

3D Printing

We have 3D printers that use the Fused Filament Fabrication (FFF) / Fused Deposition Modelling (FDM) process similar to a hot glue gun.

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About the Prusa 3D printers

We operate a number of Fused Filament Fabrication (FFF) 3D printers.

- 3x [Prusa i3 MK3S+](#)
- 3x [Prusa MINI+](#) - The profile for the Prusa Mini for Cura is [here](#).

These printers can be used with [Prusa Sli3r](#) or [Ultimaker Cura](#), the printers are configured with [Octoprint](#) which allows network control, meaning using Ultimaker Cura integrates nicely.

All three printers use 1.75mm filament, we only allow the use of plain PLA filament in our machines, filament with flakes of metal, glitter, or other materials can damage the machine and we don't allow these to be used. We only allow PLA due to fumes caused by other types of filament.

Within reason there is no cost to using the 3D printer, we provide black and white filament as standard and some other colours may be available from other projects.

If you are going to 3D print, ensure you read this [lo3DP-Cheat-Sheet.pdf](#) and also check out the guide to perfect 3D printing problem solving here: [The Ultimate 3D Print Quality Troubleshooting Guide 2019](#)

You can monitor the printers from the link at the top of [#technical](#) on Slack, when on the UAL-Wifi network.

Here is the basic workflow to 3D print:

1.

Design a 3D object

TinkerCAD

Blender

Other CAD software

2.

Create STL file

Check printer set up

Edit file in slicer software

'Slice' the file in software
to create a gcode file

Get gcode to the printer

Monitor the print

Troubleshoot

Plate clean

What filament do you want to use?

Cura or Prusa slicer?

Correct filament & heat settings?

SD Card or Octoprint?

In person & via webcams

Plate adhesion

Cleaning hot end

3D Printing Overview Video

3D printing brief overview video: <https://youtu.be/y3OP6Hdgzgs>

Matt presenting in class

3D Printing

In the Digital Fabrication Lab we have a range of 3D printing equipment for CCI students to use, once they have done an induction, this equipment includes;

Three Ultimaker S7 fused filament printers:



these printer can print black and white PLA filament as well a special type of support filament called PVA which dissolves in water.

in order to prepare files for 3D printing on these machines you need to slice them using a piece of software called Cura which you can download for free for mac and windows OS by following the link

below

<https://ultimaker.com/software/ultimaker-cura/#links>

<https://ultimaker.com/3d-printers/s-series/ultimaker-s7/>

a Formlabs 3+ resin printer:



<https://formlabs.com/uk/3d-printers/form-3/>

To use them you need an induction from Chris Bull. Check in with him on slack or mail him for more information.