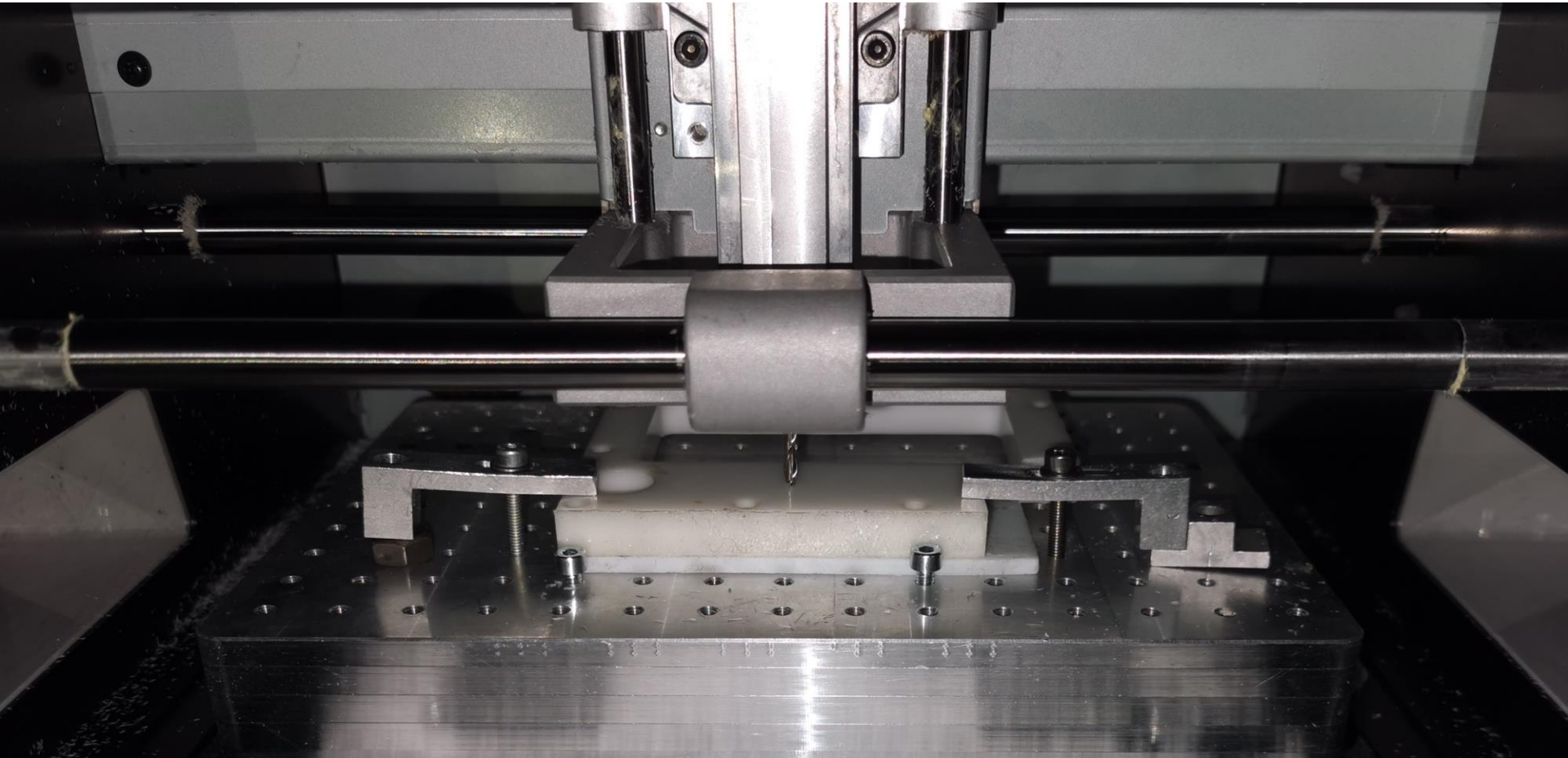


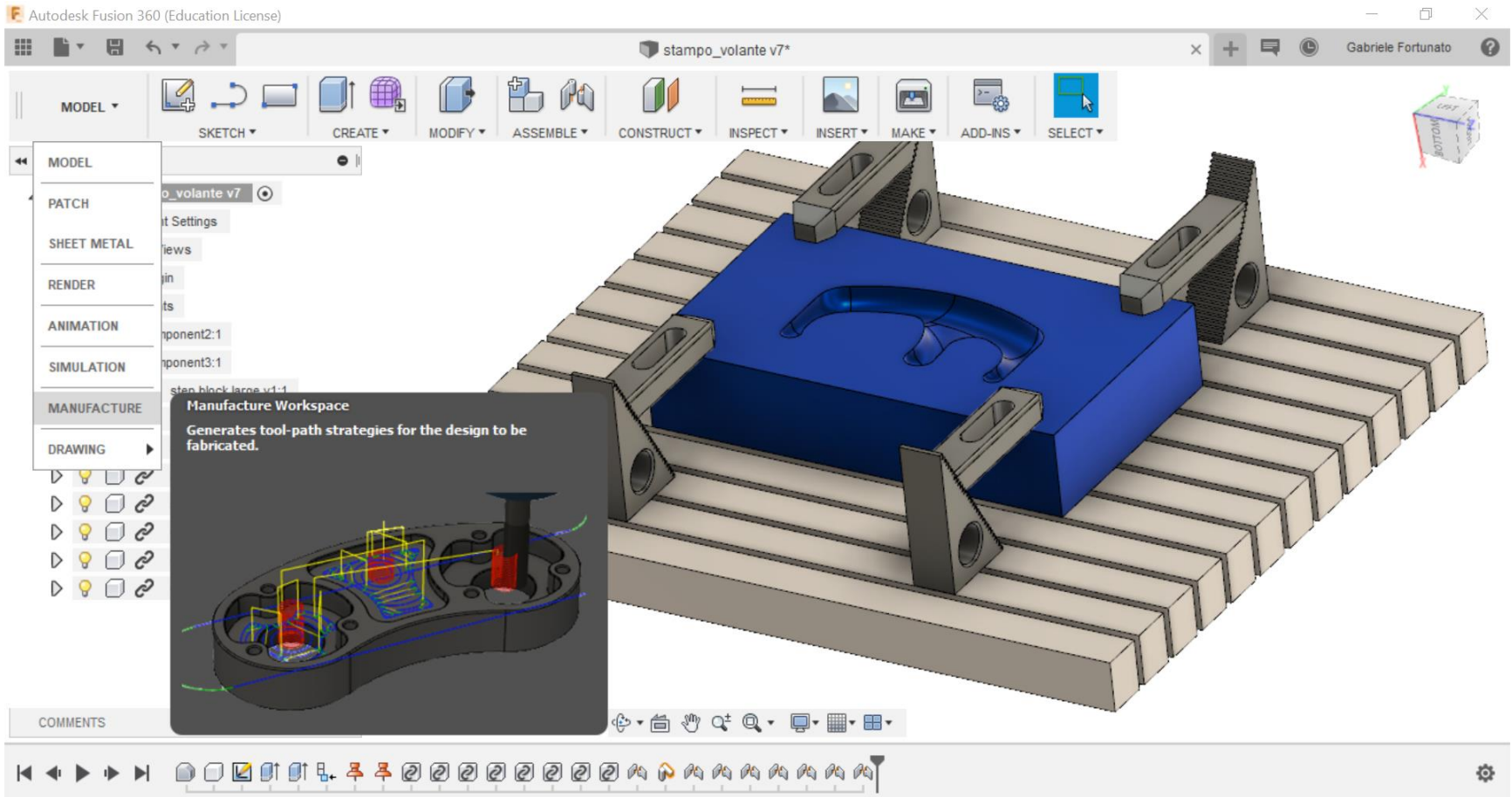
Computer Aided Manufacturing

Autodesk® Fusion 360

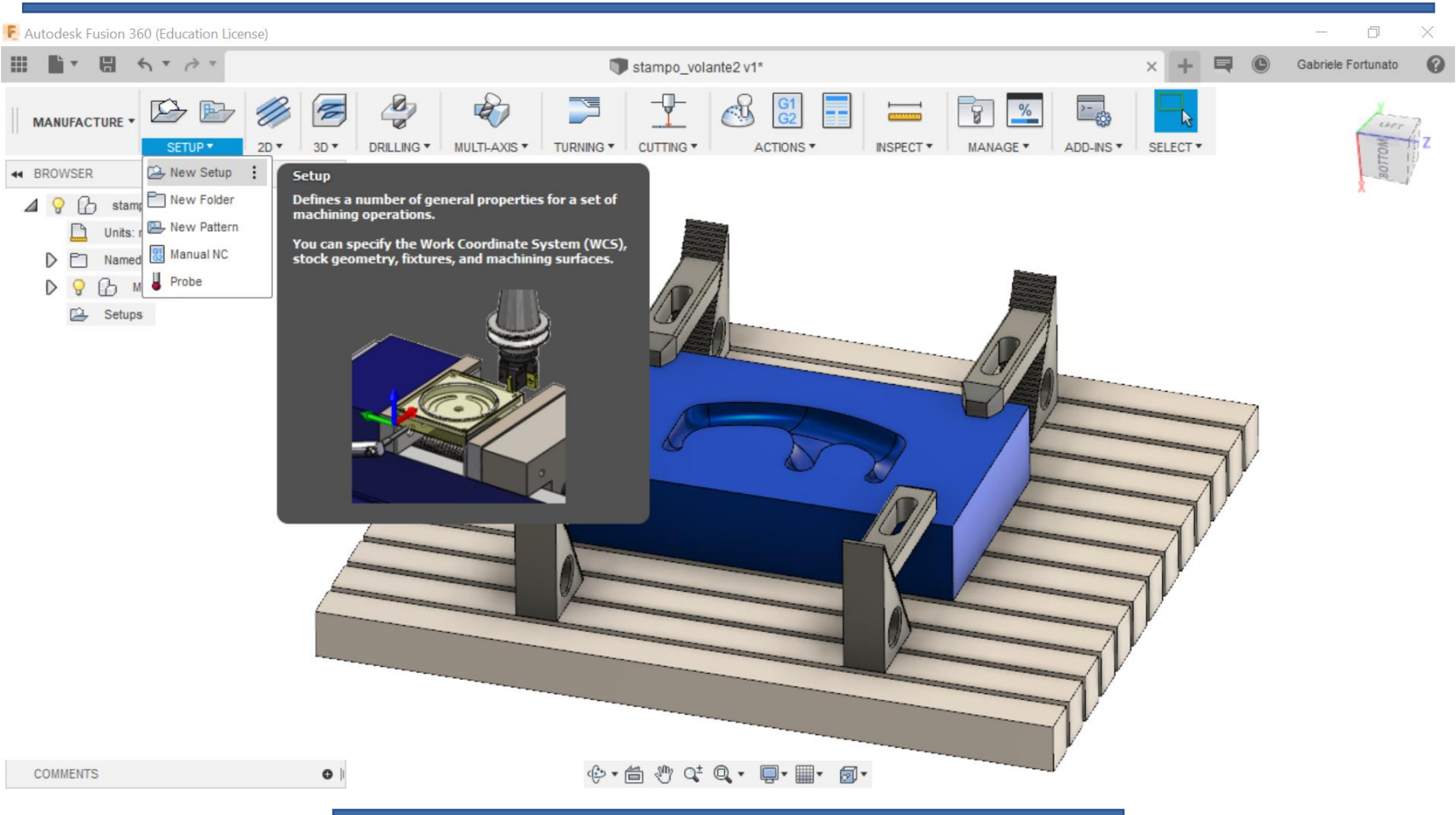


Example 1

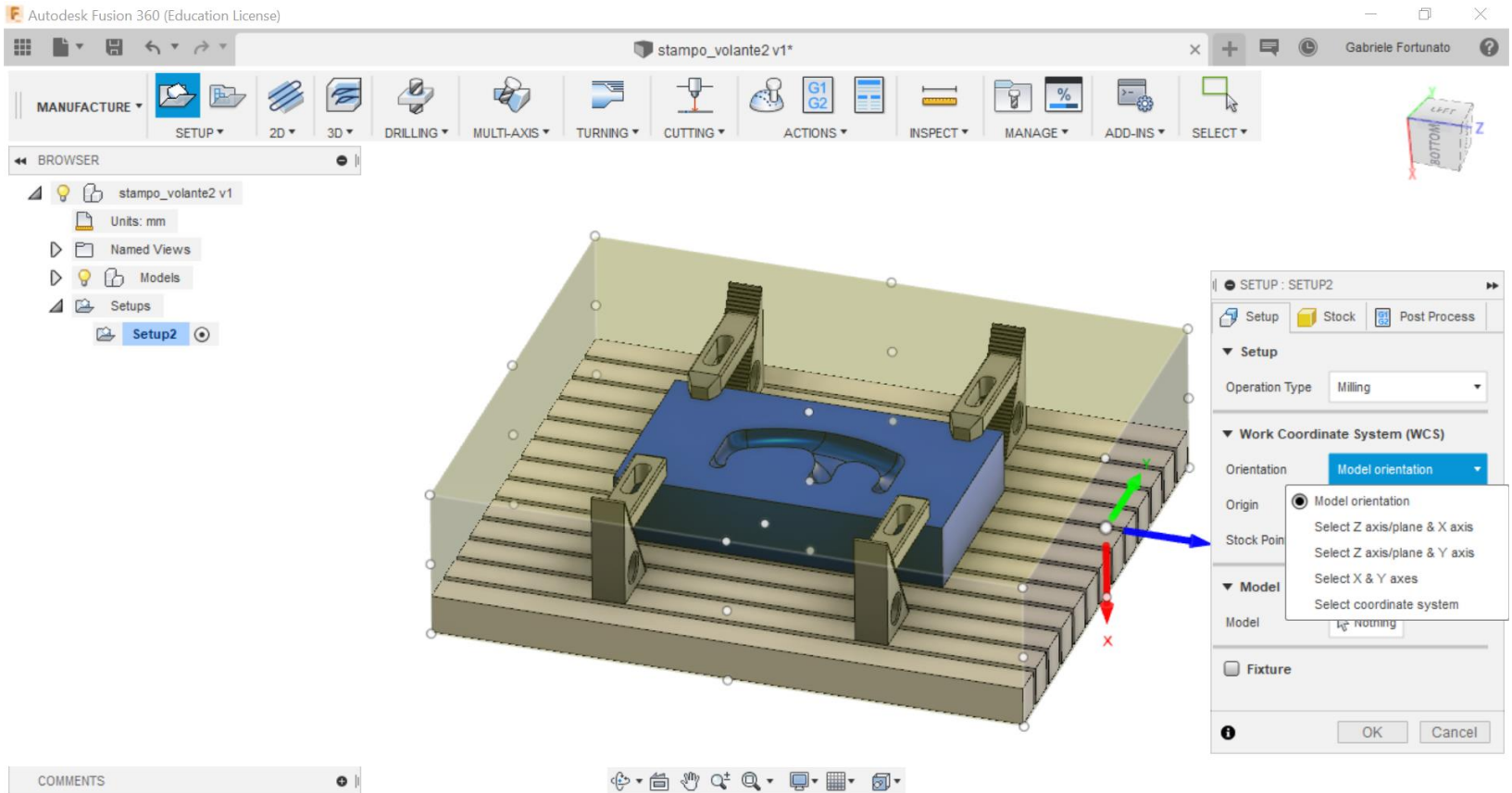
Open Manufacture



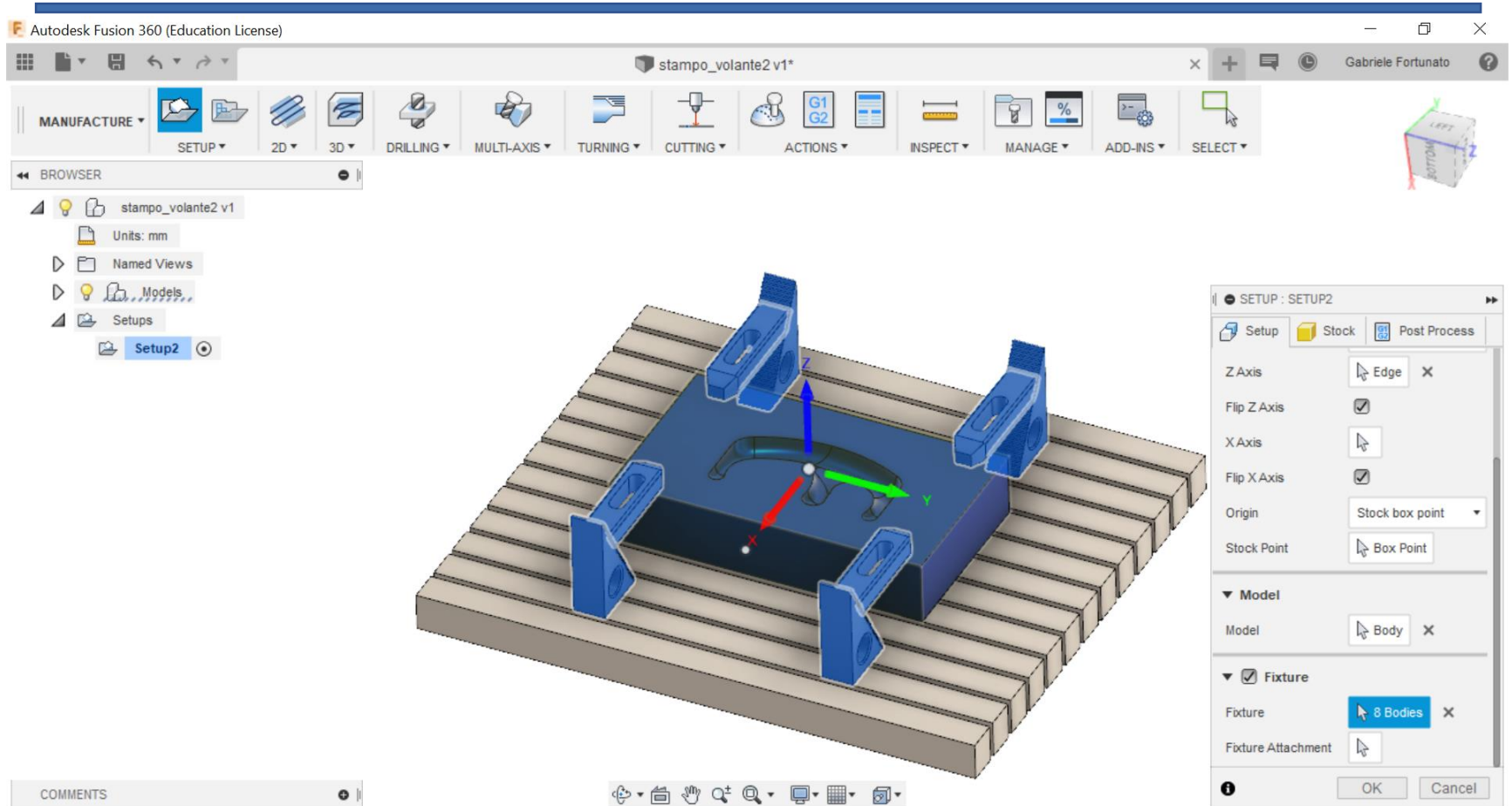
Create a new setup



Define model, coordinate system, fixtures and stock dimensions



Define model, coordinate system, fixtures and stock dimensions



3D Adaptive Clearing

Autodesk Fusion 360 (Education License)

stampo_volante2 v1*

MANUFACTURE SETUP 2D 3D DRILLING MULTI-AXIS TURNING CUTTING ACTIONS INSPECT MANAGE ADD-INS SELECT

BROWSER

- stampo_volante2 v1
 - Units: mm
 - Named Views
 - Models
 - Setup2

Adaptive Clearing

A roughing strategy available for clearing large quantities of material effectively. It is unique in that it guarantees a maximum tool load at all stages of the machining cycle, and makes it possible to cut deep and with the flank of the tool without risk of breakage.

The strategy first makes a series of constant Z-layers through the part, and then clears them in stages from the bottom upwards. Because it can cut so deeply, the first step down at each stage should be the effective cutting length of the tool. Then clearing of the intermediate layers proceeds into the shallower layers to maximize the efficiency of the tool use.

COMMENTS

Select tool

Autodesk Fusion 360 (Education License) - stampo_volante2 v1*

Select Tool

Operation Type Dimensions Search

Libraries	Name	Cutting diameter	Corner radius	Overall
✓ All				
✓ Documents				
> stampo_volant...				
✓ Local				
✓ Library				
✓ Vendors				
> Albrecht				
> MariTool				
> Renishaw				
> Tormach				
✓ Samples				
✓ Holders - Stand...				
✓ Inch - Aluminum				
✓ Inch - Brass				
✓ Inch - Bronze				
✓ Inch - Copper				
✓ Inch - High Car...				
✓ Inch - Low Carb...				
✓ Inch - Plastics				
✓ Inch - Stainless ...				
✓ Inch - Titanium				
✓ Metric - Alumin...				
✓ Metric - Brass				
✓ Metric - Bronze				
✓ Metric - Copper				

Samples/Metric - Aluminum

Name	Cutting diameter	Corner radius
Ø0.15 mm 118° - drill	0.150 mm	0 mm
Ø0.16 mm 118° - drill	0.160 mm	0 mm
Ø0.17 mm 118° - drill	0.170 mm	0 mm
Ø0.18 mm 118° - drill	0.180 mm	0 mm
Ø0.19 mm 118° - drill	0.190 mm	0 mm
Ø0.2 mm 118° - drill	0.200 mm	0 mm
Ø0.22 mm 118° - drill	0.220 mm	0 mm
Ø0.25 mm 118° - drill	0.250 mm	0 mm
Ø0.28 mm 118° - drill	0.280 mm	0 mm
Ø0.3 mm 118° - drill	0.300 mm	0 mm
Ø0.32 mm 118° - drill	0.320 mm	0 mm
Ø0.35 mm 118° - drill	0.350 mm	0 mm
Ø0.38 mm 118° - drill	0.380 mm	0 mm
Ø0.4 mm 118° - drill	0.400 mm	0 mm
Ø0.42 mm 118° - drill	0.420 mm	0 mm
Ø0.45 mm 118° - drill	0.450 mm	0 mm
Ø0.48 mm 118° - drill	0.480 mm	0 mm
Ø0.5 mm 118° - drill	0.500 mm	0 mm
Ø0.55 mm 118° - drill	0.550 mm	0 mm

OK Cancel

ADAPTIVE : ADAPTIVE2

Tool: Select...

Coolant: Flood

Feed & Speed

Spindle Speed: 5000 rpm

Surface Speed: 157.08 m/min

Ramp Spindle Speed: 5000 rpm

Cutting Feedrate: 1000 mm/min

Feed per Tooth: 0.0666667 mm

Lead-In Feedrate: 1000 mm/min

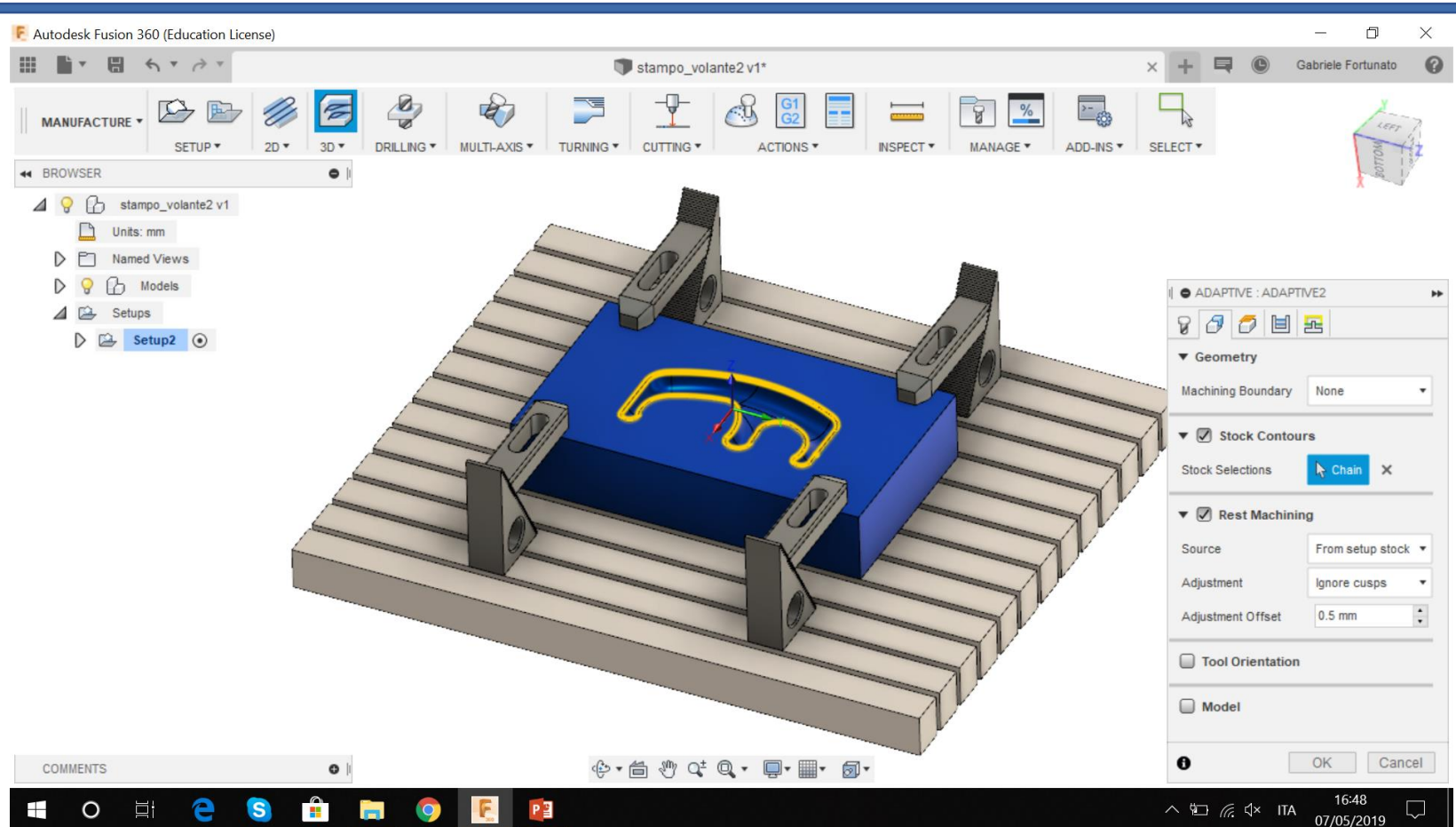
Lead-Out Feedrate: 1000 mm/min

Ramp Feedrate: 333.333 mm/min

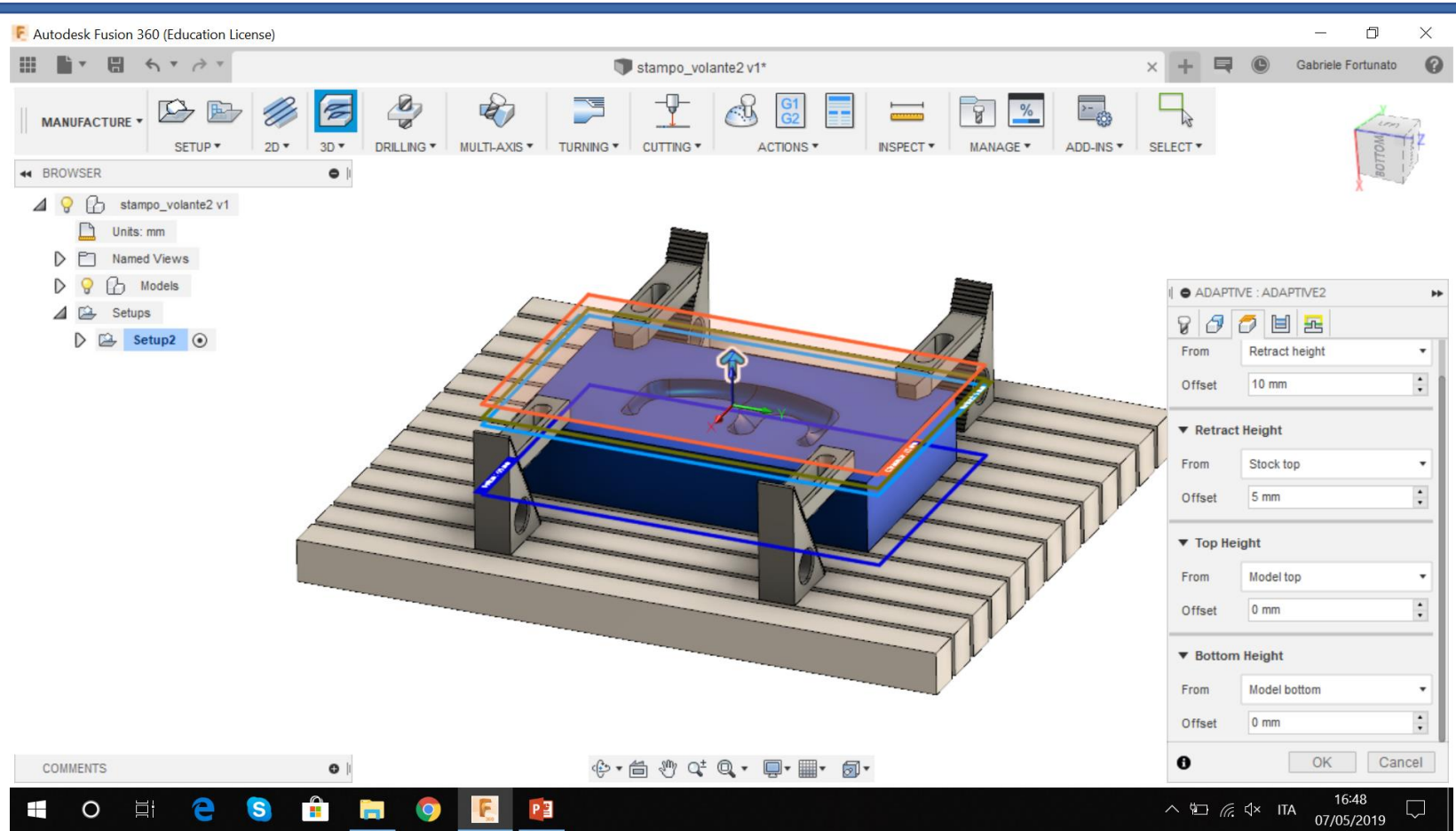
OK Cancel

16:47 07/05/2019

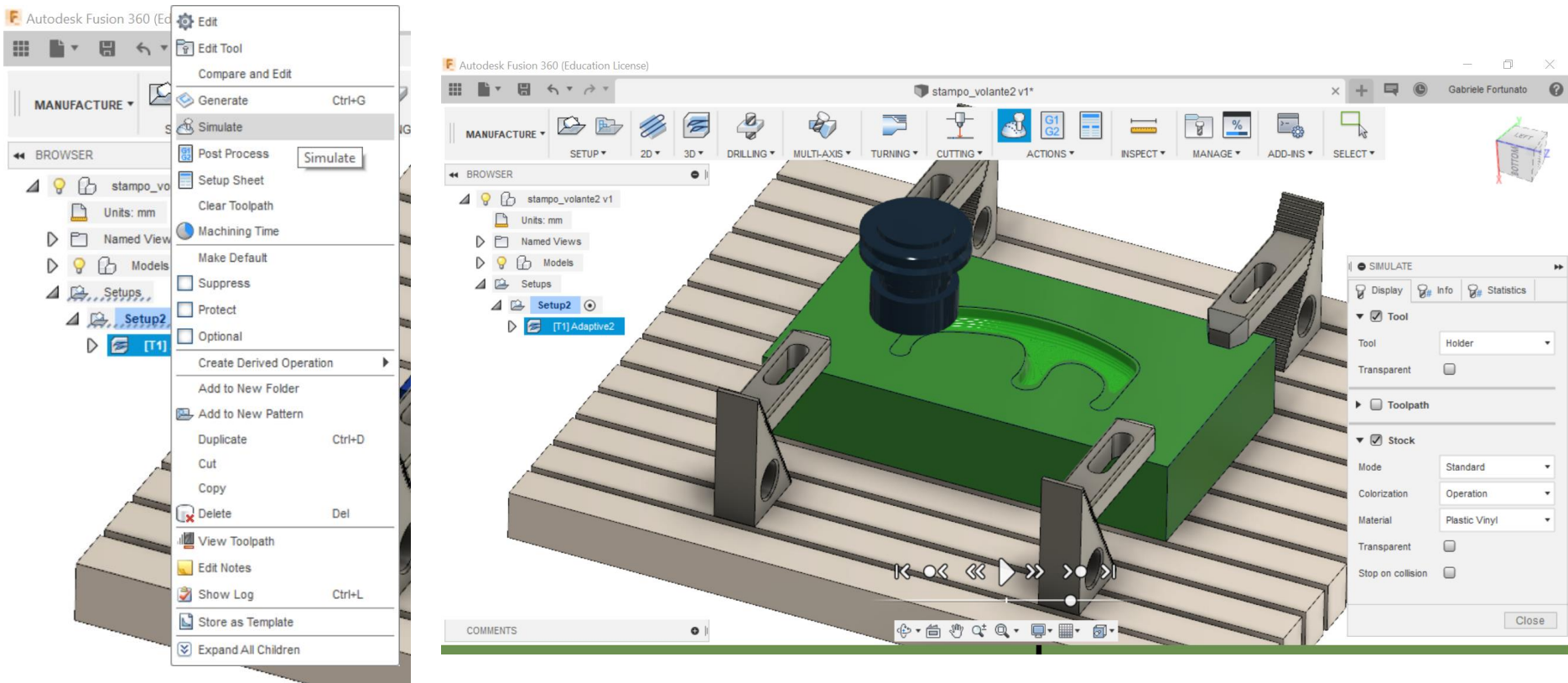
Select stock contours, heights and stock to leave



Select stock contours, heights and stock to leave



Simulation



Surface finishing: Parallel

Autodesk Fusion 360 (Education License)

stampo_volante2 v1*

MANUFACTURE

SETUP 2D 3D DRILLING MULTI-AXIS TURNING CUTTING ACTIONS INSPECT MANAGE ADD-INS SELECT

BROWSER

- stampo_volante2 v1
 - Units: mm
 - Named Views
 - Models
 - Setups
 - Setup2
 - [T1] Adaptive2

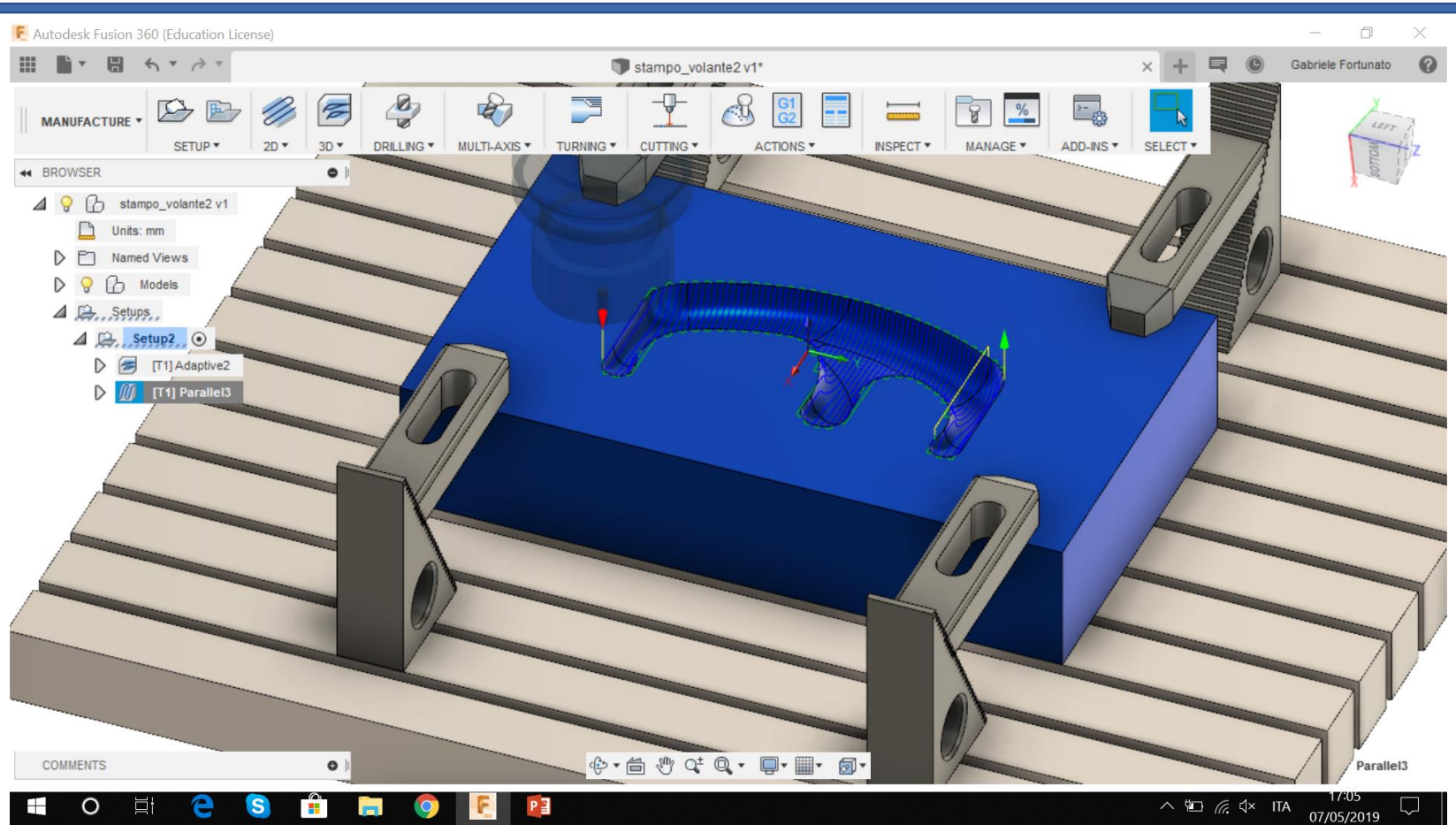
Parallel

A widely used finishing strategy, the passes are parallel in the XY-plane and follow the surface in the Z-direction. You can choose the angle as well as the stepover in the horizontal direction. The passes can be linked in a zigzag pattern, unidirectional, or split in down or up milling sections.

Parallel finishing passes are best suited for shallow areas and can be confined to machine only up to a given contact angle.

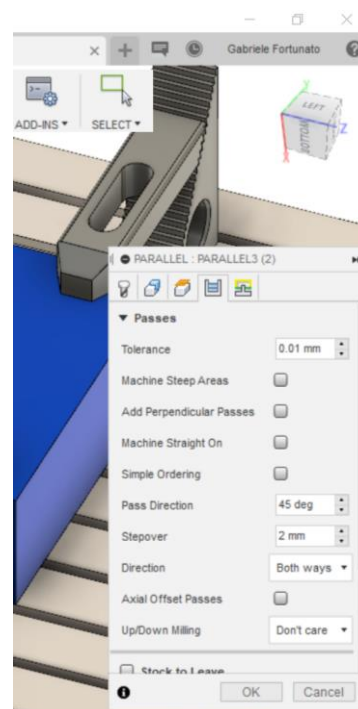
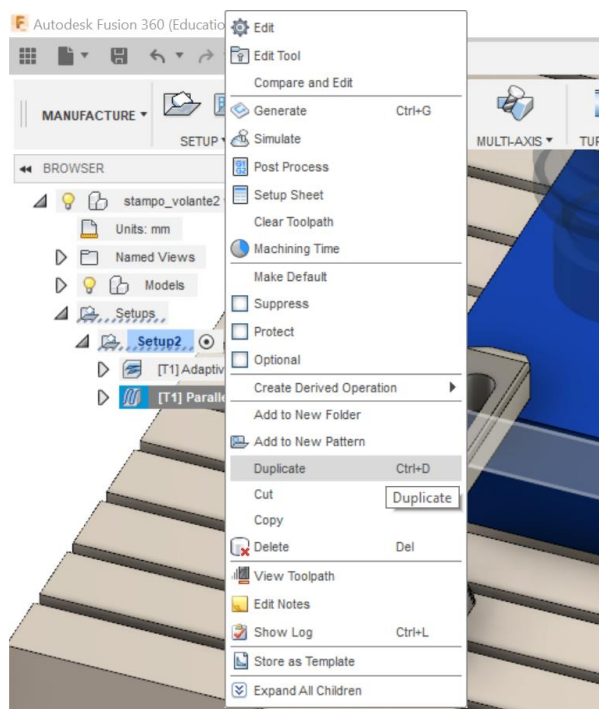
Adaptive2

Select geometry

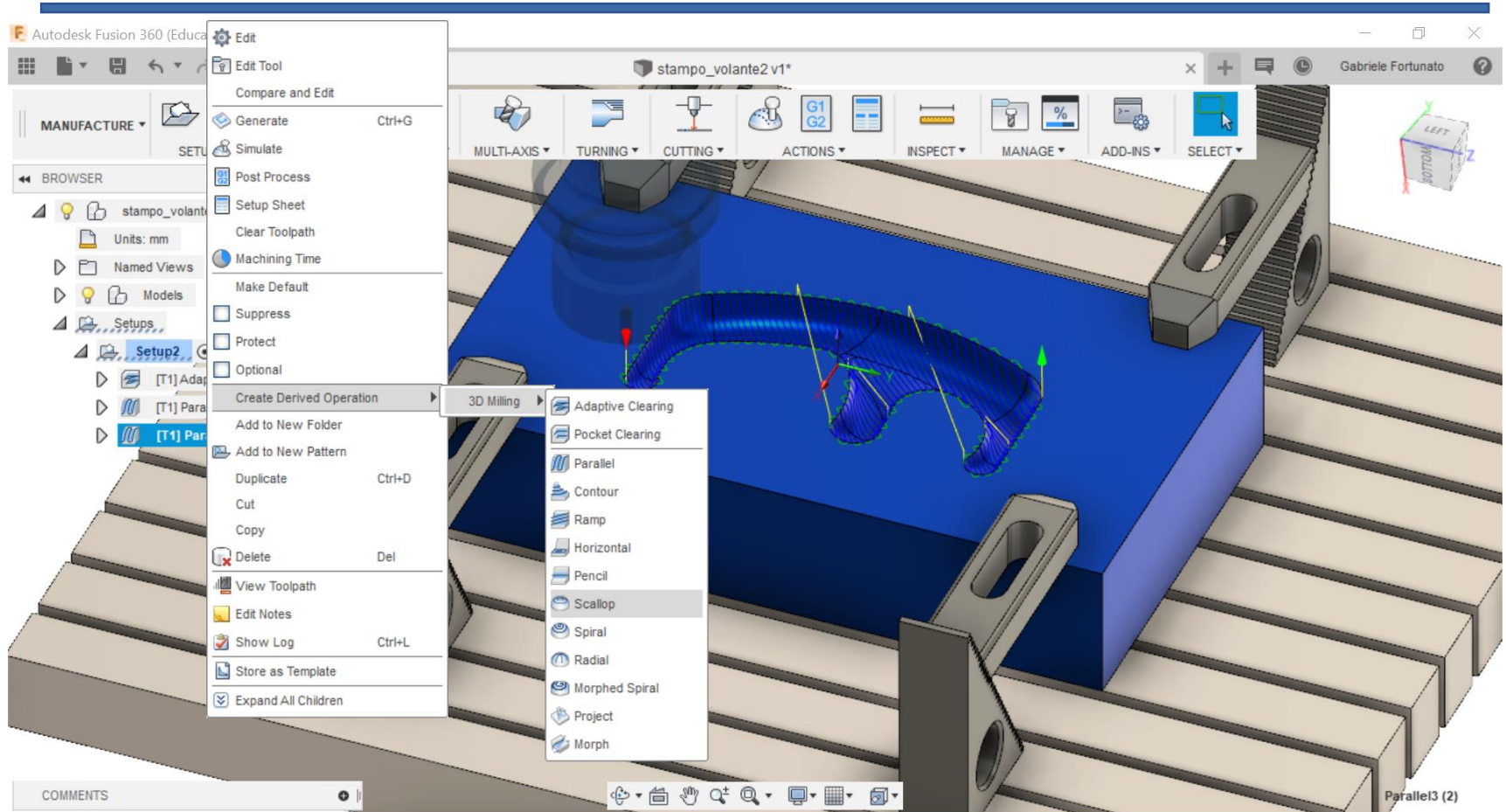


Surface finishing: Parallel

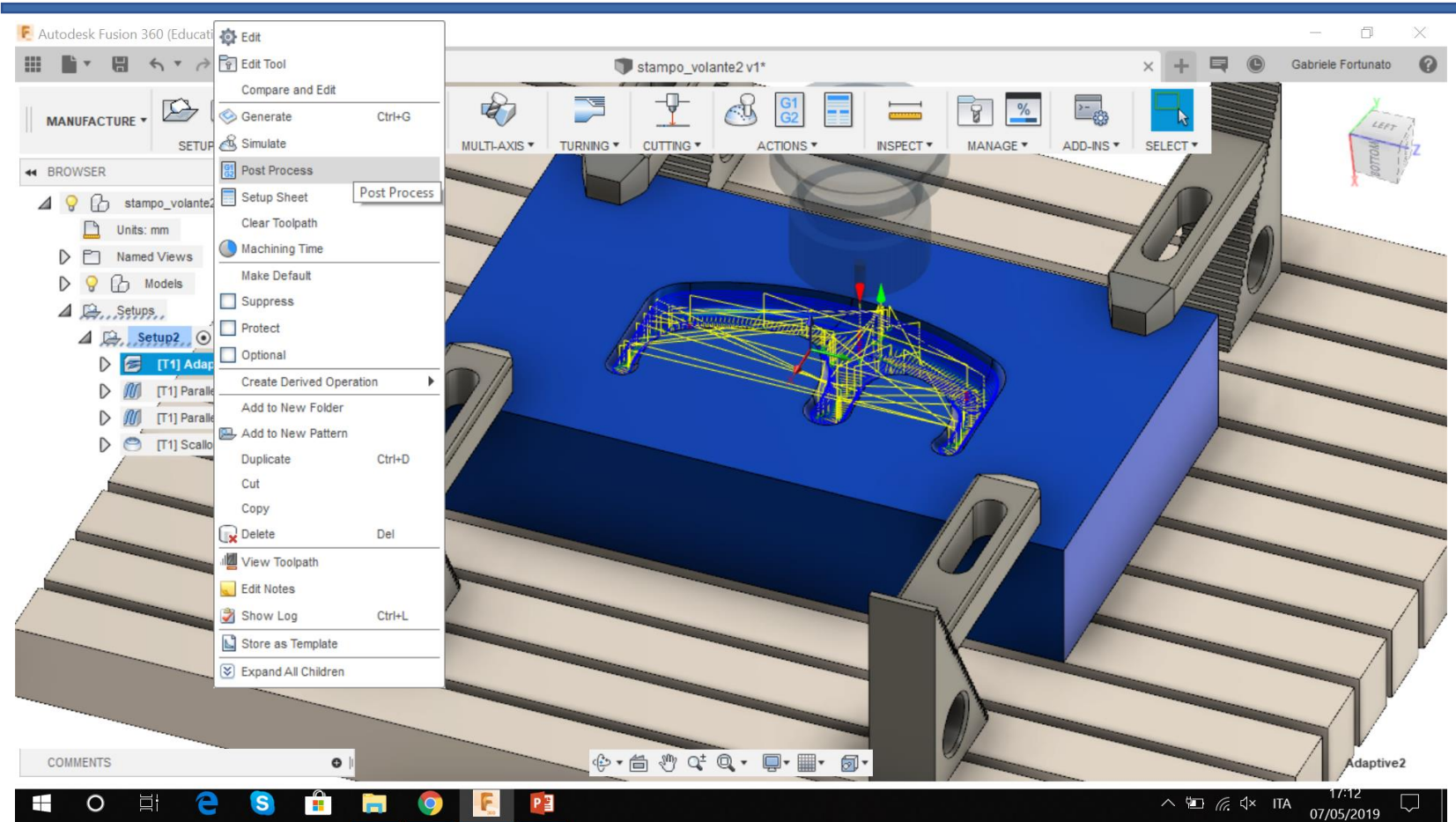
- Duplicate current Parallel finishing
- Change 'Pass direction' in 'Passes' tab to 45°



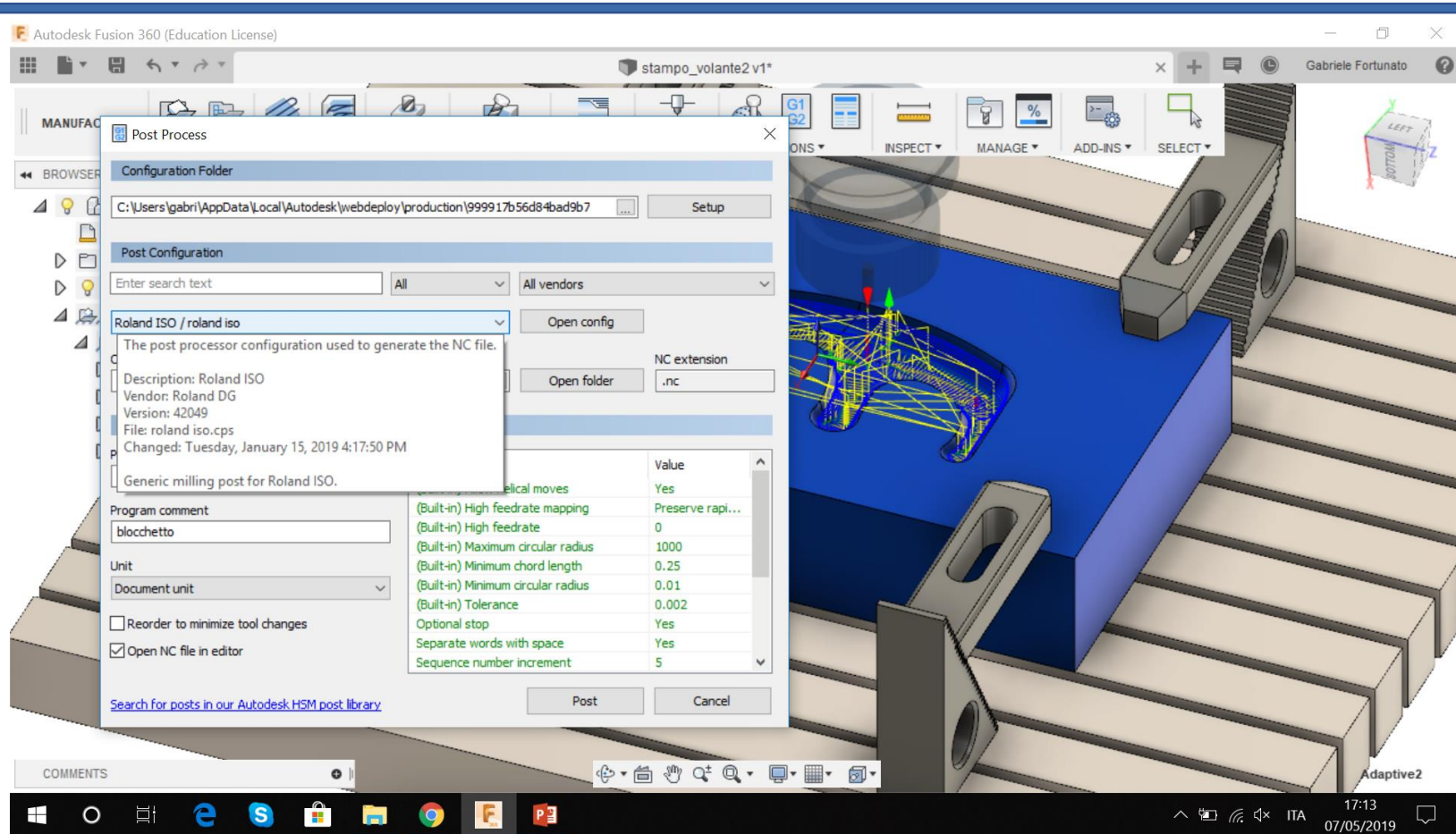
Surface finishing: scallop



Export code

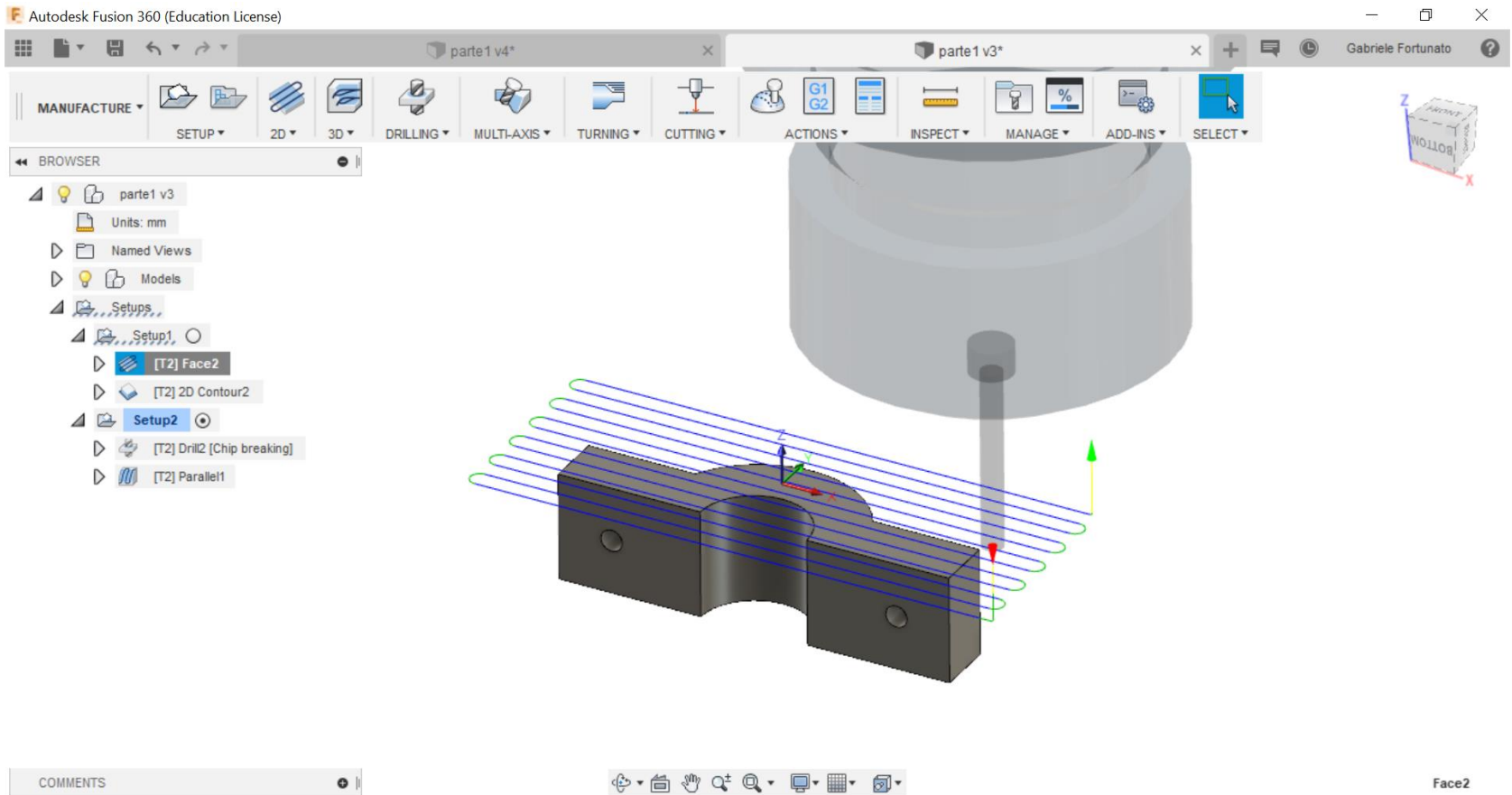


Select machine and generate code



Example 2

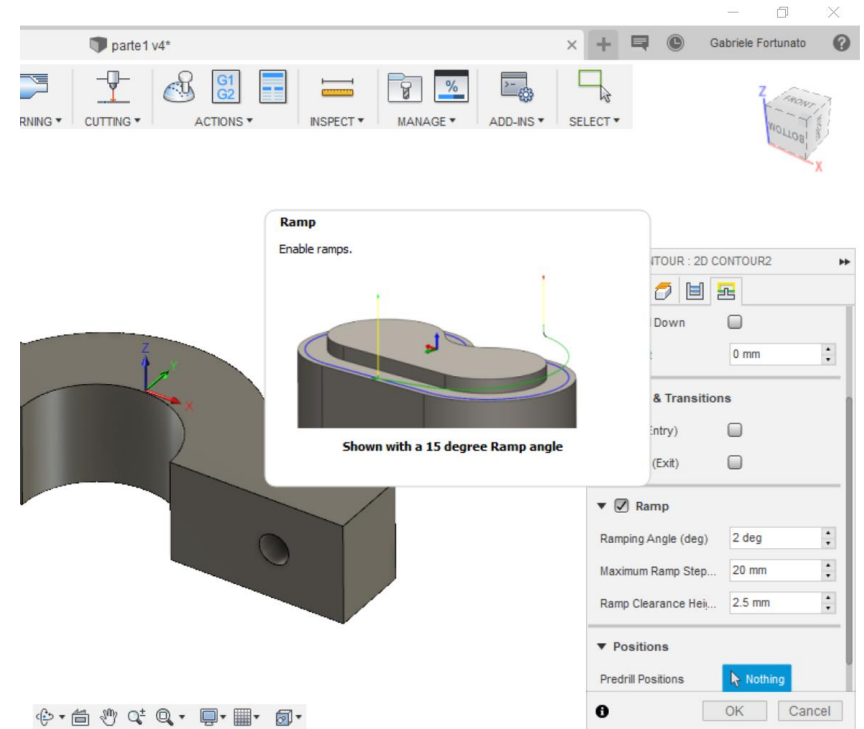
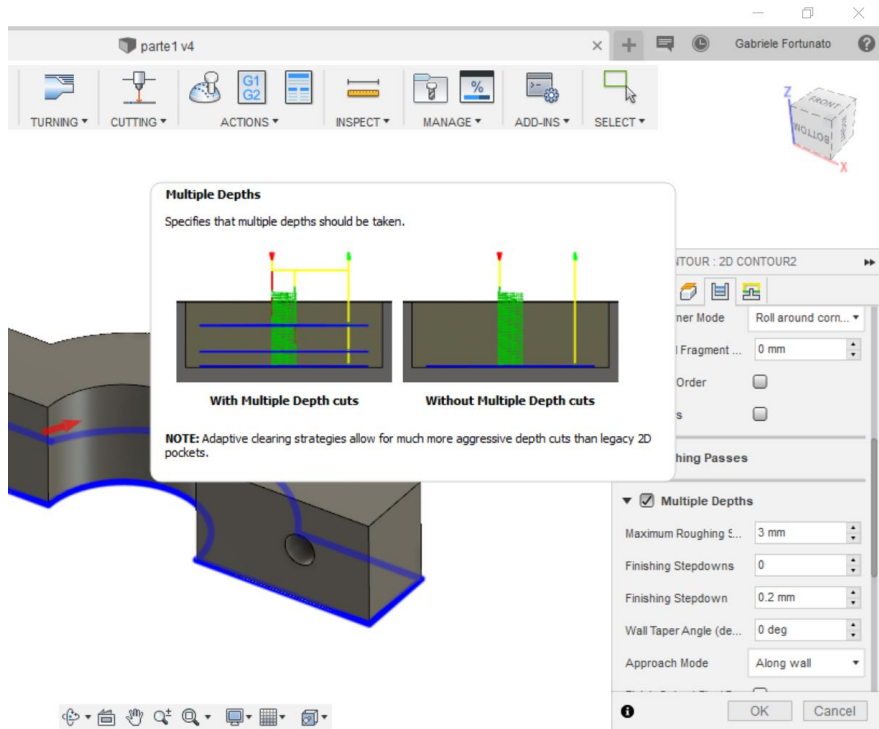
2D → Face (remove stock top offset)



2D contour: tabs

The screenshot displays the Autodesk Fusion 360 interface. The top toolbar includes the MANUFACTURE tab and various tool icons. The left sidebar shows the BROWSER with a tree view containing 'parte1 v4', 'Units: mm', 'Named Views', 'Models', 'Setups', 'Setup3', '[T2] 2D Contour2', 'Setup4', '[T2] Parallel1', and '[T2] Drill1 [Chip breaking]'. A central pop-up window titled 'Tabs' explains that tabs are used to hold a part when cutting profiles from a sheet. It shows two 3D models: 'Part shown with 4 Tabs' and 'Part being held with 4 Tabs'. A note states: 'NOTE: Tabs can be placed at equal spacing along the profile or at specific points selected by the user.' To the right, the 'TOUR : 2D CONTOUR2' panel shows the 'Chain' selection method, 'Extension Distance' set to 0 mm, and 'Tangential End Ext...' unchecked. Below this, the 'Contours' panel has 'Tabs' checked, with 'Tab Shape' set to 'Rectang...', 'Tab Width' at 3 mm, 'Tab Height' at 0.75 mm, 'Tab Positioning' set to 'By dista...', and 'Tab Distance' at 14 mm. At the bottom, a 3D model of a part with four tabs is shown, along with a 'COMMENTS' panel and a standard CAD navigation toolbar.

2D contour: multiple depths and ramp



Create new setup and change coordinate system

The screenshot displays the Autodesk Fusion 360 software interface. The main window shows a 3D model of a blue mechanical part with a coordinate system (X, Y, Z) centered on its top surface. The 'SETUP4' dialog box is open, showing the 'Stock' tab with the following settings:

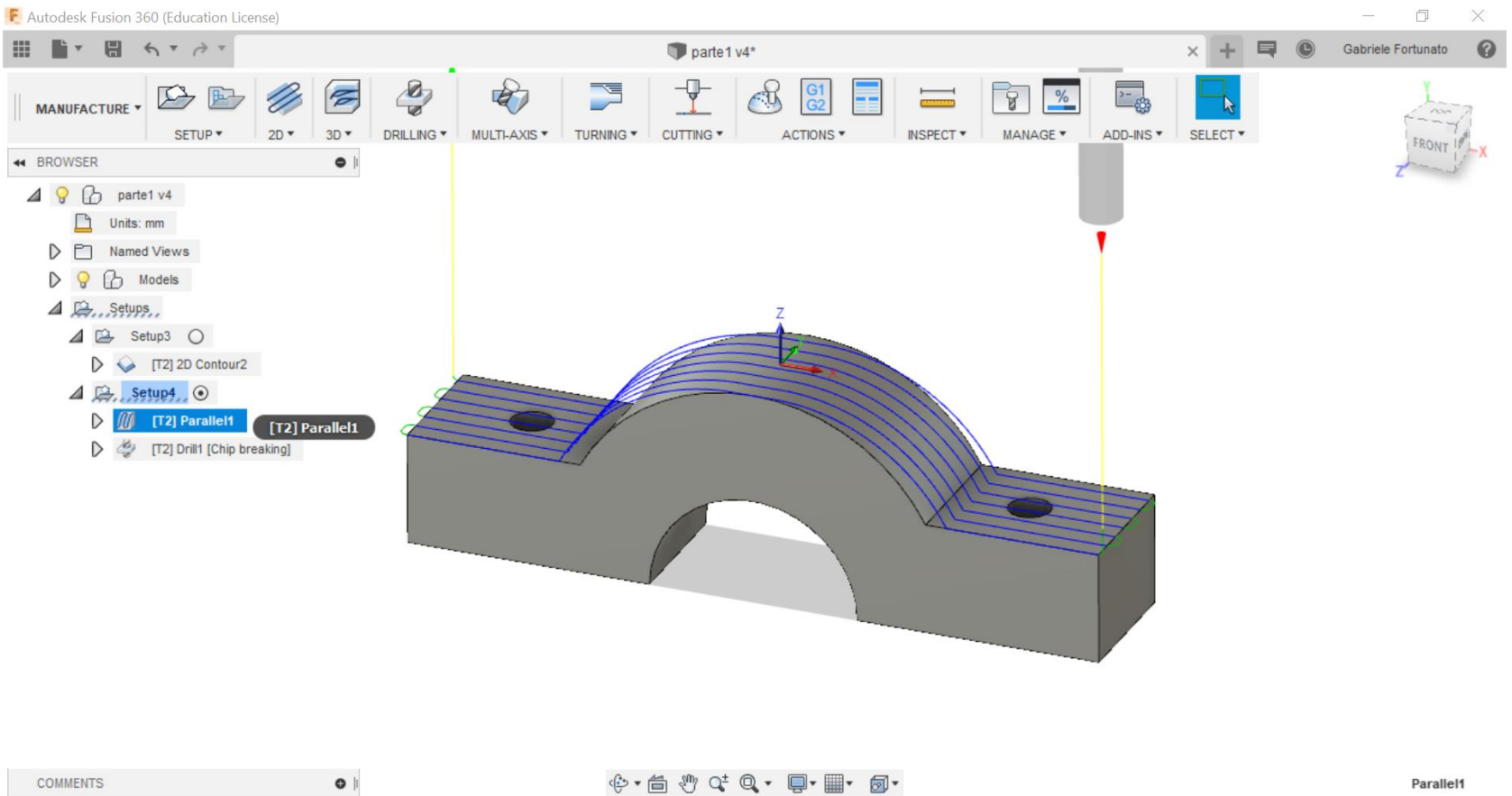
- Mode: From solid
- Stock Solid: Body
- Dimensions:
 - Width (X): 50 mm
 - Depth (Y): 10 mm
 - Height (Z): 15.3793 mm

The 'Browser' panel on the left shows the following structure:

- parte1 v4
 - Units: mm
 - Named Views
 - Models
 - Setups
 - Setup3
 - [T2] 2D Contour2
 - Setup4 (selected)
 - [T2] Paralle1
 - [T2] Drill1 [Chip breaking]

The 'Comments' panel at the bottom left is empty. The 'Body2' label is visible in the bottom right corner.

Paralle finishing



Drill (chip breaking)

Autodesk Fusion 360 (Education License)

part1 v4*

MANUFACTURE

SETUP 2D 3D DRILLING MULTI-AXIS TURNING CUTTING ACTIONS INSPECT MANAGE ADD-INS SELECT

BROWSER

- part1 v4
 - Units: mm
 - Named Views
 - Models
 - Setups
 - Setup3
 - [T2] 2D Contour2
 - Setup4
 - [T2] Parallel1
 - [T2] Drill1 [Chip breaking]

DRILL : DRILL1

Cycle

Cycle Type: Chip breaking - [...]

Pecking Depth: 0.5 mm

Pecking Depth Reduc...: 0 mm

Minimum Pecking Dep...: 0.5 mm

Accumulated Peckin...: 3 mm

Chip Break Distance: 0.1 mm

Dwell Before Retract:

Dwelling Period: 0 s

OK Cancel

Roland SRM-20 Desktop Milling Machine

