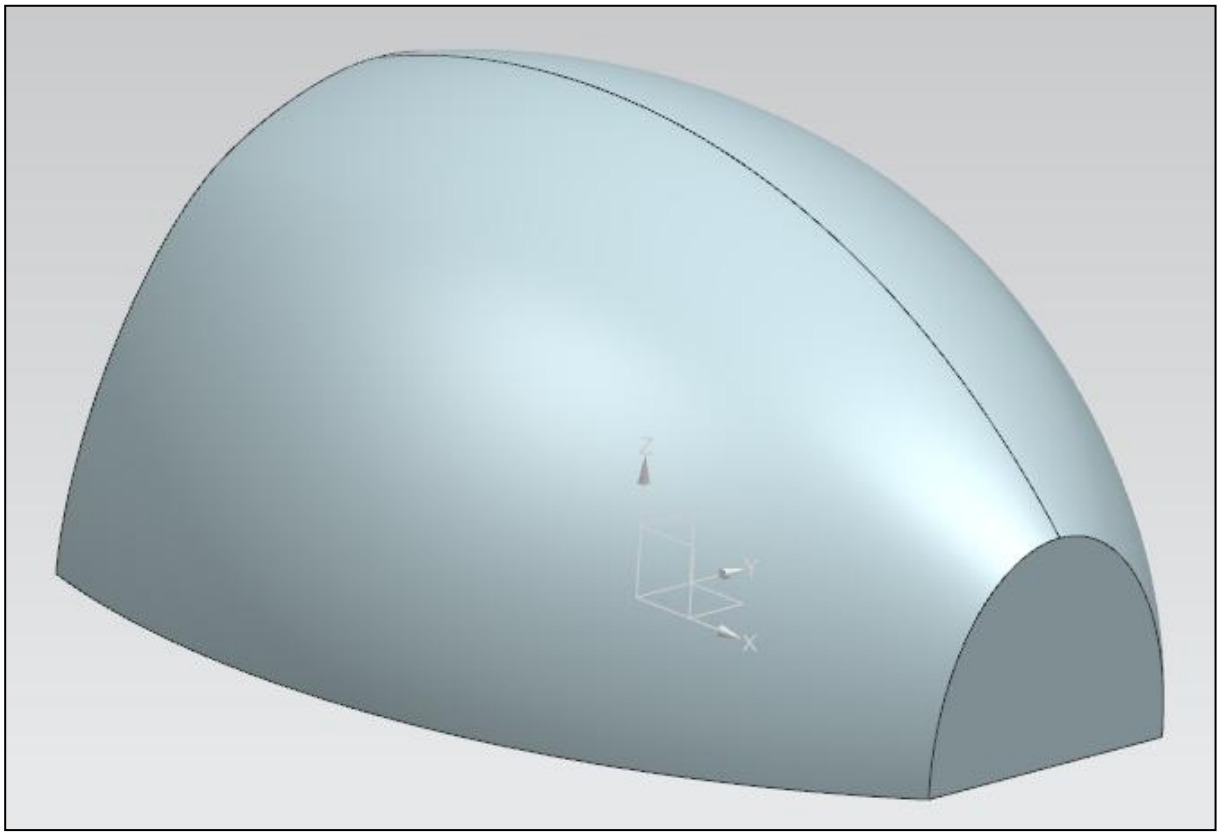
Using Siemens NX 11 Software

Surface Design - Cockpit

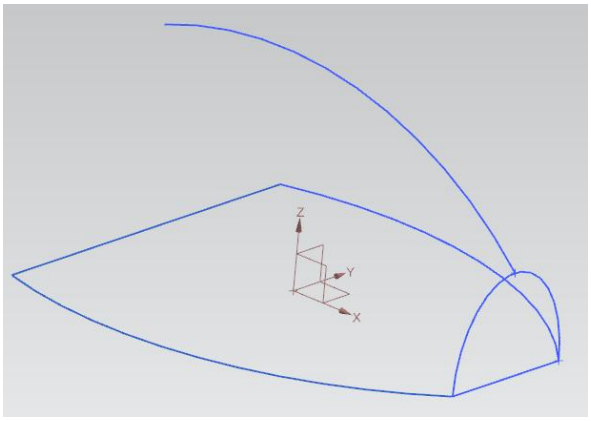
Based on a YouTube NX tutorial[1].



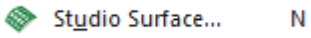
[1] *https://www.youtube.com/watch?v=dejTCzLt0k8*

1 – Introduction.

- **Copy**/paste the *C:\Commun\NX\cockpit.prt* file into your local folder and open it.
- This file consists in a wireframe design by six curves of a cockpit.



2.a – First surface.

- Insert a *Studio Surface* by clicking on *Menu →Insert →Mesh Surface →Studio Surface* 

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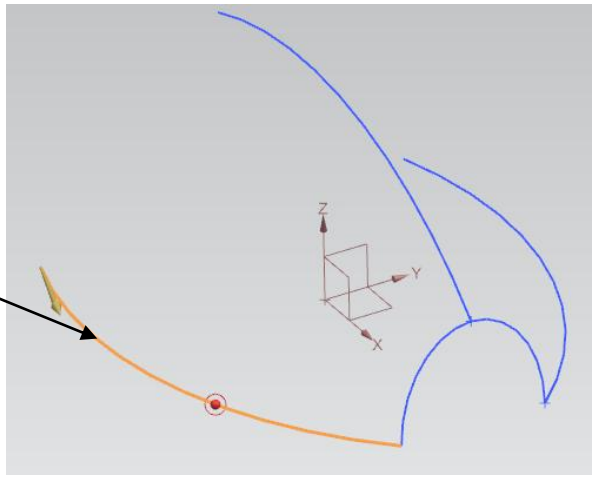
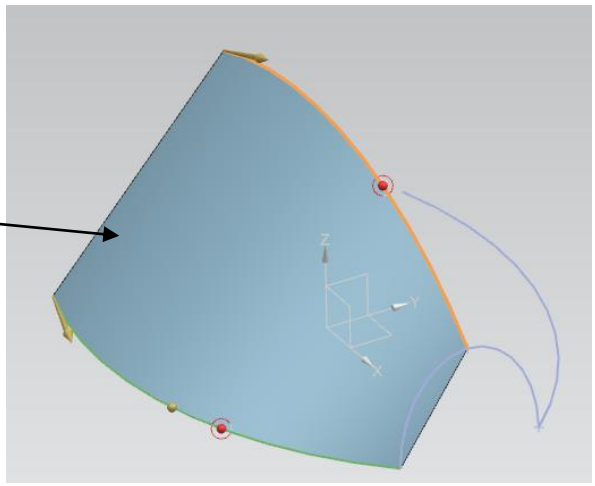
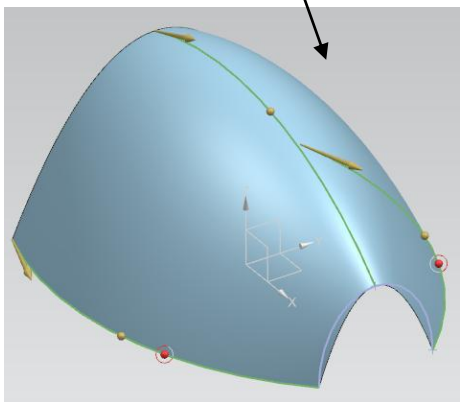
- Select as first section curve, the left curve lying in the XY-plane.
- Then, click on the *Add New set* button  of the *Section (Primary) Curves* field.



- Select as second section the curve lying in the XZ-plane.
- Check that the direction arrow has the same orientation as the one of the first selected curve. If not, double-click on the arrow in order to reverse its direction.
- You should get the shown surface.

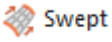


- Click on the *Add New Set* button  , and add the last section curve; which is the symmetric of the first one w.r.t the x-axis.



- Select as *Guide (Cross) Curve* the front curve parallel to the YZ-plane (the half-ellipse), and click *OK*.
- This will make the surface follows the front curve.

2.b – Other surface.

- Try to obtain a similar result as above using a *Swept Surface* 

, which button is located under the *Surface* button 

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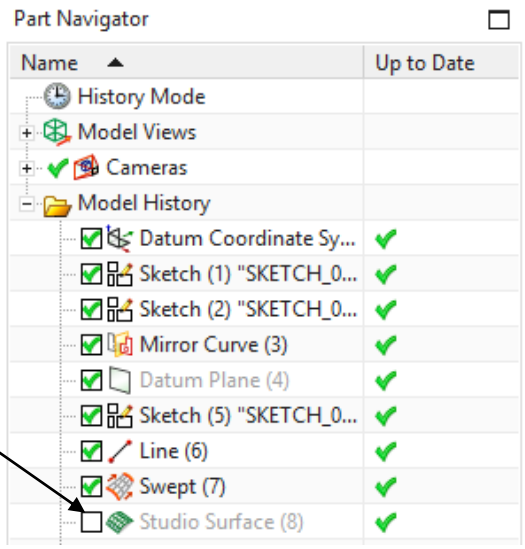
- What is the difference between the *Studio* surface and the *Swept* surface?

Answer:

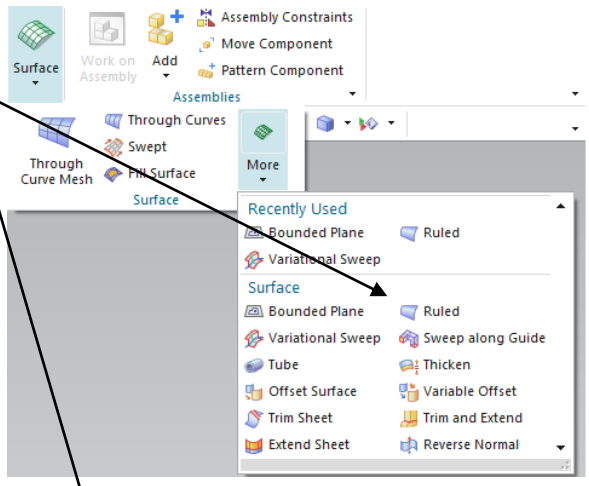
The *Studio* surface designs spline surfaces, while *Swept* surface designs (swept) NURBS surfaces.
Here, the back section w.r.t the YZ plane of the *Studio* surface is a parabola (spline through three points), while the corresponding section of the *Swept* surface is a half-ellipse.

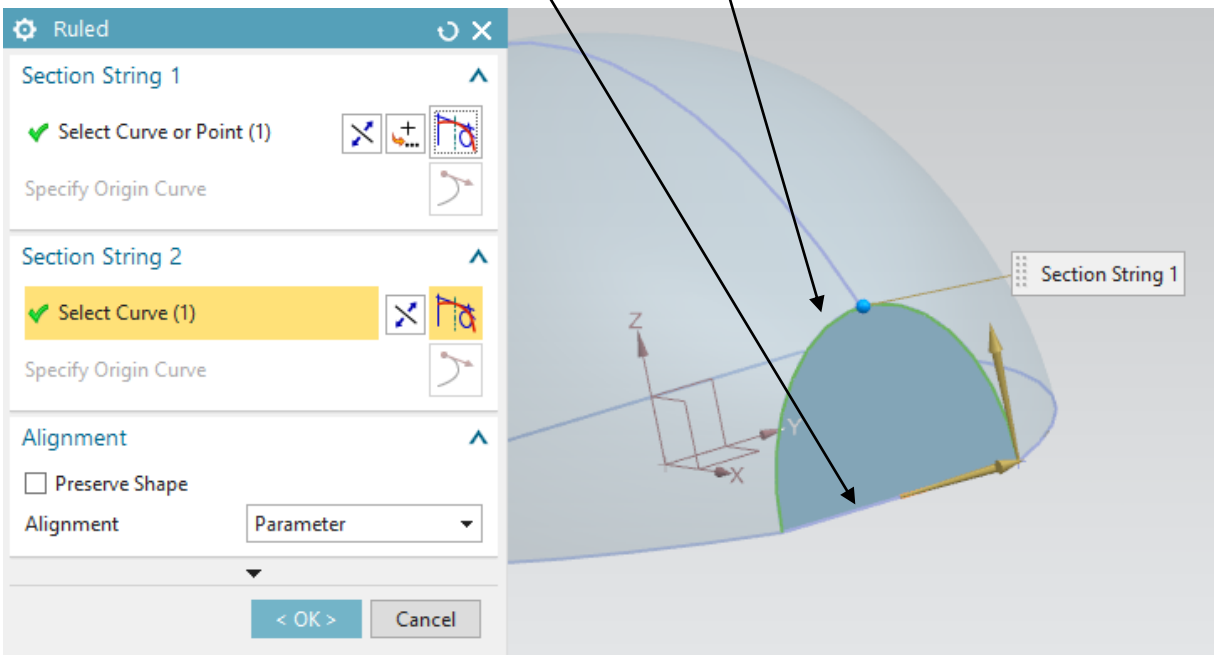
3 – Closing the cockpit.

- Deactivate the *Studio Surface* by un-checking its check button in the *Part Navigator*.

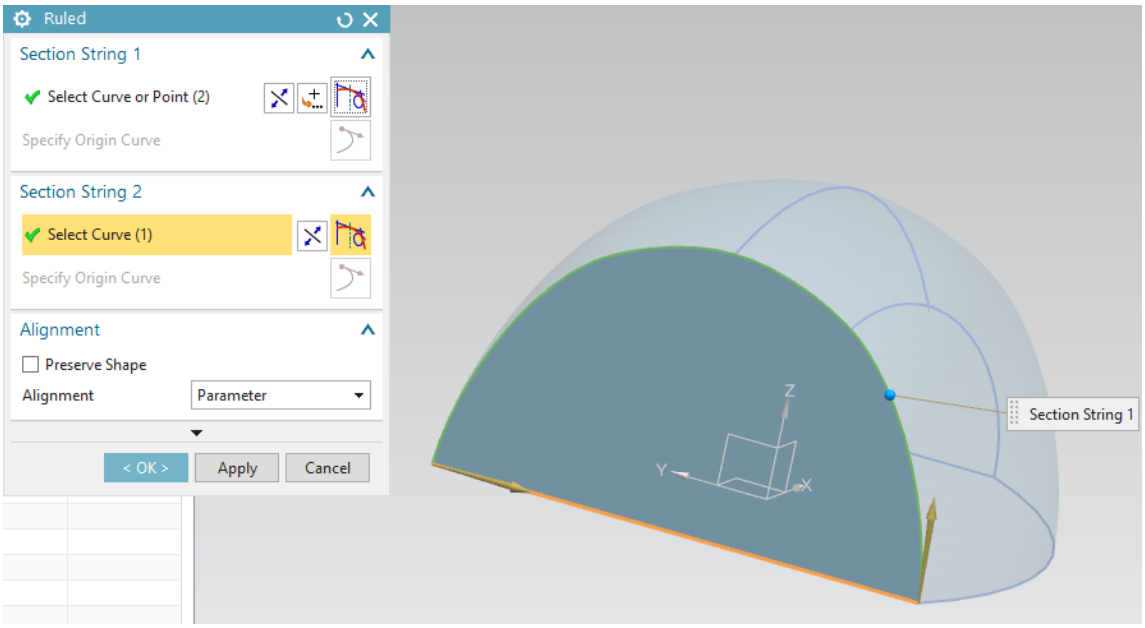


- By using the *Ruled* button close the front half-ellipse.
- Select as *Section String 1* the front half-ellipse and as *Section String 2* the horizontal line closing it.





- In the same fashion, close the opposite half-ellipsoid w.r.t. the YZ-plane.



- Finally, close the cockpit bottom using the *Through Curve Mesh* button

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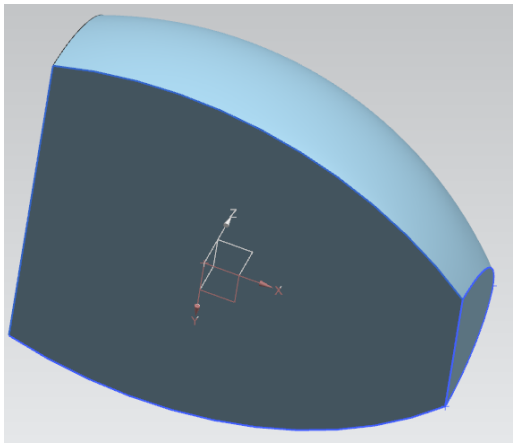

4 – Adding a thickness.

- Transform the closed surface into a solid shell of **2 mm** thickness using the *Thicken* button.