

# IEEE 10/8 CAD AND 3D PRINTING

fusion 360 tutorial

In this tutorial, no numerical values will be provided during the design of your 3d object. If you were to attempt to follow dimensions, you will be wasting time on specifics as opposed to learning how to use this software. Just “eyeball” the object you will be drawing. There are many different ways to achieve the same result in all CAD softwares, but the following instructions should be basic and straightforward.

1) Download Fusion 360, <http://www.autodesk.com/products/fusion-360/overview>

and

Cura - Lulzbot Version (the version from Cura website does not work with our printers) <https://www.lulzbot.com/cura>

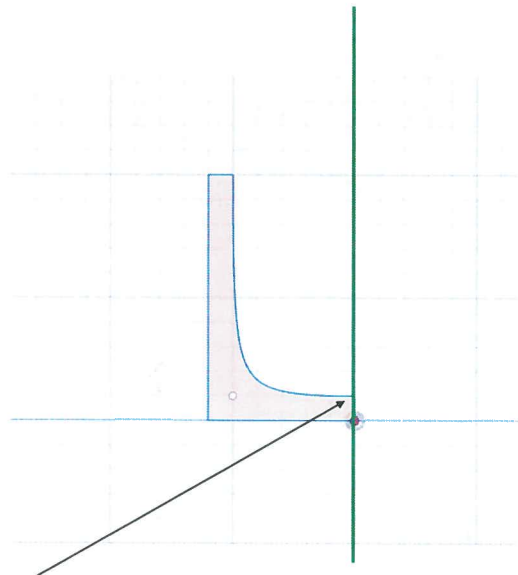
2) Lets create a simple cup.



3) Imagine the cross section of a cup. As if you were cutting slicing the cup in half with a plane.

You will get something like this.

Draw this using the **Sketch** tool. You will need to use straight **lines** and the **conic curve** tools to get the desired lines. Once you have finished, hit **stop sketch** to finish, and your figure should turn orange like this, indicating it is a closed surface. Use the



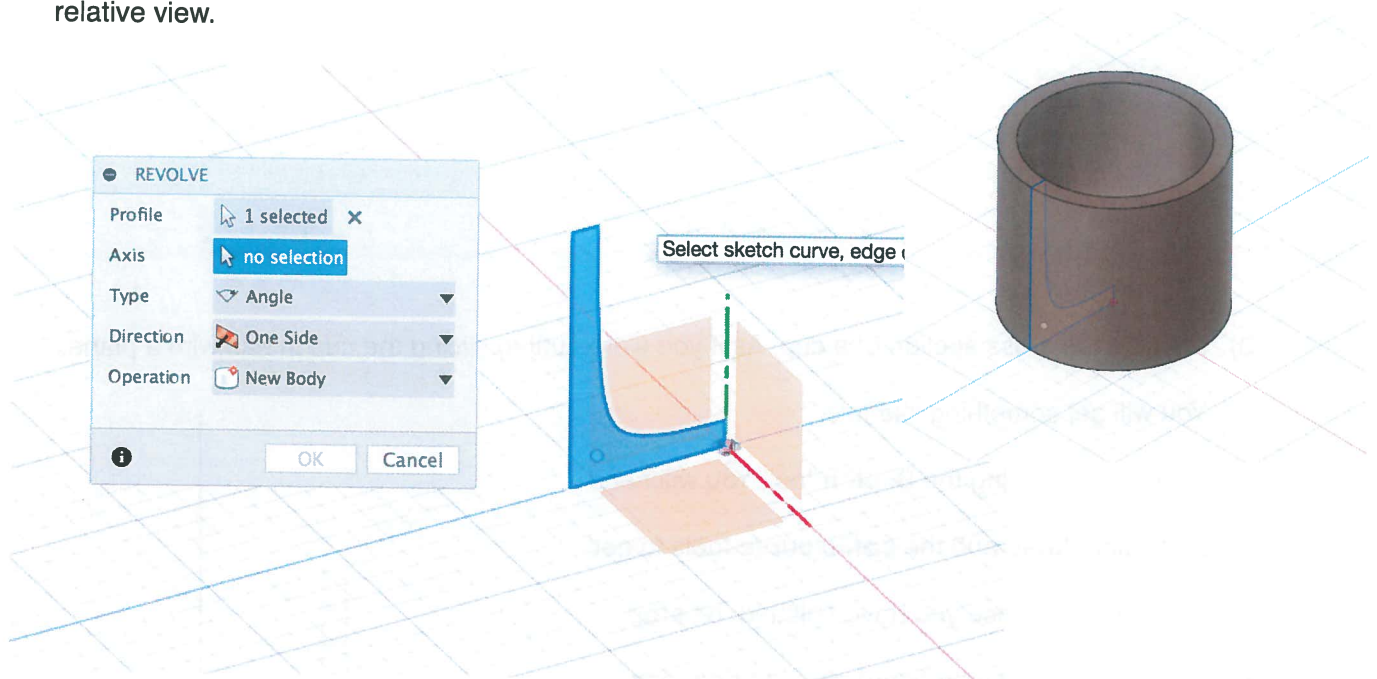
ViewCube (top right) to see this surface from multiple all angles. Try clicking and holding on the cube then dragging.

**\*\*BE SURE TO HAVE THE SMALL VERTICAL END ALIGNED WITH THE GREEN AXIS.  
THIS WILL BE YOUR AXIS OF REVOLUTION IN THE NEXT STEP\*\***

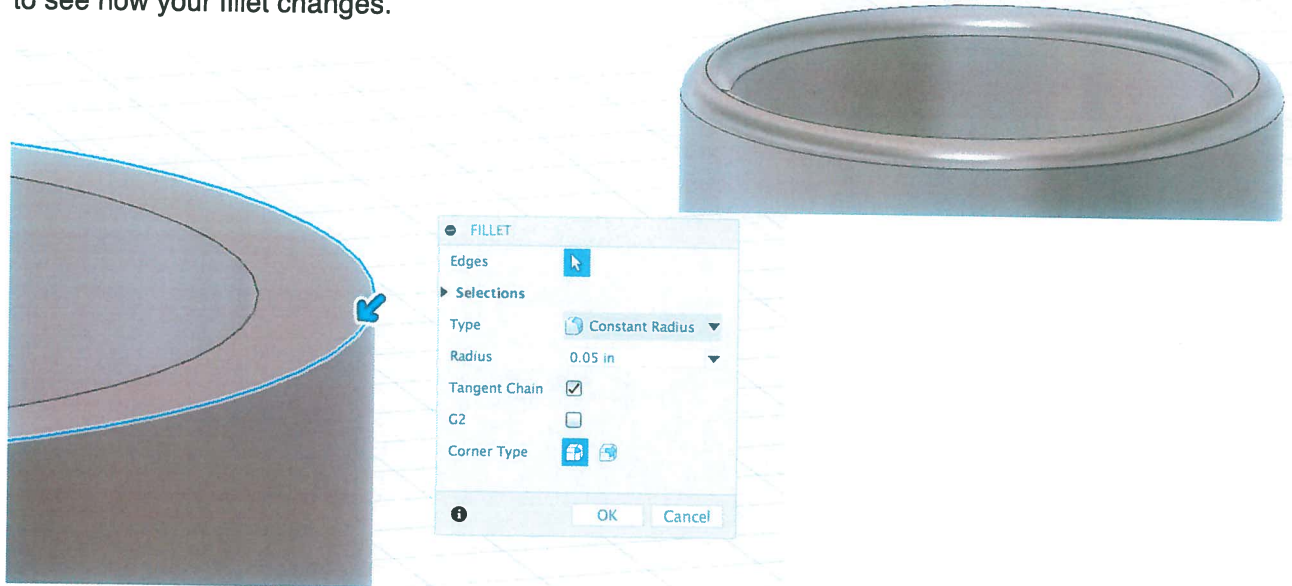
4) The next step is to revolve your surface around the Z axis.

**Create** — — —> **Revolve**. Select your surface as the profile and the green axis as your rotation axis. Once you select the **green** axis, your profile should become a primitive 3D cup.

Use the ViewCube (top right) to see the object from multiple angles. You can hold down the view cube for a Orbit method of viewing the object. The home button will bring you back to a relative view.



5) To make the cup seem a little more realistic, we can round out the sharp right edges on the rim and bottom of the cup. **Modify**----->  
**fillet**. Select an Edge you want to round out, and then pick the value. You can also slide the arrow to see how your fillet changes.



6) CONGRATS, you've completed some simple 3D modeling. If you want to Print this model using a 3-D Printer, you need to export your model to Cura.

Click **Make** in the toolbar, **select** your object, **AND UNcheck** "Send to 3D print utility" and save the file. You can then open that STL file in Cura. Within Cura you can rotate, scale and print your object.

