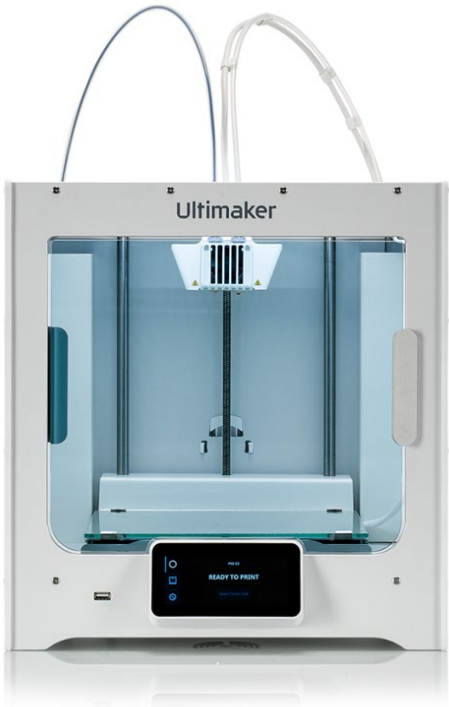


Basic instructions for 3D printing using:



Ultimaker S3



Ultimaker S5



Ultimaker 2+ Connect

What you need to bring:



Laptop

and / or



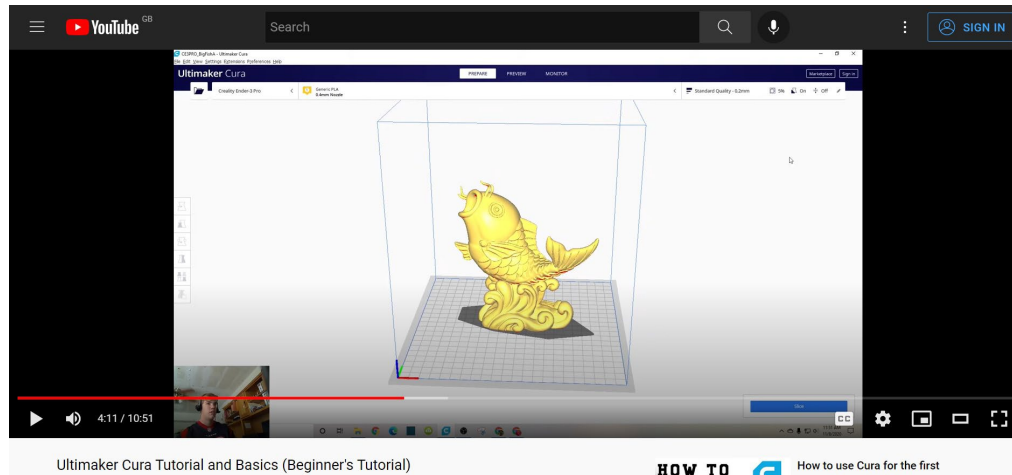
USB

Cura software

For these printers we recommend using Cura as the slicing software. Export your model from your CAD software as an STL, 3MF, or OBJ file.

Watch this Cura beginner's tutorial:

www.youtube.com/watch?v=NsGOoi3677M



If your file needs support material, we recommend using an S3 or S5 printer, which can use dissolvable PVA support. If no support is required, use a 2+ Connect printer. But either type of printer can build support structures. Orientate your file to eliminate or minimise the support material required.

The material / nozzle settings should be set to:

Ultimaker 2+ Connect	1	Ultimaker Silver Metallic PLA 0.4 mm	
Ultimaker S3		1 Ultimaker Silver Metallic PLA AA 0.4	2 Ultimaker Natural PVA BB 0.4
Ultimaker S5		1 Ultimaker Silver Metallic PLA AA 0.4	2 Ultimaker Natural PVA BB 0.4
Ultimaker S5		1 Ultimaker Black Tough PLA AA 0.4	2 Ultimaker Natural PVA BB 0.4

The nozzle used for providing support material on an S3 or S5 can be adjusted in the 'support' option when clicking on the settings ribbon.

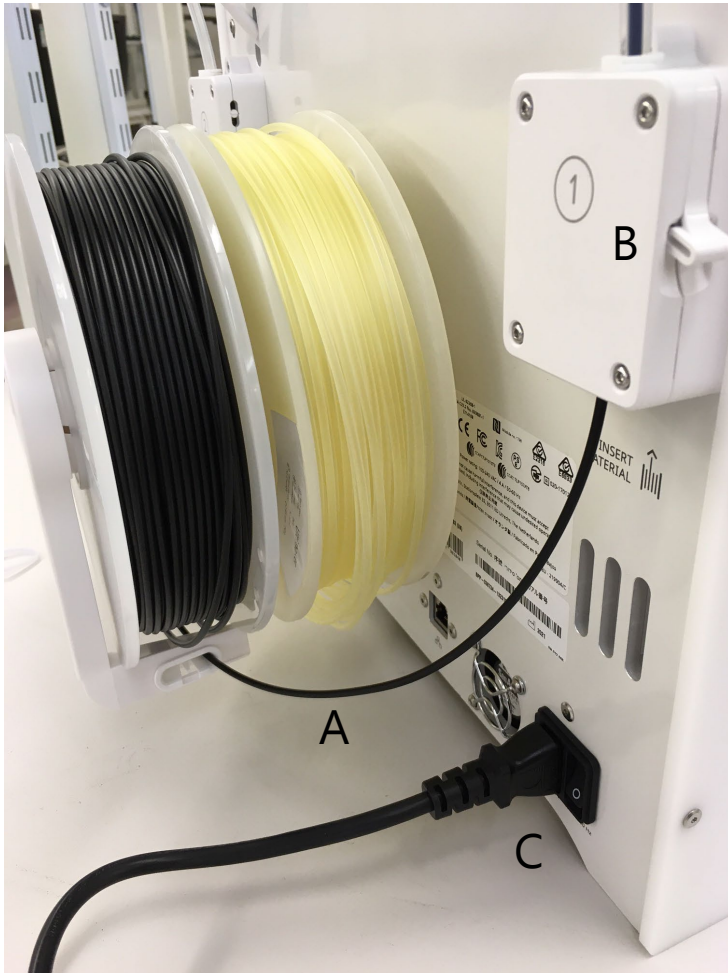


You should use layer height settings of 0.15mm or 0.2mm. The infill can be set as desired, but in most cases should be between 5% and 15%. A 'brim' can be replaced with a 'skirt' in most cases where the model is unlikely to fall over. This can be set in custom settings: Build Plate Adhesion.



These printers are not to be used for parts that take over 24 hours to print. If the print time is longer than 24 hours, you must adjust your settings to reduce the time. If this is unsuccessful, upload the files to the School of Engineering Technical Service Request system.

1



A – For S3 and 2+ Connect printers, check spool(s) are clear of obstructions and fed into the feeders. For all printers, check whether the spools are empty or near empty. If so, use another printer.

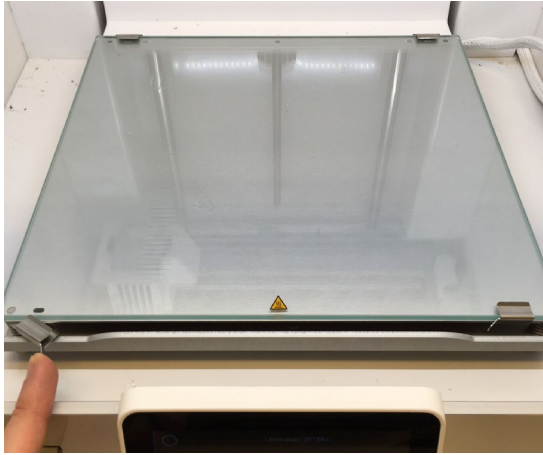
B – Check clamp(s) are in a down position on feeders.

C – Switch on the printer, and wait until 'ready to print' appears on the touch screen.

Do not attempt any maintenance or material changes.
Report these issues.

2

A



(B)



C



Leave a note with your name and student email address next to the machine, so you can be contacted if necessary.

A – Check that the glass bed is secured and clear of debris (if not clean see step 4B). The bed is fully secured if the clips close parallel with the glass bed.

(B) – Only if using PVA as support material on an S3 or S5, apply a light, single layer of glue to the bed, only on areas where you have placed models in the slicing software. Glue is found in the box above each printer.

C – Put your .ufp or equivalent gcode file onto a personal USB or the printer's USB. Plug this into the port left side of the touch screen. Press 'select from USB'.

Do not change any settings or attempt to perform maintenance from the touch screen menu. Report issues.

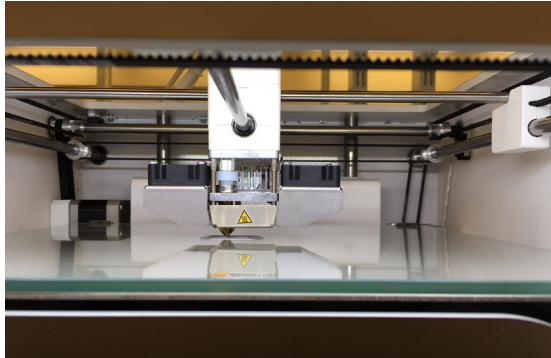
3

A



A – Select your file from the list. Scroll to page 2 once the file is selected to see and check an image of the file. Select Print.

B



B – Wait at the machine until your file begins to print, in order to notice any issues that arise during the printer's start up procedure. This takes a few minutes. Caution: the bed and nozzles warm up and become hot to touch during printing.

C



C – Note the time it will take to print the file. Return as soon as possible after the file has been printed. This will make it easier to remove the printed models from the glass bed, and frees up the printers for others to use. If you have used the printer's USB, clear your file off the stick.

If there is a problem during printing, 'pause' or 'abort' buttons can be selected. Follow on screen instruction to complete the chosen procedure.

4

A



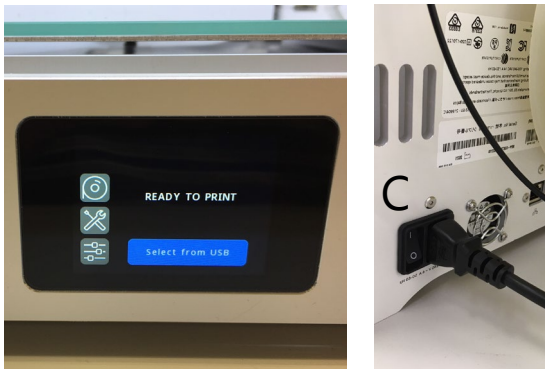
A – When the print is complete, carefully remove the glass bed from the printer. Peel away the model from the bed, or carefully use a provided scraper to assist. Do not excessively finish or remove build material from your model in the lab – take your model away and do this elsewhere.

B



B – Use a scraper / glass cleaner / paper provided to clean the bed of glue and build material. Do not spray cleaner on the bed while it is inside the printer. When clean, return the bed to the printer. Clean away all mess into the bin. The printer and surrounding area should be left in the same condition as you hopefully found it.

C



C – Follow the onscreen instructions until the printer is returned to its 'ready to print' screen. Turn off the printer using the switch on the back.

If your model was printed on an S3 or S5 printer, the support material, Natural PVA, can be removed either by breaking it away, or placing the model in warm water until fully dissolved, or softened enough to be easily removed.