This lesson is designed as a beginner tutorial for Solid Works 2005. We will model a Medicine cap as you can see in the preview. The tools we are using in this tutorial will be the creation of a 2D sketch, the feature „Extruded Boss/Base“, the use of a “Reference Geometry”, where we will create a new plane as well as the features “Fillet” and “Shell”.

As options in the end I will explain how to change the color of the medicine cap, how to change the dimensions after creation and how to use the “Section View”.

Before we start with drawing, we need to change the unit system from metric to IPS (inch, pound, square), since the preset unit is metric. Therefore, we are clicking in “Tools” – “Options” – “Document Properties” – “Units” and change the units to IPS.

Now, we will start to sketch on the top plane and use the view “Normal to”. This view enables us to draw a 2D sketch on the x- and z-axis.

We are using the tool “Circle” and draw a center based circle with a radius close to 0.5”. The exact value of the radius can then be typed in on the left hand side.

After drawing the circle, we are exiting the current sketch, by clicking “Exit Sketch”.

Subsequently, we are using the feature “Extruded Boss/Bass”. The created circle must me highlighted in order to extrude it. The “basic” extrusion is sufficient in this case and we are entering a height of 0.5”.

To round the upper edge we are using the feature “Fillet”. The radius for the fillet will be 0.1” and we are choosing the corner by clicking into the model.

To create an opening as well as a shell for the cap, we will use the feature “Shell”. The thickness we are selecting for the wall is 0.02”. To open the geometry, we need to select the face for the opening, which in this case is the bottom.

Now, we are ready to create the side tab of the cap. Therefore, we create a new “Reference geometry - Plane”. By marking the front plane and then choosing the “New Plane Tool”, we will automatically construct a parallel plane to the Front Plane. The distance between the front plane and the new plane depends on the length of the tab and the already chosen radius of the circle.

To model a tab with a length of 0.15”, the distance between the planes consequently needs to be 0.5 in, the radius of the circle, and the tab length of 0.15”, which adds up to 0.65”.

On this new plane, we are sketching a rectangle with the dimensions 0.3”x 0.07”. The sketch can again be edited after its creation and so can be drawn about that size. By clicking on the left upper corner point, we can define the coordinates. The x-value in this case will be -0.15 and the y-value will be 0.07. We repeat this action for the lower right corner point, and change the parameters to x=0.15 and y=0. Now, we can exit this sketch again.

Afterwards, we extrude this rectangle by using the feature “Extruded Boss/Base” again. The direction of extrusion needs to point towards the created shell and by choosing the option “Up to next” we are able to adapt the tab to the shape of the shell.

Following, we are using the feature “Fillet” again. We are rounding the corners of the tab with a radius of 0.1” and apply the fillet by selecting the corners.
With this action we are done with the creation of a medicine cap.

For changing the color of an object, we mark the whole or also only a certain part of a model and then click the tool “Colors”. This option allows us also to apply transparency to the object. We are choosing any color and transparency and apply the feature.

For every created object, the dimensions can be changed afterwards. If we, for example, want to change the height of the cap, we need to edit the feature “Extruded Boss/Boss”. Right click on the part that needs to be changed allows us to enter the feature or sketch again. We click right on “Extrude1” and change the height to e.g. 0.8”.

To see the cap in its profile, we can mark the front plane and by clicking on “Section view” see the inside shape of the cap.

This is the end of the beginner tutorial and I thank you for listening.