

## Lesson: Course Challenge – Peer Review

**Challenge:** Many different workflows exist in the digital manufacturing world. Sometimes you are the designer, other times you are provided a CAD file to program. There are also some cases where your job starts with a detailed drawing of a CAD model that no longer exists. Refer to the supplied file “C1-Course Challenge Drawing.pdf”. Use this drawing and its information to model, create toolpaths, simulate and output an NC file.

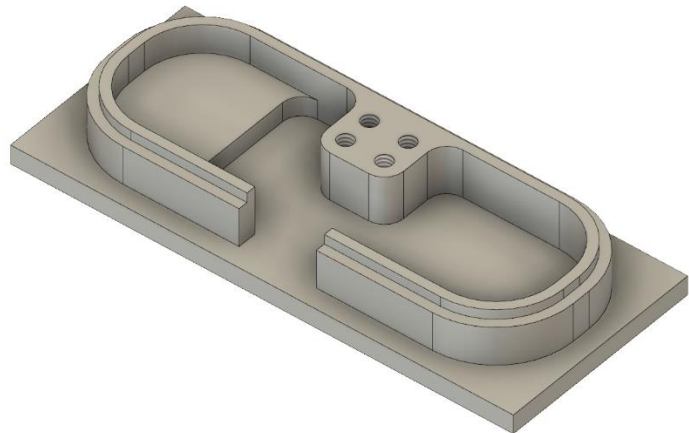
You will be expected to review and identify all features on the detail drawing and replicate them in Fusion 360. The design will consist of basic sketches and features such as extrude and fillet. The model should have a physical material applied and then a CAM setup created for CNC milling. No tool library will be provided so you must measure the geometry in the file and build an appropriate tool library or use sample tools already in Fusion 360.

Toolpaths to cut the part should include facing, contour, roughing and finishing operations as well as drilling and tapping. Stock can match the base shape. Simulate the toolpaths to verify all material has been removed.

The new design should have the following details:

- Physical Material – 6061 Aluminum
- Tool Library – Custom
- Stock – Appropriately sized for the part
- Coordinate System – Proper Z axis orientation
- Toolpaths – Logical order and type of toolpaths
- Post Configuration – Your choice
- NC File - Exported

Ensure your final toolpaths remove all material needed.



**Sharing your design for review:** To share your design as a text or PDF file ensure to include one of the following:

1. Share link with the download option for design file containing the CAM program as well as exported NC file.
2. Share link for the design file without the download option and included screen shots showing toolpaths and final simulation model and NC file.

**Review:** Students reviewing another design must validate a few key things.

- Design was created and accurate to the drawing.
- All material was removed with selected toolpaths.
- NC File was created.

**Grading Rubric:**

1. **Yes/No:** Was the design completed?
2. **Yes/No:** Was the design accurate to the drawing?
3. **Yes/No:** Did the toolpath selection remove all material?
4. **Yes/No:** Was an NC file provided?

**Options:** Did the program show advanced use of toolpaths? No(0 points), Some(1 point), Yes(2 points).

**Ungraded text box,** Reviewer leave feedback on the design.