

The background is a solid teal color. Overlaid on this background are numerous faint, white line-art icons. These icons include various tools such as wrenches, screwdrivers, and paintbrushes, as well as 3D models of mechanical parts, a smartphone with an Apple logo, and a circular logo with a stylized 'W' or 'L' inside. The icons are scattered across the entire surface.

# **3D PRINTING INDUCTION PRESENTATION**

**SLQ Wiki Fabrication Lab 2024/05/24 10:21**

~~REVEAL~~

## 3D PRINTING INDUCTION PRESENTATION

For the...

### Prusa i3 Mk3s

In this induction you will learn

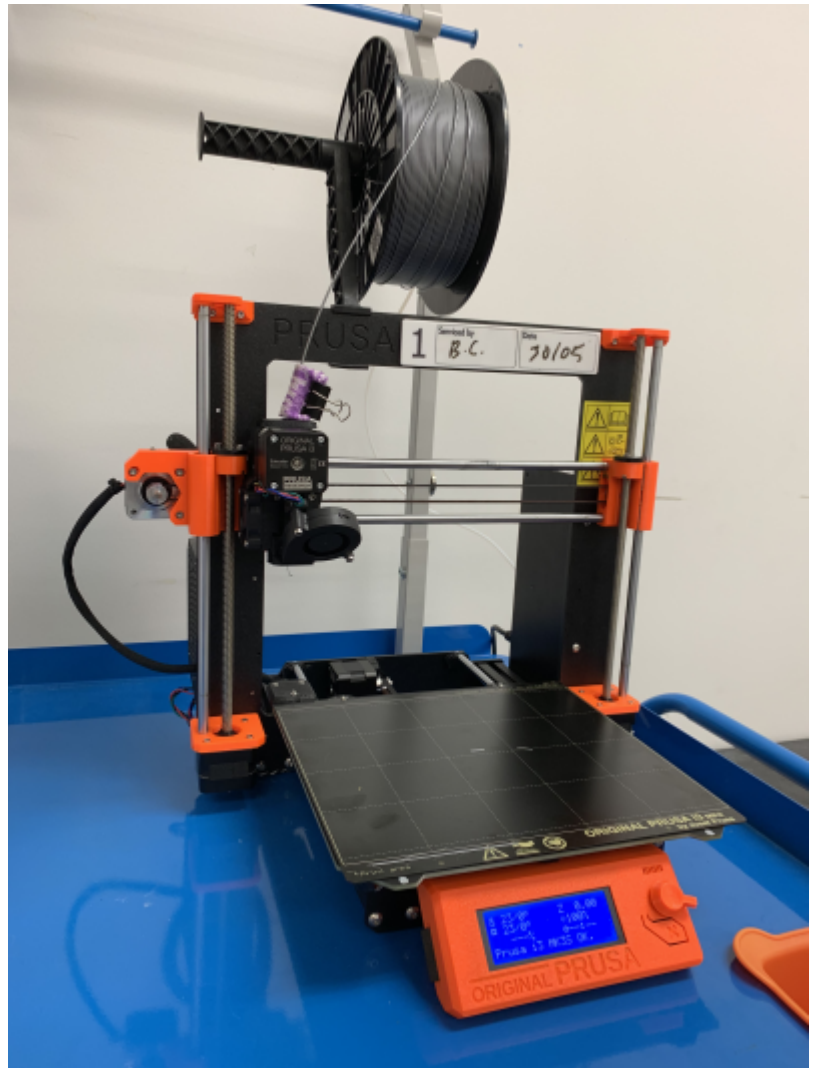
- the safe efficient operation of a 3D Printer
- what you can achieve with a 3D Printer
- a basic intro to designing for 3d printing TinkerCad
- how to prepare a simple design for printing.
- how to identify problems and what to do when problems occur.

## Requirements

- A [State Library of Queensland Patron Account](#).
- Closed footwear.
- Participants must be over 16 years of age
- 3D Printing Assessment paperwork (supplied)

### Prusa i3 MK3s+

The Prusa i3 MK3s+ is a successor to Original Prusa i3 MK3 with hardware and software upgrades which lead to improved reliability and ease of use and assembly.



The Edge purchased 5 Prusa i3s printers to replace the ageing Up mini 2s.

## Summary

- Build volume – (250(W) x 210(D) x 210(H) mm (11,025 cm<sup>3</sup>)
- 0.4mm nozzle
- PEI print surface

## FILAMENT MATERIALS

In theory, the Prusa i3 Mk3s+ can be set up to print using a range of filaments including:

PLA	Polylactic acid (Starch based)
ABS	Acrylonitrile butadiene styrene
PETG	Polyethylene terephthalate (Glycol modified)
Nylon	Polyamide
Composite Materials	Often PLA with carbon fiber, metal or wood fill

HIPS	High-impact polystyrene
PVA	Polyvinyl acetate (Water-soluble Print support)
PP	Polypropylene

In practice, we control the types of filaments permitted for printing, due to the emissions they produce when melted. For the full range, see: [Supported Filaments](#)

## Overview

[Printer Components](#)

[Prepping your 3d model for printing](#)

[Printing with Prusa i3 MK3s](#)

[3D printing induction presentation](#)

## Maintenance

[Daily Setup](#)

[Routine Maintenance](#)

[Changing Filament Roll](#)

[Troubleshooting](#)

## Manual

[prusa3d\\_manual\\_mk3s\\_en\\_3\\_11.pdf](#)

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Elements of this wiki entry have been adapted from the Prusa 3D Manual Mk3S; English Edition, which is published under a CC attribution licence and is available [here](#)

## Induction Materials

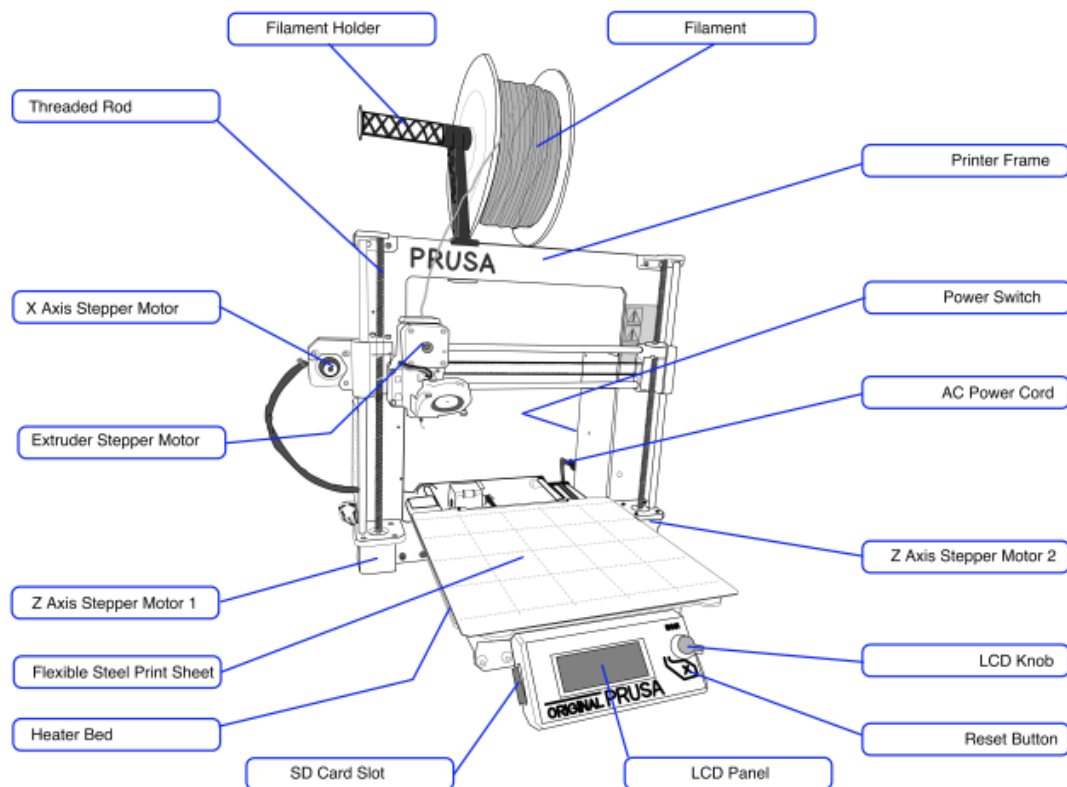
[3D Printing Induction Form](#)

3D Printing Induction Teachers edition

## 3D printing operations

Below describes guidelines for coordinating public access of the 3D printers.


### Prusa i3 Mk3s Components









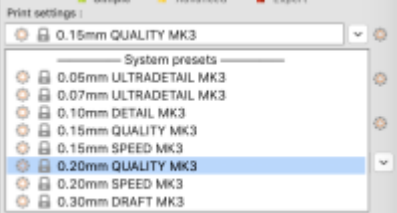
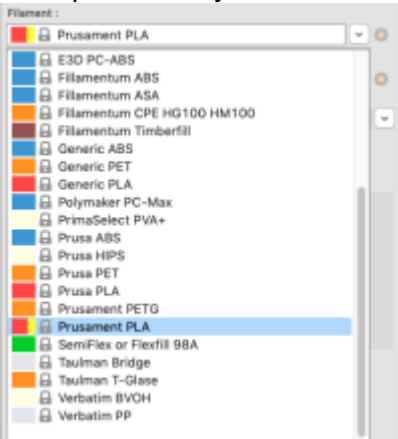

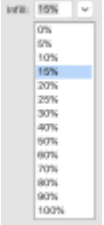






### Prusa Slicer

Prusa Slicer is the version of 3d Slic3r adapted for the [Prusa i3 MK3S](#)

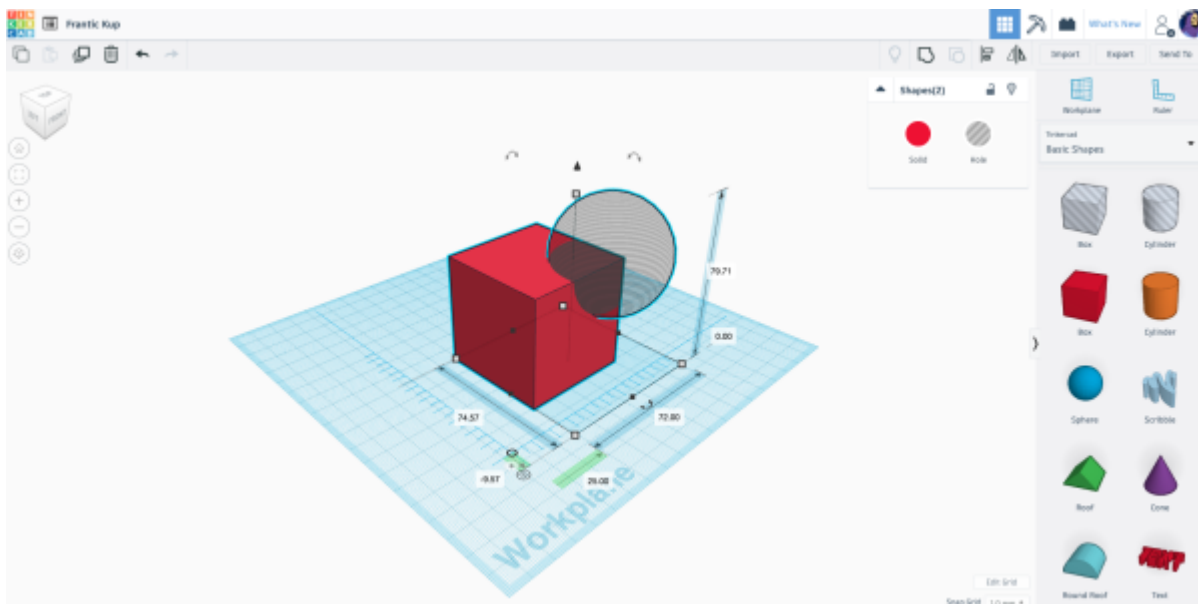
### Prepping your 3d model for printing

- 1 Open the **PrusaSlicer**  application. If you are prompted that a Configuration Update is available, click to install the update before proceeding further.

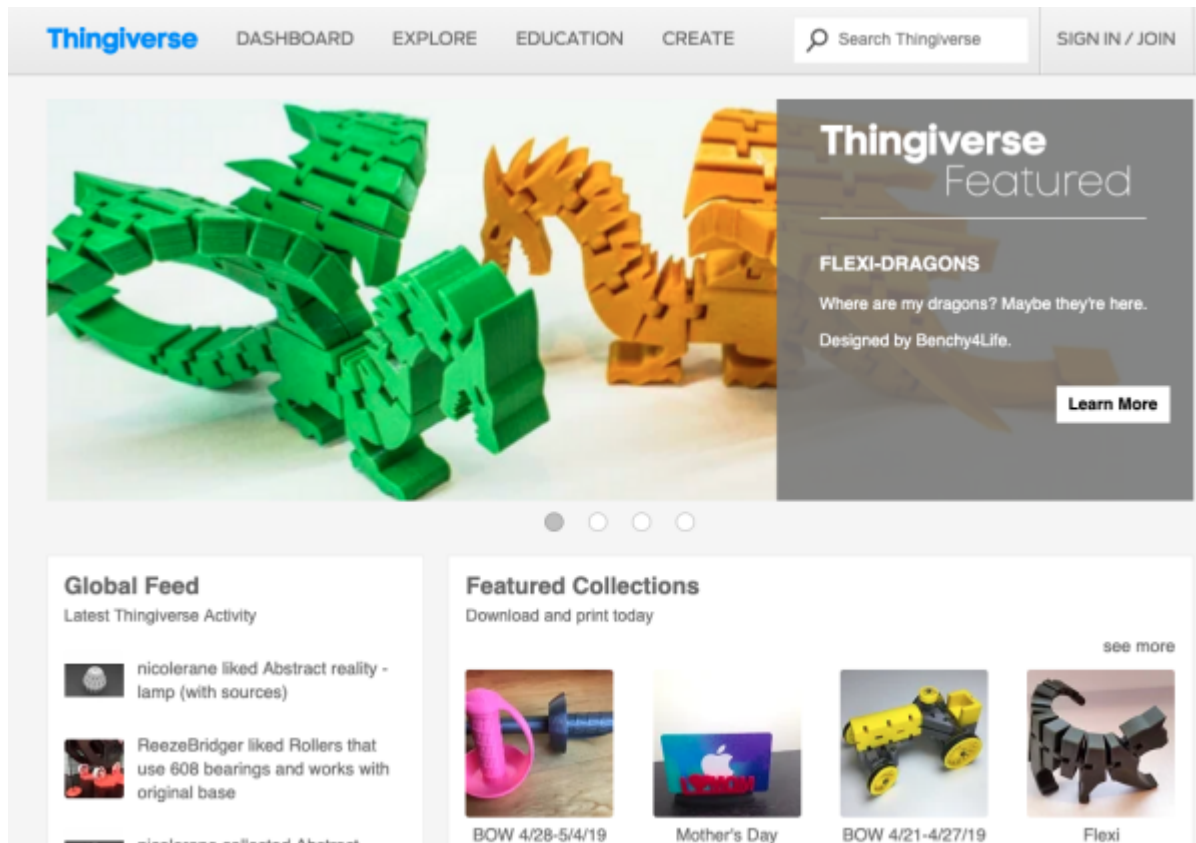
2	Use the <b>Add</b>  button to load models into PrusaSlicer
3	<b>Delete</b>  <b>Delete All</b>  buttons remove the model(s) from PrusaSlicer opens the detailed settings of print , filament and printer
4	Use <b>Move</b> ,  <b>scale</b> ,  <b>rotate</b>  , <b>Place on Face</b>  and <b>cut tools</b>  to prepare the model to printing in the most efficient/ effective orientation,
5	Select a <b>Quality / Speed</b> setting for your print 
6	Material selection (on Fabrication Lab computers, only filament brands/polymers provided in the Lab will appear in the dropdown list) 
7	Select a <b>Supports</b> setting 
8	Select an <b>Infill</b> percentage 
9	Click <b>Slice</b>  to slice the model into layers in the Z axis and select <b>layers preview</b>  to view infill land

10	<div data-bbox="172 145 560 302"> <p>Sliced Info</p> <table> <tr><td>Used Filament (m)</td><td>13.34</td></tr> <tr><td>Used Filament (mm³)</td><td>32097.11</td></tr> <tr><td>Used Filament (g)</td><td>39.80</td></tr> <tr><td>Cost</td><td>0.60</td></tr> <tr><td>Estimated printing time :</td><td></td></tr> <tr><td>- normal mode</td><td>5h 29m 5s</td></tr> <tr><td>- stealth mode</td><td>5h 31m 15s</td></tr> </table> </div> <p>Check the <b>Sliced Info</b> for the cost and how long its going to take to print before exporting your gcode  <i>The Edge charges 15cents / gram and your print needs to be finished before the Lab Closes - talk to the Fab Lab Supervisor if you have a long job you'd like to do .</i></p>	Used Filament (m)	13.34	Used Filament (mm³)	32097.11	Used Filament (g)	39.80	Cost	0.60	Estimated printing time :		- normal mode	5h 29m 5s	- stealth mode	5h 31m 15s
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- normal mode	5h 29m 5s														
- stealth mode	5h 31m 15s														
11	<p>Generate and export gcode to the SD Card by clicking the <b>Export G-Code</b> button</p> <div data-bbox="172 488 762 533"> <input type="button" value="Export G-code"/> </div>														
Hint	Right-click on model opens a context menu														
Hint	<p>Switch between 3D editor and Layer Preview by clicking  &amp; </p>														

## Designing for 3D printing in TinkerCad



## Thingiverse



Induction Paperwork PDF

Induction Paperwork Affinity Designer File