

# **MMAN1130 – Design and Manufacture**

## **CAD & CAM Test**

**Date: 09/04/2021, Weighting 20%**

**IMPORTANT: You have two hours to complete the test and upload your files. The submission boxes will lock at exactly 1pm. Ensure you leave enough time to submit, this is your responsibility. Late submissions under 5 minutes will be penalized 50%. Late submissions after 5 minutes will receive a zero grade.**

### **What to do if you have trouble submitting your files?**

Immediately let us know in the Teams chat. This provides us a timestamp of your intent to submit. You must then immediately email your files to [d.eggler@unsw.edu.au](mailto:d.eggler@unsw.edu.au).

### **What to do if you have a question during the test?**

Simply type “I have a question” into the Teams chat and one of our invigilators will video call you.

## **INSTRUCTIONS**

Download the test paper titled “CAD & CAM Test Paper”.

### **CAD Files**

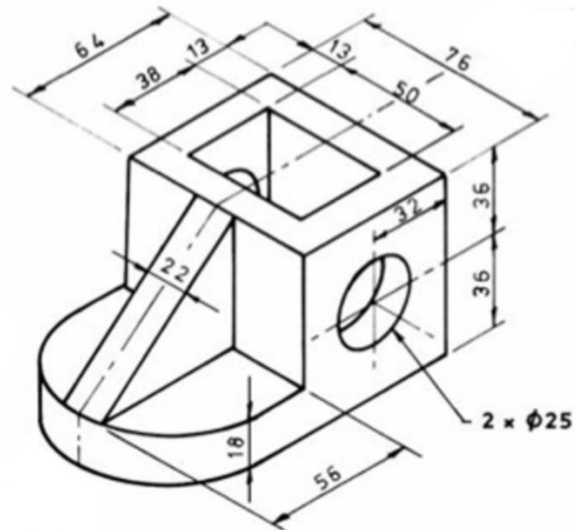
1. Create the 3D CAD models as required in Solidworks.
2. Save the files using either the “.prt” or “.sldprt” extension.
3. Rename the part file(s) as “zID\_CAD\_ExerciseX”. E.g. z5734996\_CAD\_Exercise1
4. Upload to “File Submission Box”.

### **CAM Files**

1. Download the 3D CAD part “CAM Test Component” and open in Fusion360.
2. Complete the CAM programming as required.
3. Export the file using the “.f3d” extension.
4. Rename the part file as “zID\_CAM”. E.g. z5734996\_CAM
5. Upload to “File Submission Box”.

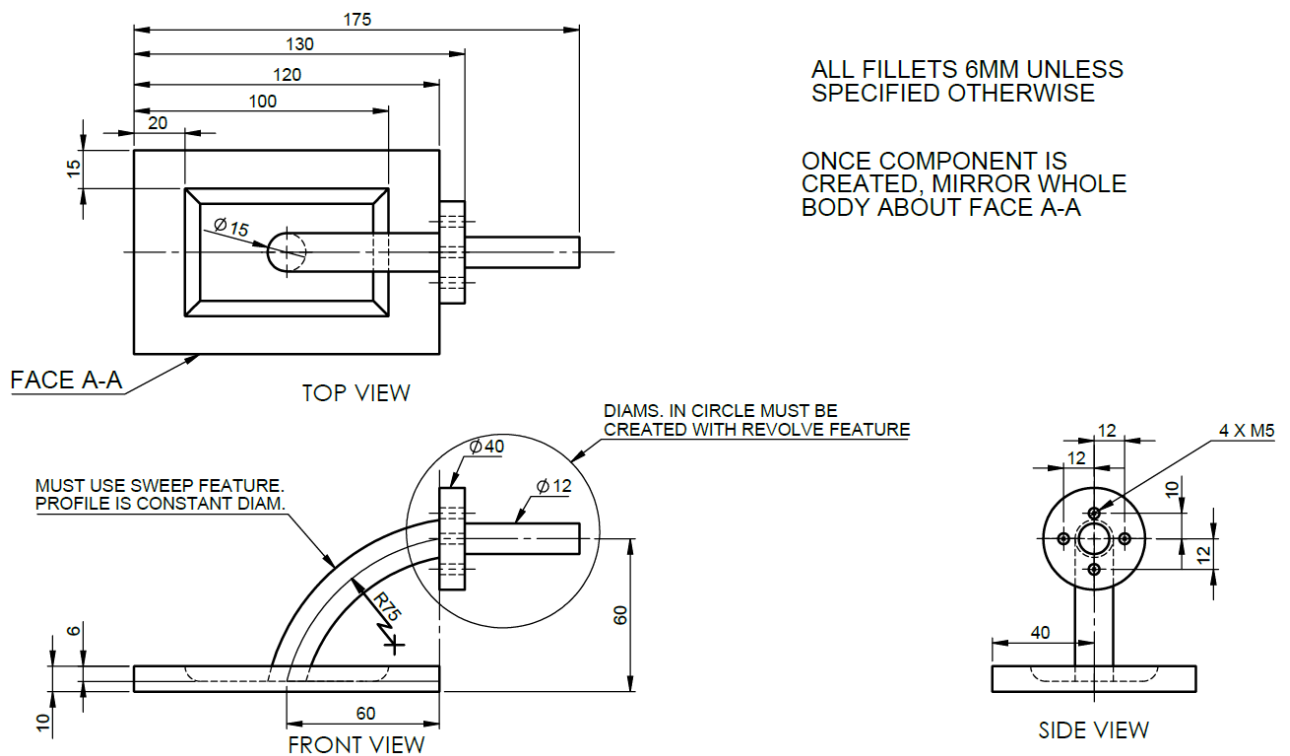
## CAD Exercise 1 (25 marks)

Create a 3D part from the following drawing. All dimensions are in mm unless stated otherwise.



## CAD Exercise 2 (45 marks)

Create a 3D part from the following drawing. All dimensions are in mm unless stated otherwise.



## CAM Exercise (30 marks)

The following exercise is to be completed with Fusion360. Please ensure you are using the following tool library titled “MMAN1130 Lab Exercises Tool Library” which can be found in Teams.

### CAM Programming

1. Download the part titled “CAM Test Component” from Moodle.
2. Open up the part in Fusion 360 and orient the part correctly (see Figure 1).
3. Set up the stock in preparation for milling processes. Assume the stock is to be gripped in a vice from below the part. Your stock must have AT LEAST 0.5mm stock offset for the top and sides of the stock.
4. Generate the necessary milling operations and toolpaths for manufacture.
5. Text is to be engraved with a depth of 0.5mm

Marks are awarded for effective and efficient machining strategies. Ensure you simulate your CAM operations to avoid tool collisions and other issues. (30 marks)

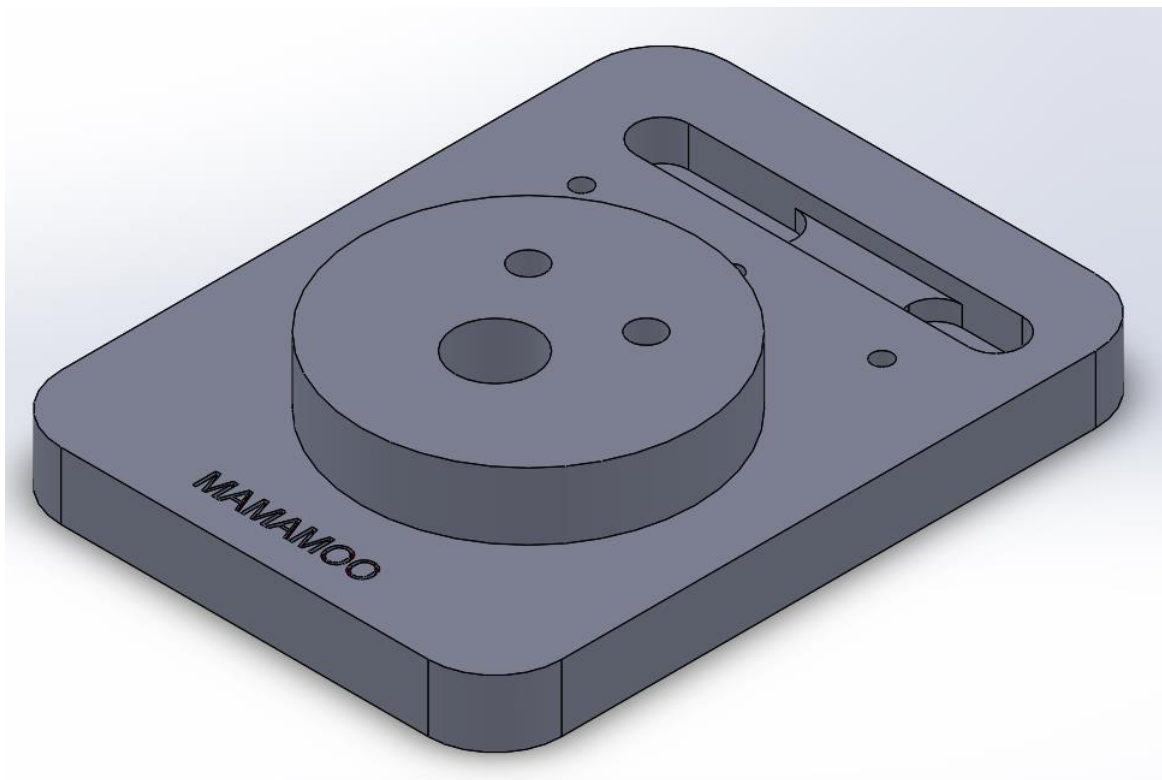


Figure 1 – Orientation of part. The base lies parallel to the x-y plane.