

Introduction to CAD, CAM, and CNC milling

Course Challenge: Create a 3D model from a blueprint and all fixtures and toolpaths to manufacture.

Criteria: Create a 3D model from the blueprint ***Intro to CAD CAM CNC – Course Challenge.pdf***. The blueprint contains all the information to model the part but note that some design intent, notes and detective work may be required for all required details. Once a 3D model is created be sure to apply physical materials to match the print. Determine how the part needs to be held to machine all features. In order to machine the external fillet, you will either need a custom radius tool or to explore 3D toolpaths with Ball or Bull nose endmills. Once all toolpaths are completed and simulated to verify material removal you must create all documentation to convey what tools are needed, how the part is held and the number of operations. Any required fixturing should be created and included in the CAM setup to verify there are no collisions. The tool library from the course can be reused and any custom tools should be created.

The following steps are required:

- Create a 3D model from the supplied blueprint.
- Create any required soft jaws or fixtures to hold the part.
- Create all CAM setups and toolpaths to machine the part.
- Simulate to verify stock removal and no collisions.
- Create manufacturing documentation.

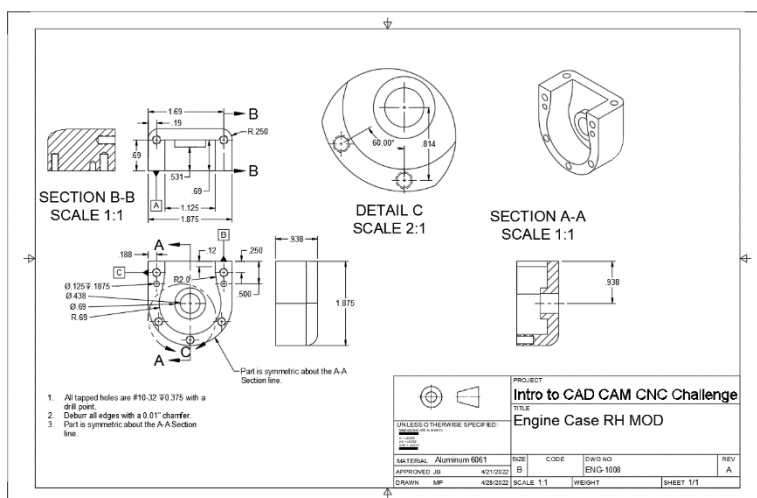


Figure 1: Part Blueprint

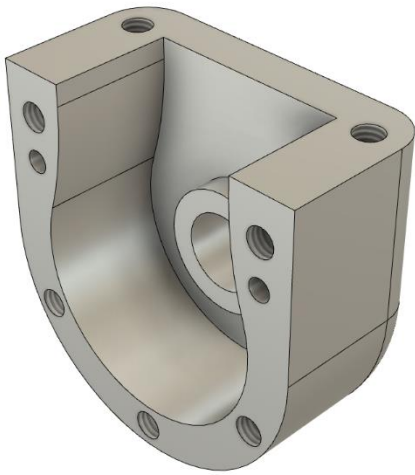


Figure 2: Part