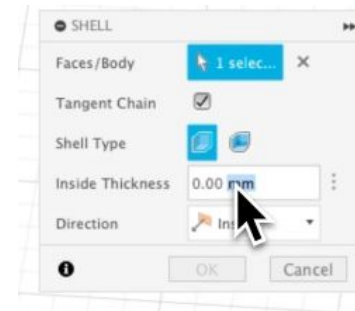


Figure 1.7

Timeline

- The '**Timeline**' at the bottom of the screen records every step (sketches, extrusions, fillets, etc.) (see Figure 1.8).
- Right-click on features to '**Edit Feature**' and change parameters.
- Rewind or fast-forward through steps to troubleshoot broken geometry. This lets you fix mistakes without rebuilding from scratch.

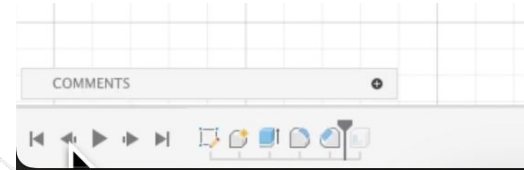


Figure 1.8

Summary

Mistakes are part of the CAD process. By leveraging parametric design, modify tools, and the timeline, you can adapt quickly and save time. This workflow ensures robust models that evolve with your design needs instead of breaking when changes are made.

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