This example is considered as an intermediate tutorial, with the intent of modeling a Flange.

The tools we are using in the intermediate tutorial will be the creation of a 2D sketch, where we draw a Profile and Centerline and also use the tools “Sketch Fillet” and “Sketch Chamfer”. We will be using the features „Revolved Boss/Base” and “Extruded Cut” and as option in the end we will edit the texture of the model.

We will be working with the unit system IPS, which I already changed in beforehand. Please see the beginner tutorial “Medicine Cap” on how to change the unit system.

We are starting to draw the Profile and Centerline on the right plane. Click on the right plane and use the view “Normal to”.
The centerline is defined with the options “infinite length” and “for construction” and positioned directly on the z-axis.
The profile, positioned above the centerline, will have an L-shape and is drawn at first with its approximate dimensions. By using the tool “smart dimensions” afterwards, the length of all sketched lines can be changed easily. We are setting the dimensions for the long lines to 2” and set the profile thickness to 0.625”. To see a preview of the entered value, you can click the ample sign, which “regenerates the model with the current value”. To apply the value, click the green check button.
To round the corners we will use the tool “Sketch Fillet” with a radius of 0.25”. This radius is then applied to these three corners. The last sketch tool we use is the tool “Sketch Chamfer”. A chamfer cuts a corner and sets an angle. We are applying a chamfer with the dimensions 0.08” to the lower left corner.

After drawing the profile and centerline, we are exiting the current sketch.

Next, we are using the feature “Revolved Boss/Bass”. Select the Sketch in order to revolve the profile around the centerline and you see the 3D model as a preview.

The flange will also have 4 holes, which we will create in the following. Thus, a new sketch needs to be constructed. We are choosing the front plane and switch to the view “Normal to” again. The position of the circle can be changed after creation. Sketch the circle on the y-axis with a radius of 0.25”. This circle can now easily be copied with the tool “Circular sketch”. To apply 4 holes in total around the whole flange, check the values under “step” and set the “Number” to 4 and the “Total angle” to 360°.
Now we can exit the sketch and use the feature “Extruded Cut”. Since we want to make a complete cut, we use the option cut “through all”. Since all circles are in one sketch, the feature “Extruded Cut” will apply to all of them.

As last tool, we are editing the texture of the created flange. Click on “Edit Texture” and choose “Metal – Rough – Cast” and modify the texture properties if desired.

We are at the end of the intermediate tutorial, to continue please have a look in the advanced lessons.