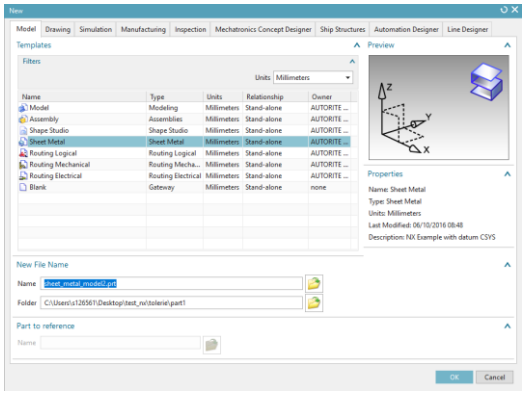
Using Siemens NX 11 Software

Sheet Metal Design - Hexagon

Based on a YouTube NX tutorial[1].

1 – Introduction.

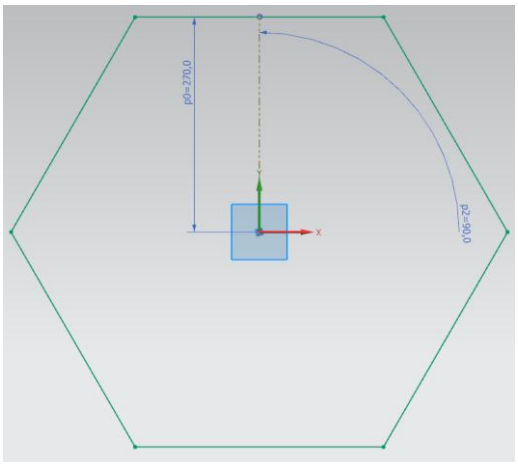
Start NX 11 and create a new *Sheet Metal* model called hexagon.*prt*.



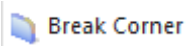
2 – Adding a solid sheet.

- Create a new hexagon in sketch mode in the XY-plane. The hexagon should be centred at the origin with an inradius of **270 mm**.
- Use the *Tab* button 

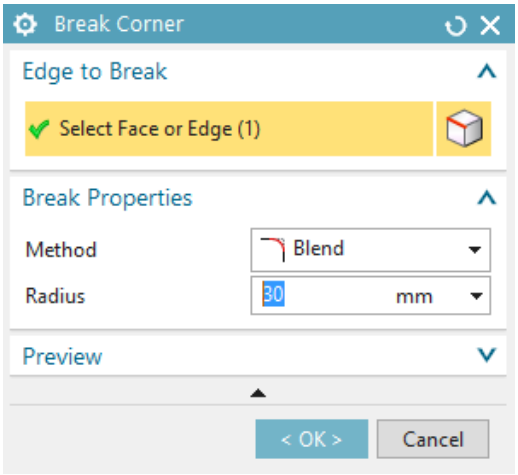
for creating a first hexagonal metal sheet.

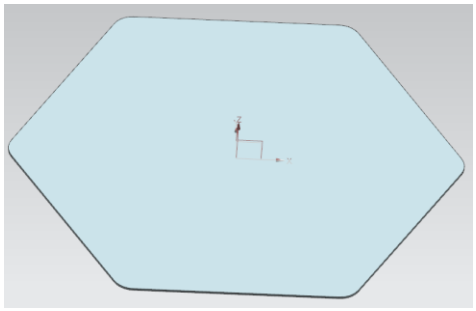


3 – Breaking corners.

- Click on the *Break Corner* button 

.
- Select the sketch and use the *Blend* method with a radius of **30 mm**.





[1] *https://www.youtube.com/watch?v=pVY5mYRJ1ZU*

4 – Adding dimples.

- In the XY-plane, sketch a new hexagon centred at the origin and of side length **200 mm**.
- Exit the sketch and click the *Dimple* button 

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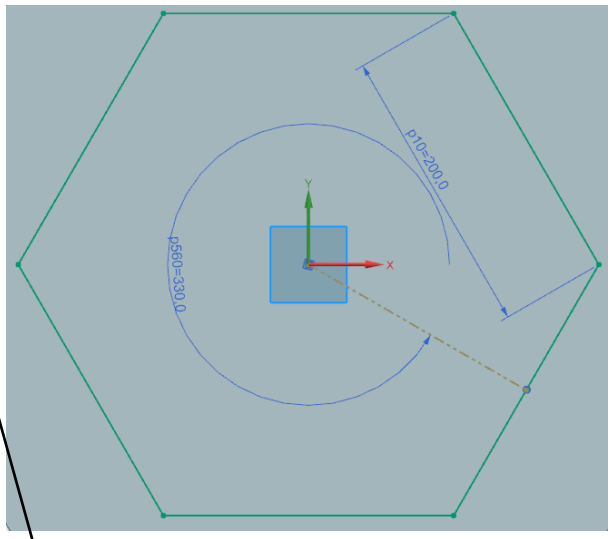
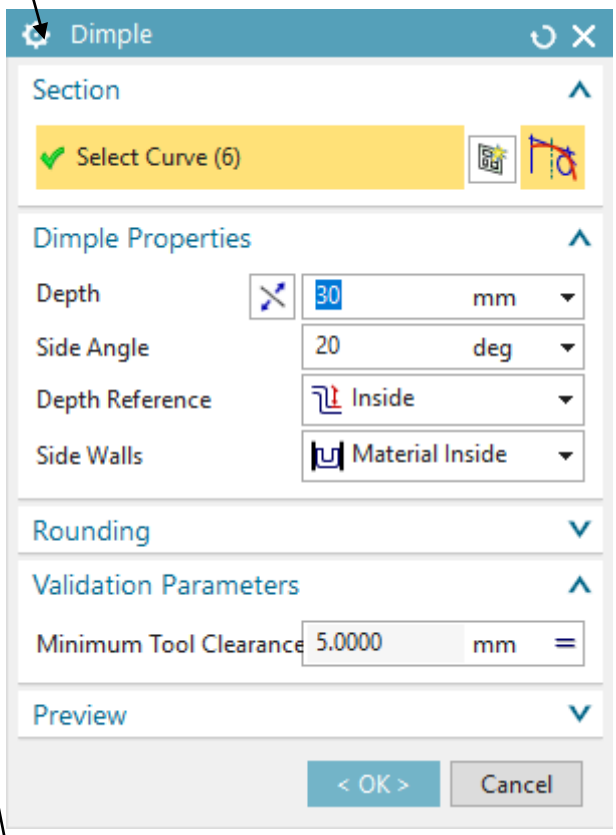
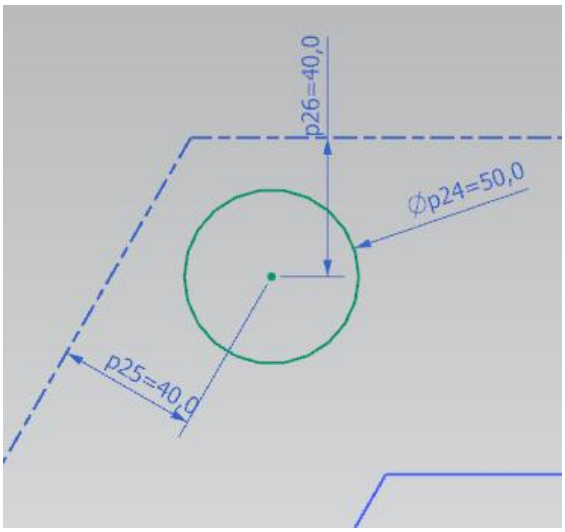
- Set the *Dimple* parameters as shown.

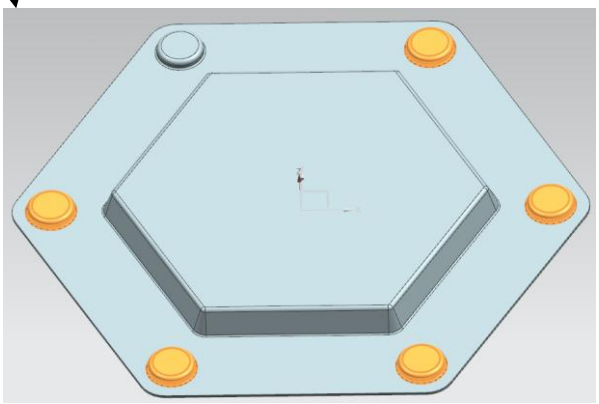
- Inside one of the corners of the external hexagon, draw a circle of **50 mm** in diameters and located at **40 mm** from the edges of the external hexagon.
- Exit the sketch and apply to this circle a dimple of **10 mm** depth, with a side angle of **0 degree** and a *Depth Reference* set to *Inside*.

- Use a *Circular Pattern Feature* to repeat this circular dimple to all the corners of the external hexagon. (You will have to select the dimple and its corresponding sketch).

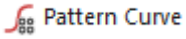


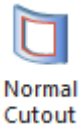






5 – Adding cutouts.

- In the horizontal face of one the circular dimples, draw a smaller circle of same centre as the dimple's circle and of **20 mm** in diameter.
- Use the *Pattern Curve* button 

to draw five other small circle on the five other circular dimples.
- Exit sketch mode and click on the *Normal Cutout* button 

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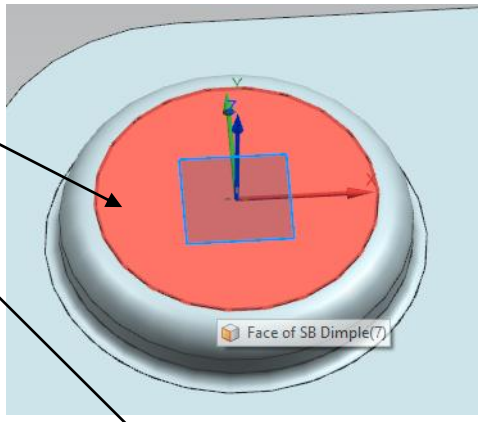
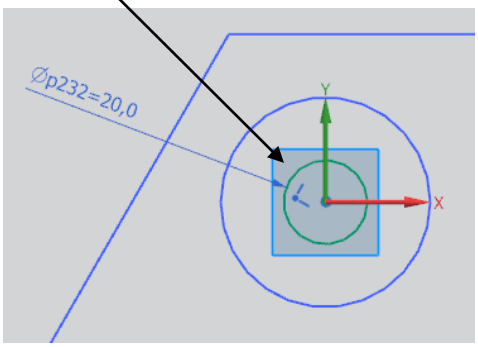
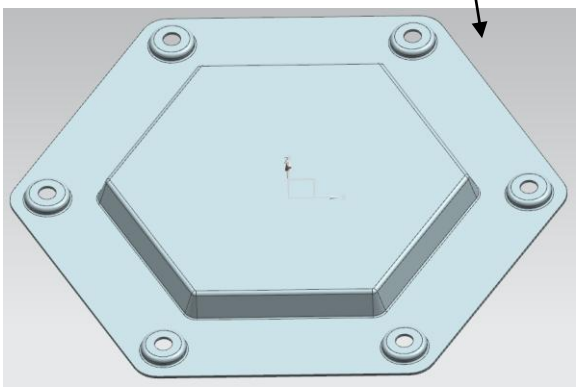
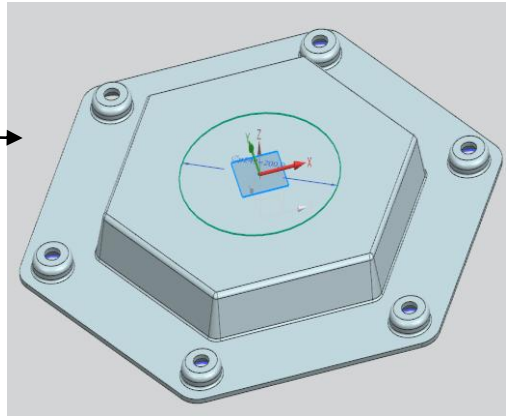
- Select the six small circles you just draw and drill six circular holes.

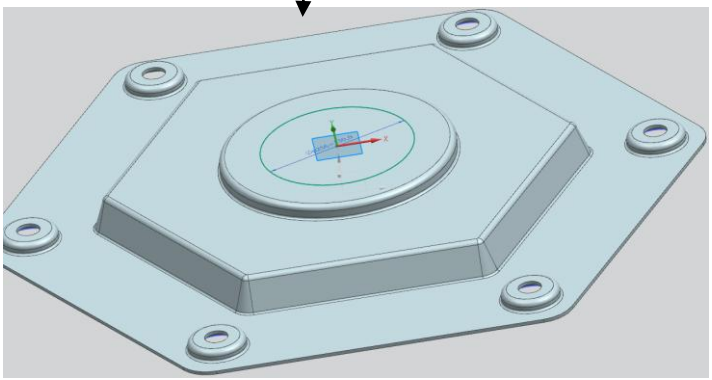






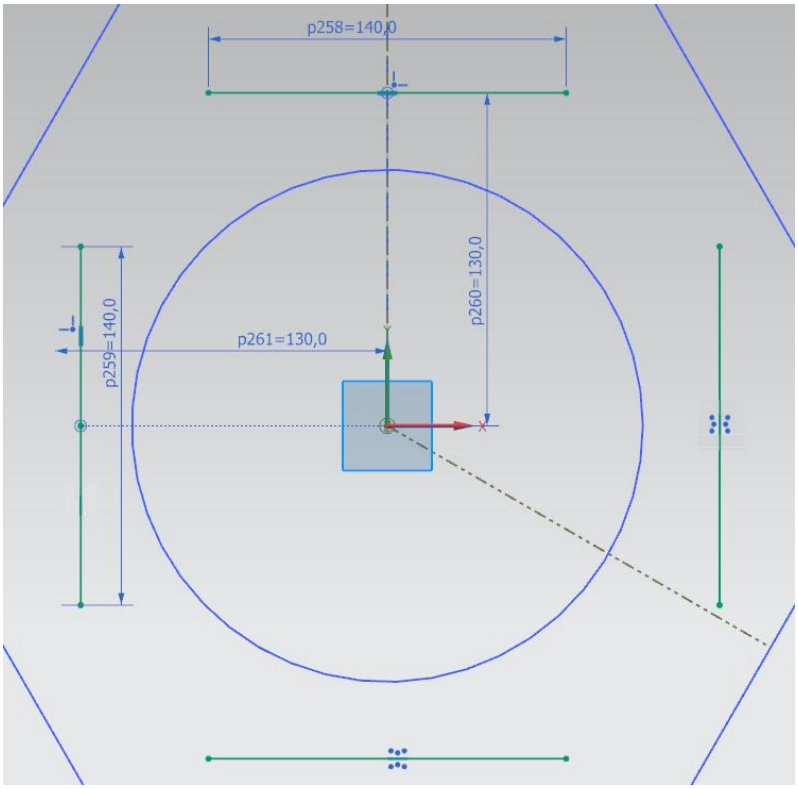
- On the horizontal plane **Pc** of the central dimple, draw a centred circle of **100 mm** in radius and apply a dimple of **10 mm** depth and **0 degree** side angle on it.
- Draw a second circle of **130 mm** in diameter on the top of this new dimple and apply a cutout to it.

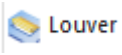




6 – Adding louvers.

- In the horizontal plane **Pc**, draw four straight lines of **140 mm** in length and located **130 mm** for the origin, as shown in figure.



- Exit from sketch mode and click the *Louver* button 

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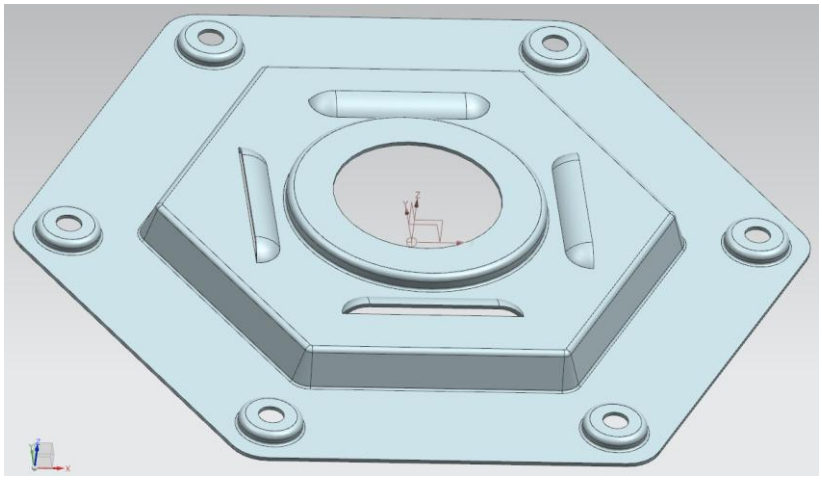
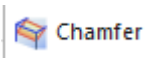
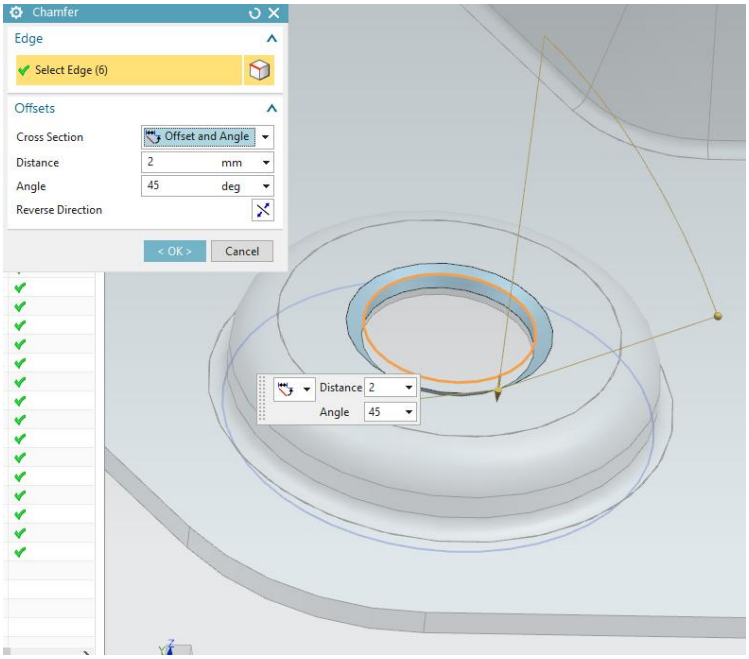
- In the *Louver* dialog box, select one of the four lines you just draw. Use a depth of **10 mm**, a width of **20 mm** and a *Formed Louver Shape*. Orient it towards the outside.
- Repeat the above step for the three other lines/louvers.



7 – Adding chamfers.

- Using the *Chamfer* button 

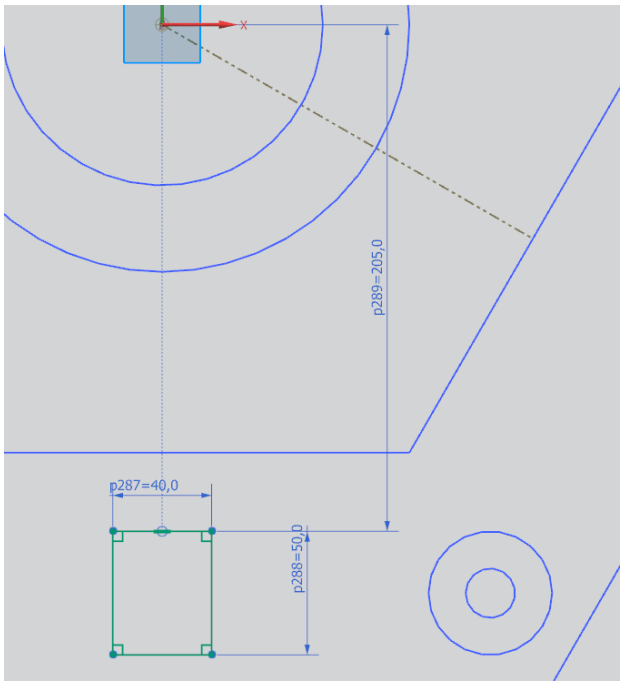
, chamfer the upper part of each of the six small holes located on the corners of the external hexagon.
- Use a chamfer distance of **2 mm** and an angle of **45 degrees**.

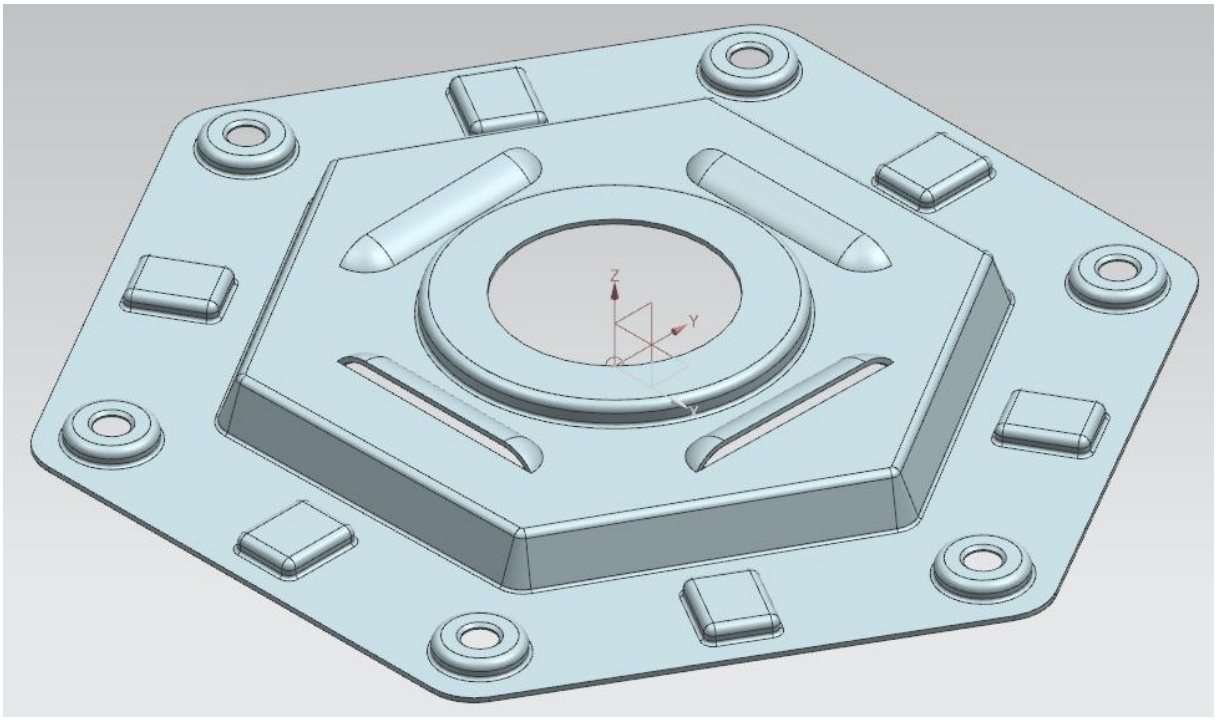


8 – Last dimples.

- In the XY-plane, draw a rectangle of x-width = **40 mm** and y-length = **50 mm**. as shown in the figure.
- This rectangle is symmetric with respect to the Y-axis and is located at **205 mm** from the origin.

- Exit the sketch mode and apply to the rectangle a dimple of **10 mm** depth and a **0 degree** angle.
- Finally, pattern this last dimple in order to obtain the part shown at the next page.

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