**Summary:**

It is key if you are to work within UQ Innovate that the following rules are followed; induction processes must be completed before working, enclosed shoes and safety glasses are a must, and non-compliance results in being asked to leave. One difference between the workflow diagram and the podcast was during the drilling and deburring phase, the use of a teammate to check that the drills are done straight is absent. While this procedure is not essential, it ensures that the drilling quality is consistent. The activity that consumed the most time was measuring and marking the plate to accurately replicate the design. A mistake in this process means the components will be manufactured incorrectly and will have irreversible mistakes which will require a new piece to be used. When measuring, using a ruler with millimetres with some applications requires a gauge that measures up to 2 decimal places.

**Vid 1**

Rules:

* You must complete all induction process well in advance to make sure your details are updated into the system
* Must wear enclosed footwear
* You must always wear safety glasses when working
* If you do not follow, you will be asked to leave

Before you start, grab the plate of aluminium and with the file, give two quick passes onto one side of the plate to get rid of any high spots. This is due to boroughs and other imperfections caused by the water jet cutting method. The edge filed must always be flat on the table to make sure all markings are consistent. With a rag, wipe down any pieces contacting the table to remove any potential debris that may offset measurements.

Tools measure 0.00mm

Find centre line using high gauge, gently push the gauge against the plate too mark centre line

Repeat for every edge. Make sure screws are loose before moving.

Problem may occur where edges are not perpendicular

If so mark the centre point of the plate using a ruler and scribe .Use dividers and set it to be half of the length of the plate and use it from the centre mark to find the edge of the plate. Make an arc with the tool, making sure it is visible.

Use the engineers square where the thick base is placed against the filed edge and have the thin blade on top of the face of the plate.Prop of the plate such that the thin blade can sit flush with the face of the plate. Move blade until it is tangent with an arc and use scribe at an approx. 30° angle such that it marks right across the blade. Centre punch the crosshairs for the holes on top of a workbench.

**Vid 2**

Place plate into vice where the area to be drilled through is raised above the vice.

Check that the drill is at the correct speed. If it is a pilot drill, speed 2, if it is finished size hole, speed 1. Check that the drills spins in a clockwise directions as seen at the back of the drill.

Use 2.5mm pilot drill where the bit is protruding 10mm from the base of the drill. Position drill in cntrepunch of plate. Drill perpendicular to plate. Have teammates tell when you are square before drilling. Be wary when you drill through the plate so as to not lose control. Complete all 4 holes before continuing.

Use a 5mm finish drill. Make sure the drill is in the pilot hole. Now need to deburr the holes. Use a counter drilling bit to deburr holes. Put the counter sink bit into the opposite side of the plate and apply one quick burst to complete. Then complete on the other side.

**Vid 3**

Now we can trim. If right handed, make the plate protrude from the right hand side of vice. Make a starting cute just to the right hand side of the waste part. Once started, cut with the flat part, full length of the blade. Ensure you keep on the right hand side and guide by slightly moving the frame of the blade. Place the file at approx. 45° to the plate and focus on the high areas. Continue to file until you get to the line with occasional pauses to check the progress. Knock burr of the side of the plate with file then check the plate is square using the engineer square.

**Vid 4**

Place reasonably high in the vice. 45° across the edge of the plate, move the file up and down and across at the same time to get a nice uniform edge across the plate. Do this to all external edges. Knock the sharp corners off using the same method so no sharp protrusions are present. Place the component onto a special jigg to check that the plate is manufactured correctly.