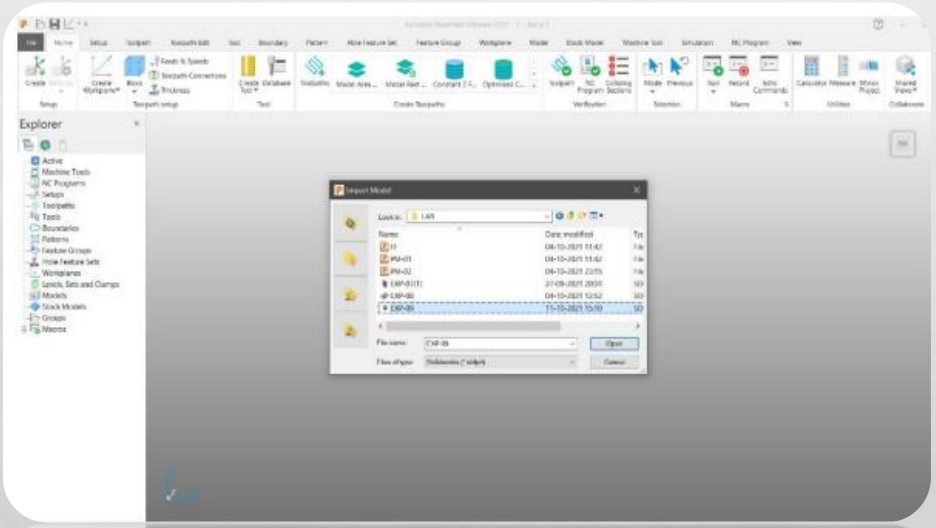
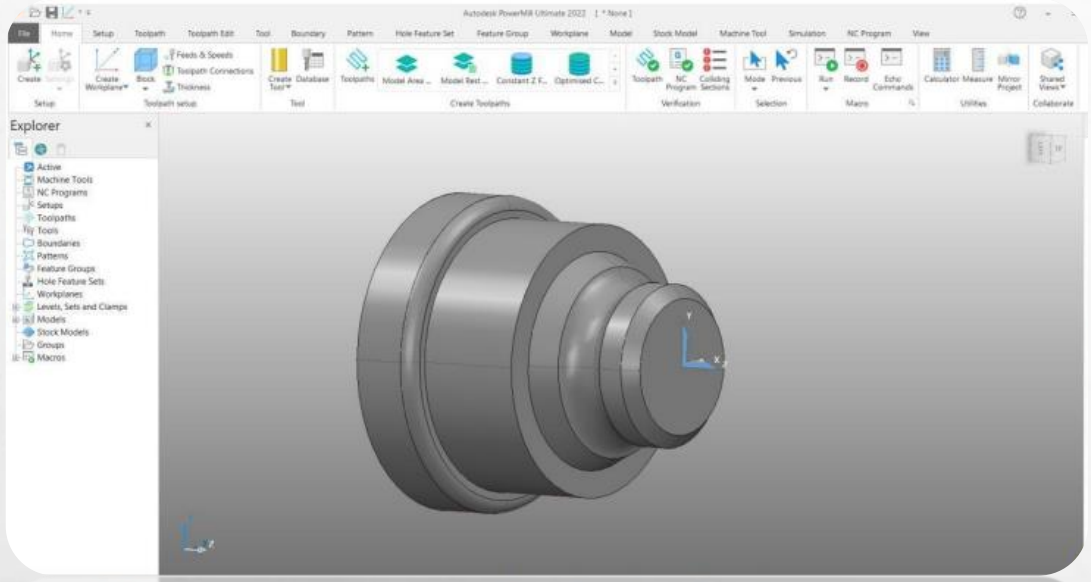
# CAD/CAM
# EXPERIMENT-09

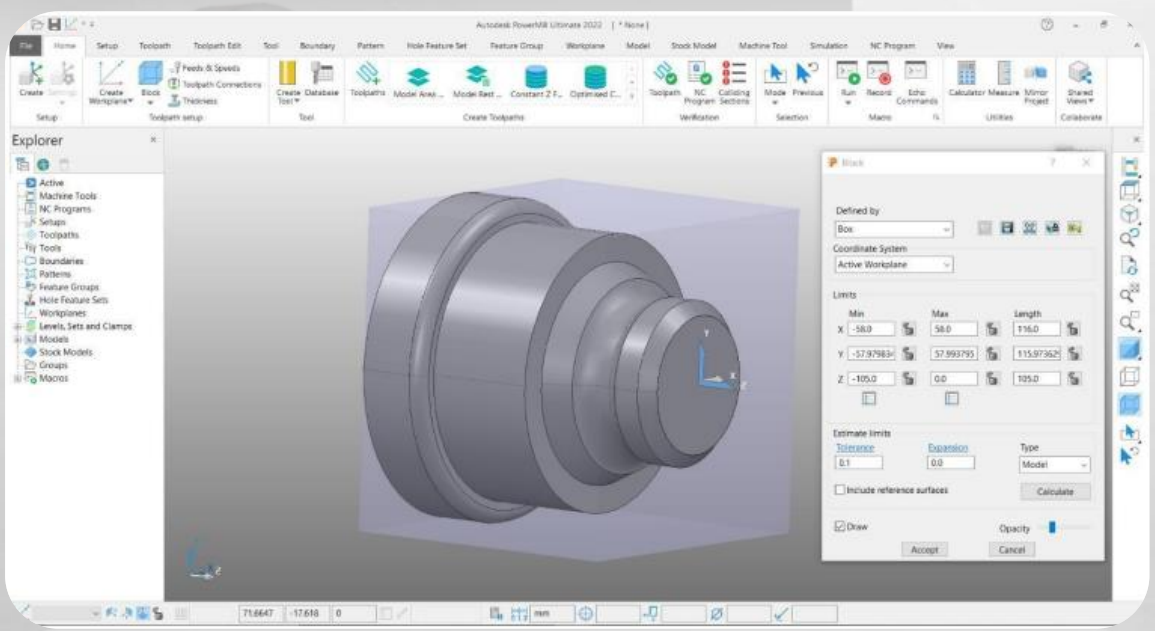
ISHANI MISHRA
20BME0136


# STEP – 01:

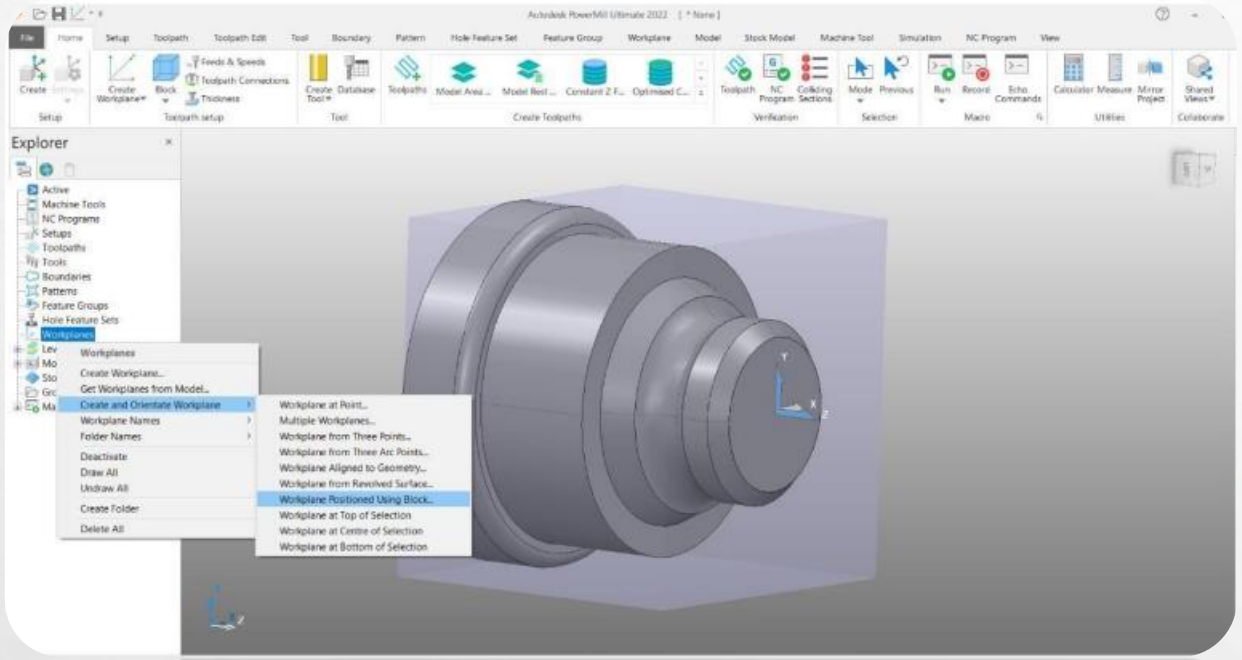
FIRST, WE HAVE TO IMPORT THE CAD MODEL INTO THE POWERMILL SOFTWARE, BY CHOOSING THE FILE AND ITS FORMAT.

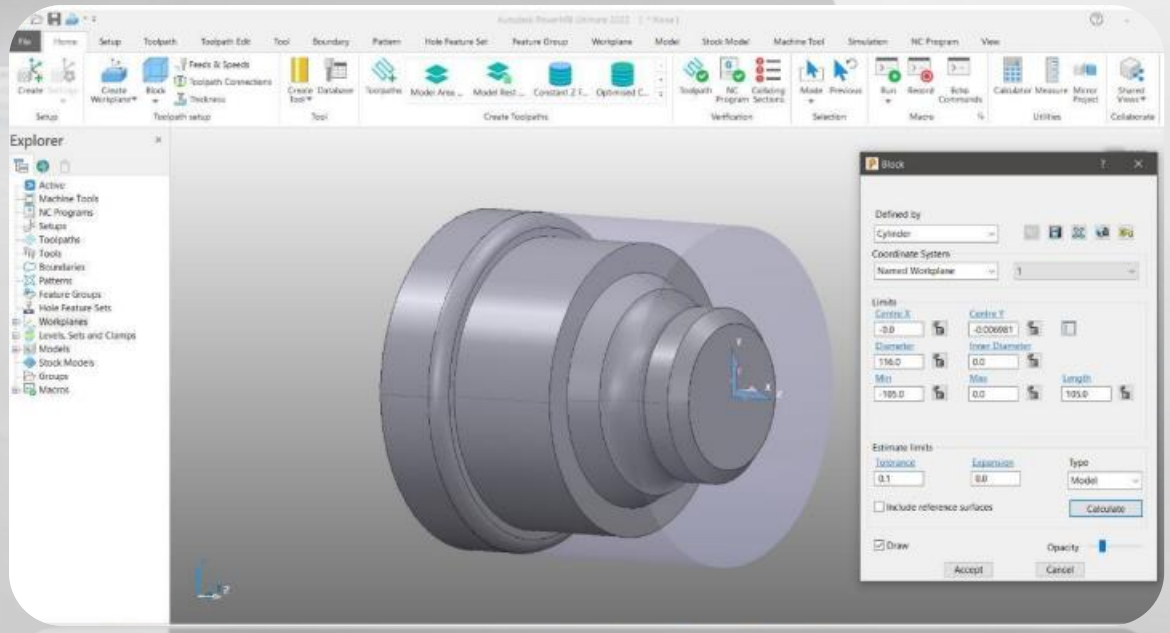




# STEP – 02:

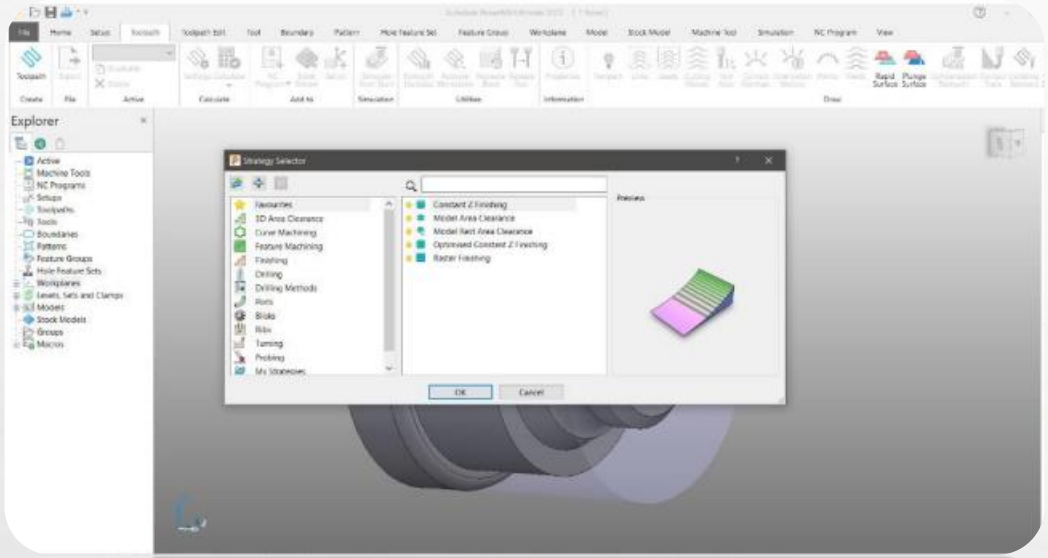
IN ORDER TO SPECIFY THE DETAILS OF THE RAW MATERIAL TO BE MACHINED, WE USE THE BLOCK COMMAND.



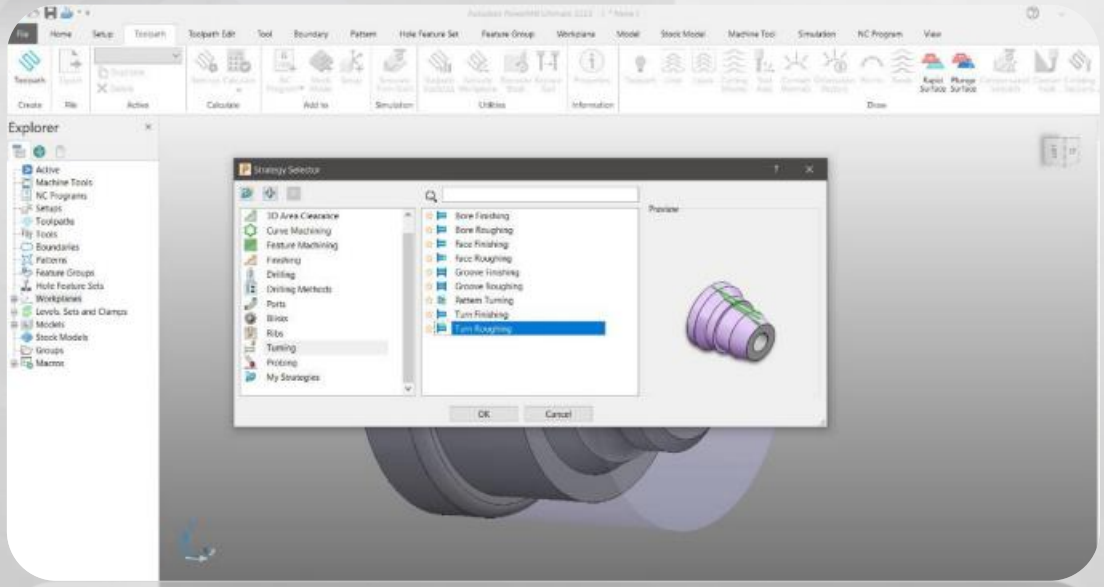

# Step -03:

IN ORDER TO DEFINE THE WORKPLANE OF OUR COMPONENT, WE MUST GO TO, WORKPLANES → CREATE AND ORIENTATE WORKPLANE → WORKPLANE POSITIONED USING BLOCK AND WE SELECT THE MIDPOINT OF THE SIDE SURFACE TO SET AS OUR WORKSPACE. NOW, WE CHANGE THE BLOCK AROUND OUR COMPONENT FROM BOX TO CYLINDER.



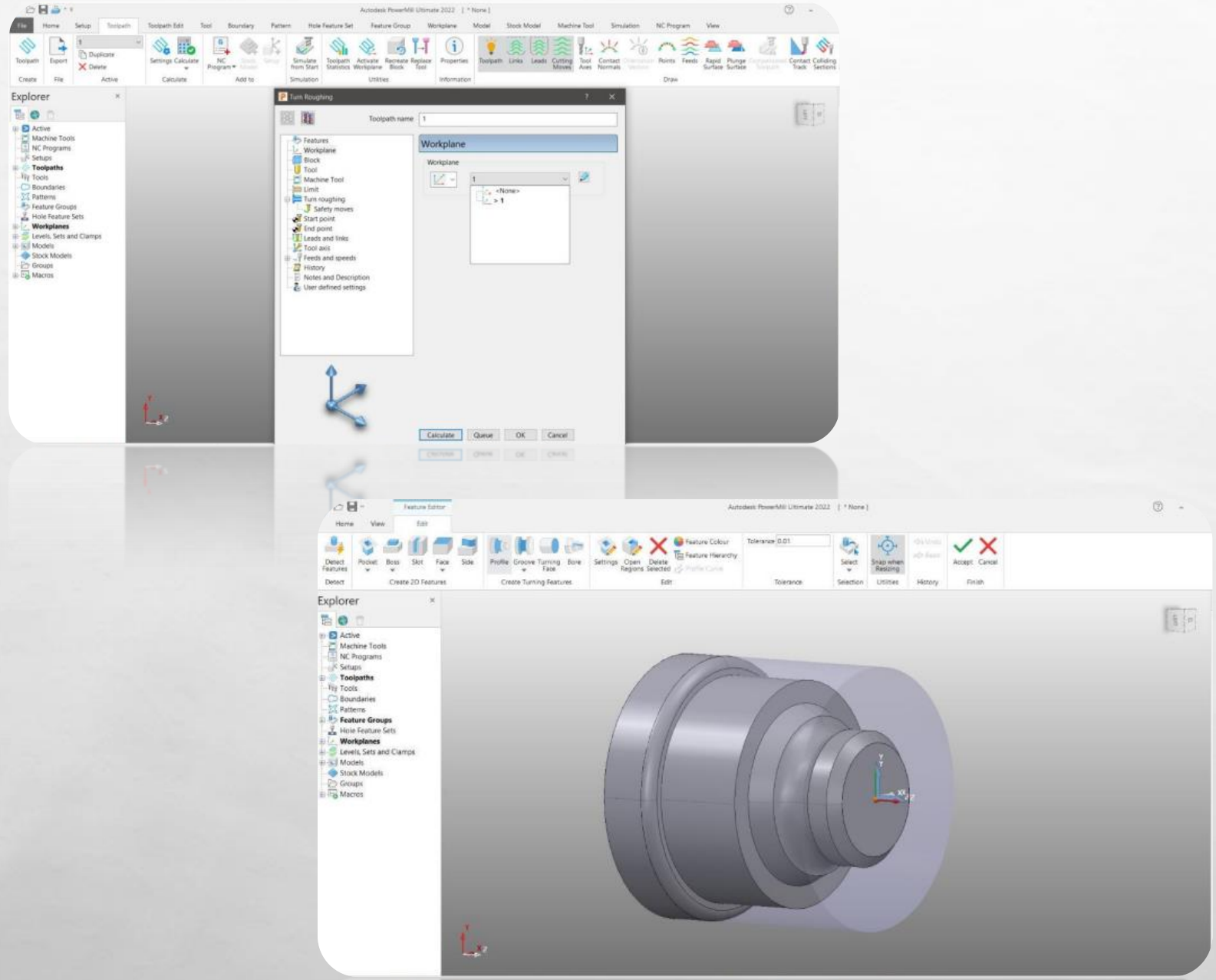
## Step-04:

NOW, WE HAVE TO DEFINE THE TOOLPATH FOR THE MANUFACTURING OF OUR COMPONENT. WE START BY SELECTING TOOLPATH WHICH OPENS A SMALL WINDOW WITH DIFFERENT TOOLPATH STRATEGIES.



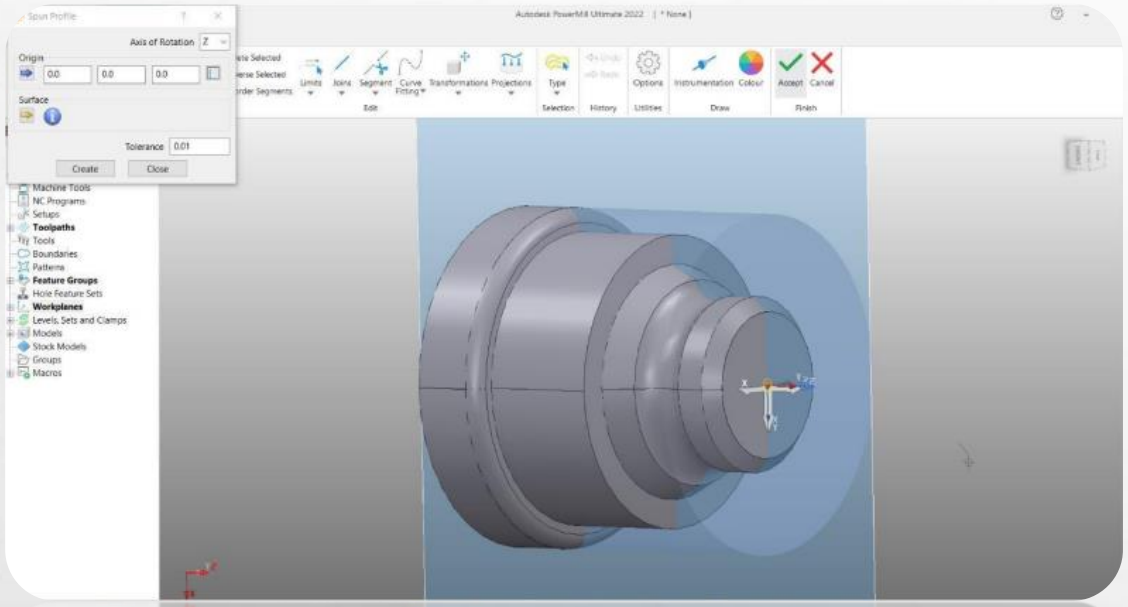
## Step-05:

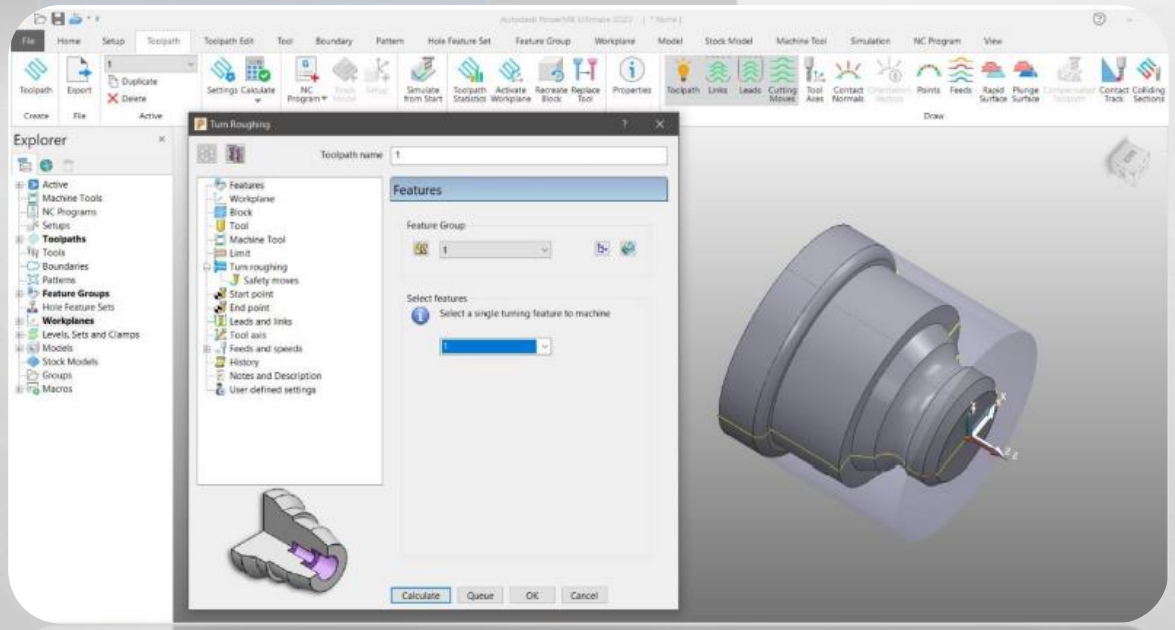
NEXT, WE HAVE TO SELECT THE TYPE OF STRATEGY FOR THE MANUFACTURING. WE SELECT TURN ROUGHING UNDER THE TURNING OPTION. A WINDOW POPS UP FOR DEFINING THE PROPERTIES OF TURN ROUGHING.



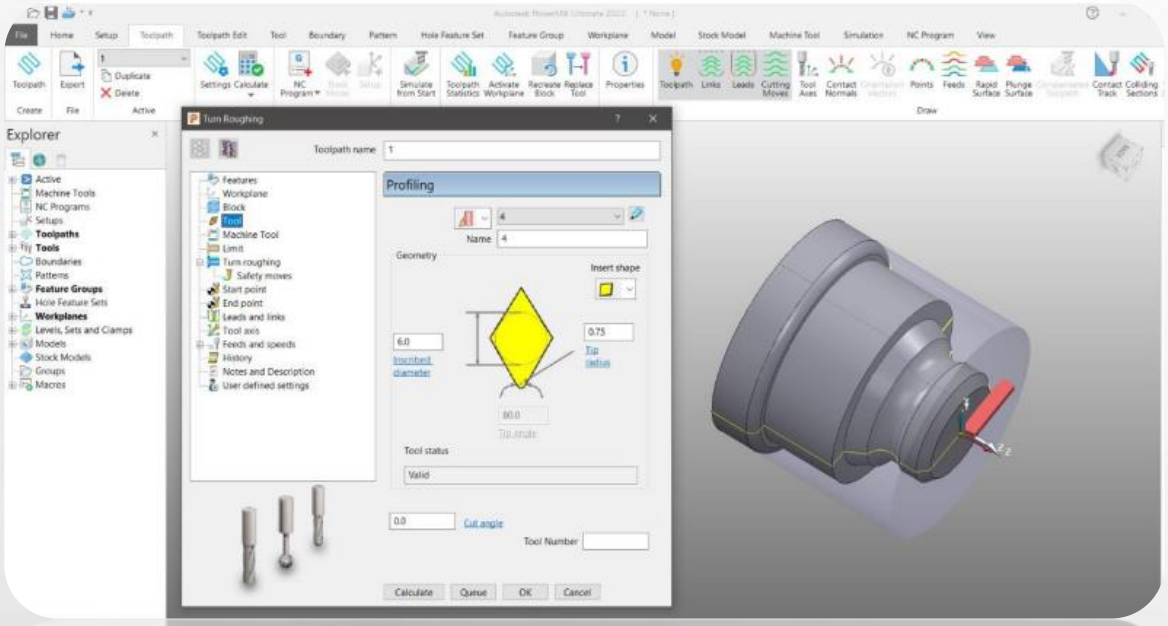

# Step-06:

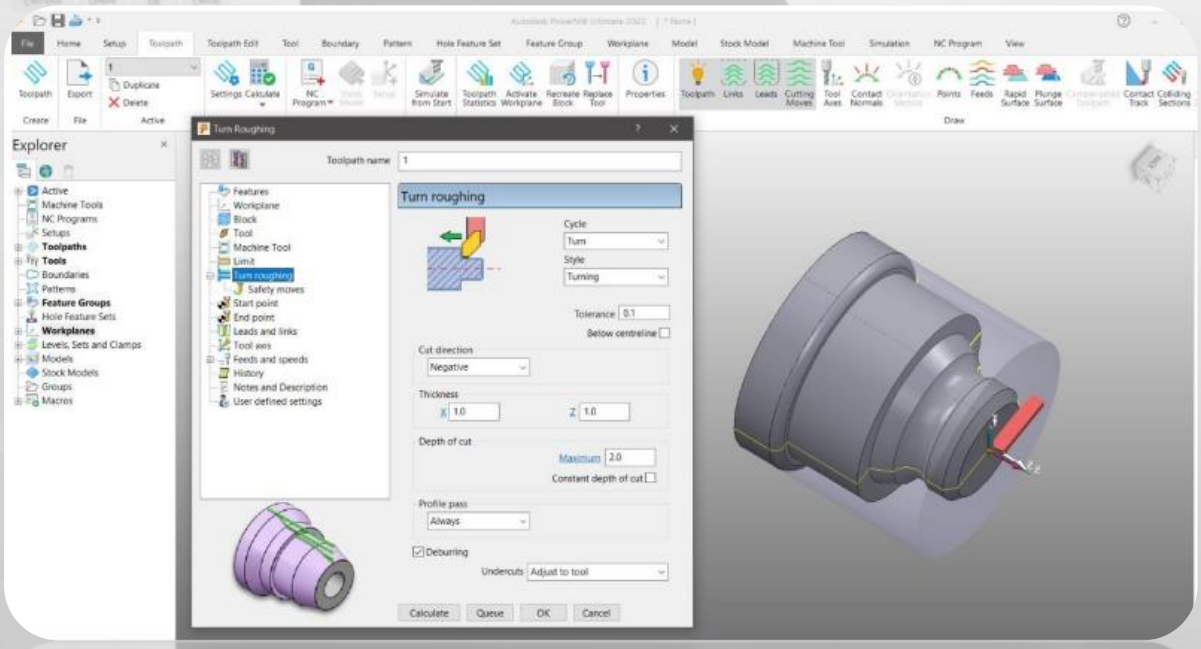
IN THIS STEP, WE CHOOSE THE WORKPLANE WHERE WE WANT TO START THE OPERATION AND REDEFINE THE BLOCK FOR THE COMPONENT. NOW, WE DEFINE THE FEATURE FOR THE TURNING OPERATION BY CLICKING ON THE EDIT FEATURE OPTION, THEN THE PROFILE OPTION.




NOW, WE SELECT THE FEATURE THAT WE HAVE CREATED IN THE EDITING BOX FOR THE TURN ROUGHING STRATEGY.

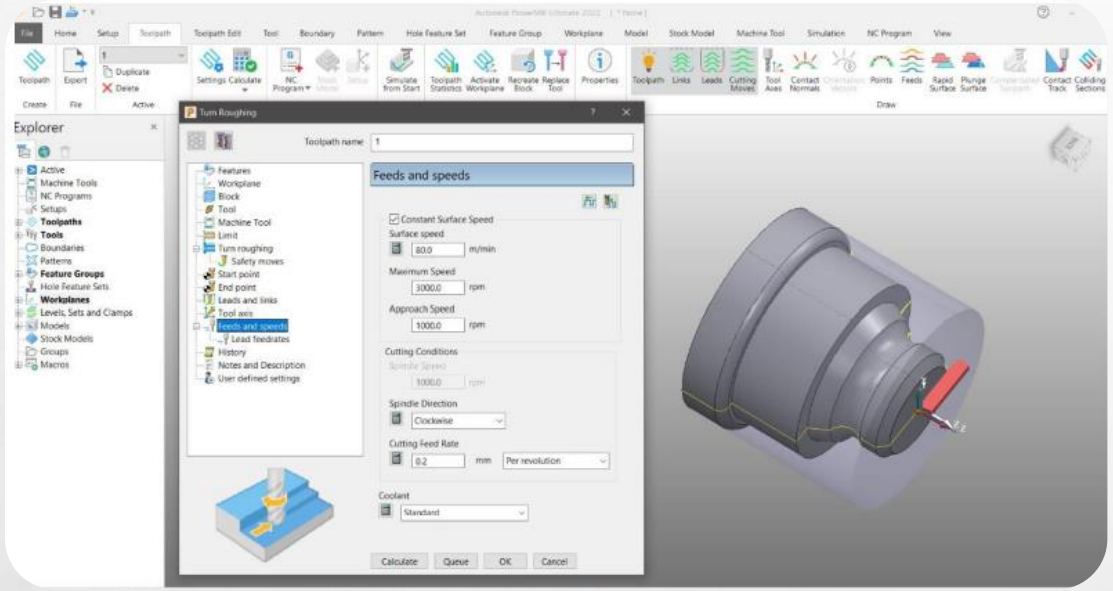



# STEP – 07:

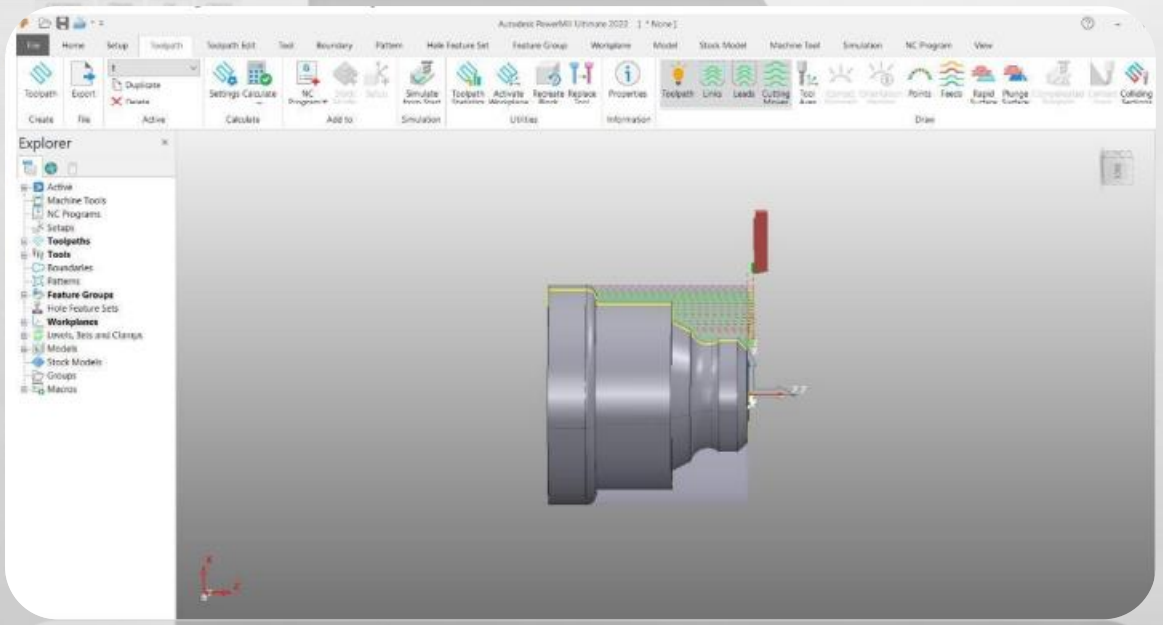
NOW, WE HAVE TO DEFINE THE DIMENSIONS OF THE TOOL FOR THE OPERATION USING THE TURNING PROFILE TOOL OPTION.

NEXT, WE GIVE THE DEPTH OF THE CUT.



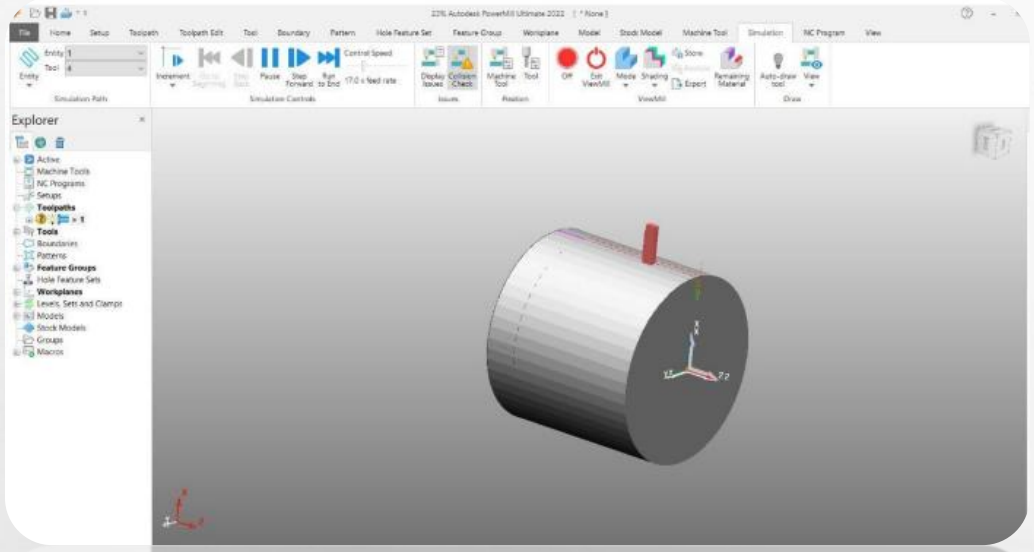

# STEP – 08:

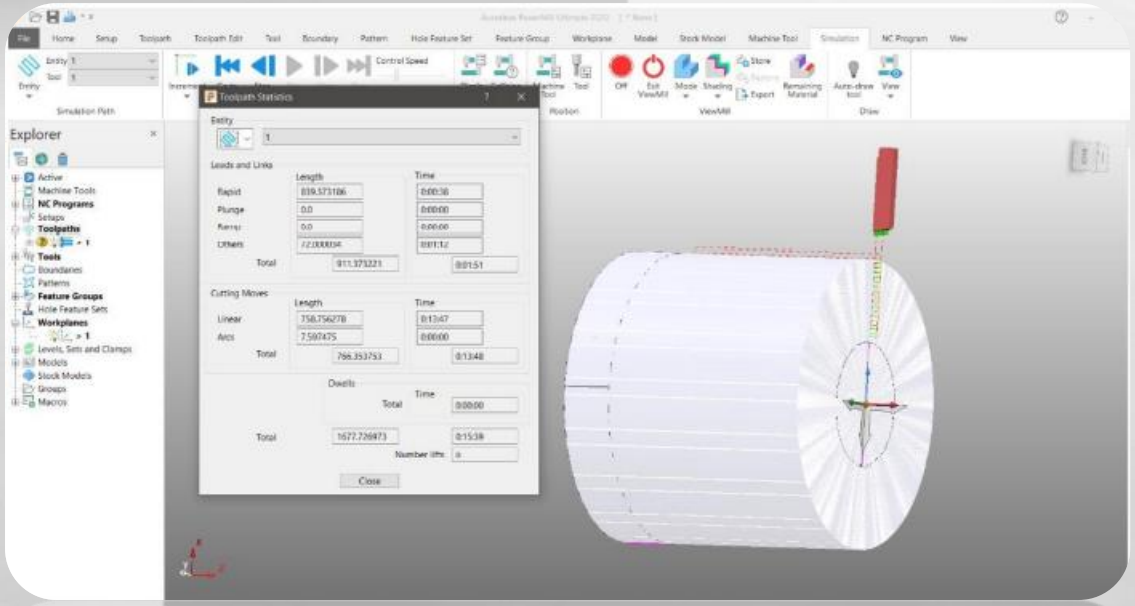
IN ORDER TO DEFINE THE PROCESS PARAMETERS, WE GO TO THE FEEDS AND SPEEDS OPTION.




# STEP – 09:

AFTER DEFINING ALL THESE PROPERTIES WE CLICK ON THE CALCULATE OPTION TO ACTIVATE THE TOOLPATH. PREVIEW OF OUR TOOLPATH.





# STEP – 10:

NOW, WE ARE GOING TO SIMULATE OUR TOOLPATH. WE HAVE TO GO TO THE SIMULATION TAB, AND CLICK ON THE OFF OPTION, WE CHANGE THE SHADING FROM PLAIN TO RAINBOW AND CLICK ON THE ON OPTION AGAIN. NOW, WE CLICK ON THE TOOLPATH AND START SIMULATION FROM THE START.

# STEP – 11:

IN ORDER TO CALCULATE THE MACHINING TIME WE MUST GO TO TOOLPATH STATISTICS.

MACHINING TIME – 15 MINUTES 39 SECONDS

We can view the statistics through toolbar statistics

| SL. NO. | Machining Operation | Selection of tools and dimensions | | | Process parameters | | |
|---|---|---|---|---|---|---|---|
| | | Tool type | shape | Tip radius | Speed (rpm) | Feed (mm/min) | Depth of cut |
| 1 | Turn roughing | Profile | diamond | 0.75 | 3000 | 1000 | 2 |
| 2 | Turn roughing | Profile | diamond | 1.0 | 5000 | 1000 | 3 |
| 3 | Turn roughing | Profile | square | 0.50 | 4000 | 1000 | 4 |