FUSION 360

Learning how to set up a tool path in Fusion

VOCABULARY

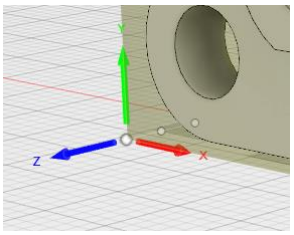
- Fusion 360
- Tool Path
- Tool Orientation
- Stock
- CNC Mill
- CNC Router
- RPM

FINISH YOUR PART IN INVENTOR

- After finishing your part in inventor save the .ipt
- Open Fusion 360
  - You will need to create an account using your STUDENT e-mail
  - If you do not create a STUDENT account your trial may end before you are done with the course.
- On the left hand side click the Upload button
  - Either Select Files or drag and drop your .ipt file into the uploader
  - Then hit upload
  - Then close the uploader
- You should now see your file on the left hand side
  - This is where all future files will be uploaded as well
  - Double click on the file you want to open

SETTING UP YOUR TOOL PATH

- In the tool bar click the first button on the left (might say sculpt) and change it to MANUFACTURE
- Change your units to Inches Units: in
- Click on New Set Up
- In order to select the correct orientation for the part and tool you will need to change to Orientation: Select Z axis/plane & X ax...
  - Use the mouse to select the Z "edge" of your part (Height)
  - Then use the mouse to select the X "edge" of your part
    - You may need to "flip the x axis" or "flip the z axis"
  - Then select the "stock box point" so the machine has a place to start → Origin: Stock box point; Stock Point: Box Point
  - Click on the bottom left front corner of your "stock" for (Brake Part), choose the center point for the (Maze)
  - It should look something like this →



- Under the Stock Tab Stock
  - **OPTION 1:** Find Mode: Fixed size box
  - Change the width, depth and height to the size of your material
  - Under the Height (Z) Model Position: Offset from bottom (-Z)
    - Offset: 0
    - You need to do this in order for your stock to cut to the bottom of the material
    - Click OK
  - **OPTION 2:** Find Mode: Relative size box
    - Stock Top Offset: →

OPTION 2 Equation:

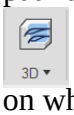
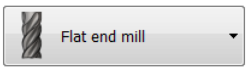
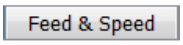
Material Height ____

\- Part Height ____

= _____

NOTES:

2D/3D TOOL PATHS: Do not be afraid to try different options for your project. The simulator will tell you if it will work correctly for you or not. There may be a faster option that will take less time or an option that will look better with your material.

- Now we are going to set up the path the machine (tool) is going to follow
  - Click on the drop down  or 
    - Then depending on what you are working on select the tool path that will work best for your project
  - This is where you will set up your settings for the path
  - Click on Tool: Select
    - Click on the new mill tool button 
    - Change the Type to Flat end mill 
      - Diameter: 0.25 in
      - Body Length: 2 in
    - Click on the  tab
      - These will depend on the machine (Mill or Router) and material you are using
      - Click OK and OK again
    - Under the Passes Tab 
      - Change your Max rough step down to .25”
      - Stock to leave: 0 (You do not want anything left)
      - Click OK
      - This will take a moment while it works on your tool path, you will start to see blue lines around your part
- If you go back and change any setting your might see an error on your tool path
  - Double click on it and hit OK again
  - This will re-run your path

SIMULATING THE TOOL PATH

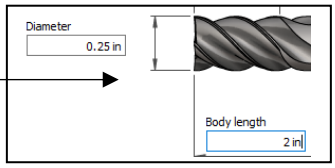
- Now that everything is set up we need to check if your tool path is correct and will work
- Make sure you have your [T1]Adaptive selected then click Simulate 
  - Uncheck Tool Path
  - Check “Stock”
    - This will allow you to see the material being cut away
    - Then click on the Play Button 
    - You can use the slider to speed it up
  - Under the Info Tab you can check the “time” it is going to take

SAVING YOUR FILE FOR THE MACHINE (MILL/ROUTER)

- The machines speak a different language called G-Code
- Click on the 
- Post Configuration - **Router**: Forest Scientific **Mill**: Tormach Path Pilot
- Output folder – to your H:drive or Flash Drive (you will need it on your flash drive for the machine)
- Post
- Change the file name to LAST NAME PART NAME and save
  - You can close out of the code window that comes up

BRAKE BRAKET
3D – Adaptive Clearing

MAZE
2D – Contour
-Geometry Tab
-Select bottom of walls with Contour Selections
-May need to set up tool again



MILL
FOAM:
Spindle Speed:5000rpm

ROUTER
FOAM:
Spindle Speed:10000rpm
Cutting Feed Rate: 200

2D/3D TOOL PATHS:
Do not be afraid to try different options for your project. The simulator will tell you if it will work correctly for you or not. There may be a faster option that will take less time or an option that will look better with your material.