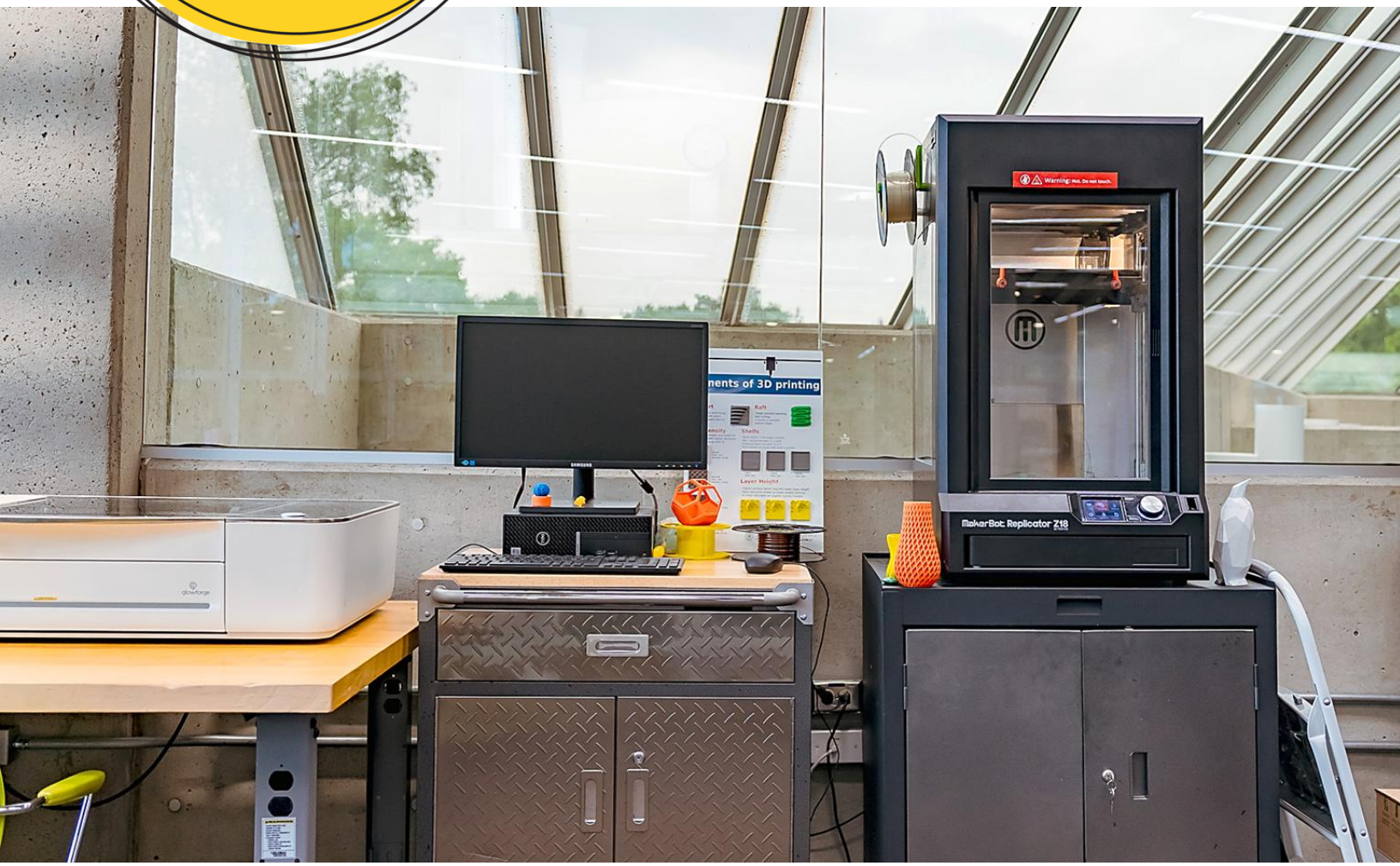
3D Printer Guide

Sermoon D3



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Before You Start

What does a 3D printer do?

A 3D printer is a machine that builds physical objects from a digital file by laying down thin layers of material, one on top of another. This process is called additive manufacturing.

The Sermoon D3 uses a material called PLA filament, which is a type of plastic string that comes on a spool. The printer heats the filament until it melts, then pushes it through a small nozzle that moves precisely to trace out each layer of your design. As each layer cools and hardens, the next one is added on top. Over time, these stacked layers form a solid three-dimensional object.

The printer works inside an enclosed chamber, which helps maintain a stable temperature and keeps the printing environment clean and safe. Because the machine follows a digital file exactly, it can produce detailed and repeatable results.

What can you make with a 3D Printer?

With a 3D printer, you can create a wide range of custom objects, including:

- **Household Items:** phone stands, hooks, organizers, replacement knobs or clips.
- **Creative Projects:** figurines, ornaments, models, game pieces, art pieces.
- **Personalized Gifts:** custom name tags, keychains, bookmarks, desk accessories.
- **Prototyping:** test versions of product designs, mechanical parts, or enclosures.
- **Functional Parts:** brackets, mounts, cases, adapters, and other practical components.

This makes 3D printing a popular tool for personalization, creative projects, problem-solving, and small-scale fabrication.

What to Expect

- **Average project time:** Varies widely. Simple, small prints may take 1–2 hours, while larger or more detailed prints can take up to 7 hours. Prints longer than 7 hours cannot be accepted.
- **Skill level:** Beginner-friendly. You bring the design file; staff will help with setup and printing. Staff are not responsible for original creation of your 3D file.

- **How it works at BPL:** 3D printing at the MakerSpace is a staff-assisted service. You bring your design file, staff prepare and run the print, and you pick up the finished item when it's ready.

Some prints may not succeed on the first attempt, especially with complex shapes. Staff will let you know if adjustments are needed.

Software & Files

All 3D printing projects are prepared using **Creality Print** (slicer software) on the MakerSpace computers. This software takes your 3D design file, lets you position and adjust the model, and converts it into instructions the printer can follow.

You do not need to learn the software yourself. Staff handle the slicing and setup. However, we recommend customers try to learn the slicer software and develop an understanding of the basics to communicate your preferences as accurately as possible.

Accepted File Formats

- **.STL** — the most common and recommended format for 3D printing.
- **.OBJ** and **.3MF** — also accepted, but .STL is the simplest to work with.

Where to Find 3D Models

You do not need to design your own model from scratch. Many free models are available online:

- **Thingiverse** (thingiverse.com) — large library of free, community-created models.
- **Printables** (printables.com) — popular collection of tested, print-ready designs.
- **MakerWorld** (makerworld.com) — curated designs from the 3D printing community.

Some of the sites above require an account. If you want to create your own design, free tools like TinkerCAD (tinkercad.com) are great for beginners.

Design Tips

- Save or export your design as an .STL file before bringing it to the MakerSpace.
- Bring your file on a USB drive, or be prepared to download it on a MakerSpace computer.
- If you're unsure whether your file will print well, staff can review it with you.

Supplies & Material

The MakerSpace provides the filament used for printing. You do not need to bring your own materials.

Material

The Sermoon D3 uses **PLA (Polylactic Acid)** filament. PLA is a widely used 3D printing material that is easy to work with and produces good results for most projects. It is available in a range of colours (subject to current stock).

Cost

3D printing is charged based on the time it takes to print your object. Staff will provide you with a cost estimate before printing begins.

Note the estimated print time shown in the software may differ slightly from the actual time. Final cost is based on actual print time, rounded to the nearest 15 minutes.

3D Printer Safety

The Sermoon D3 is enclosed and designed to be safe during normal use. However, there are a few important safety considerations to keep in mind.

Burn Risk

The printer uses high temperatures to melt filament. The **extruder nozzle** and the **heated build plate** can reach temperatures that will cause burns on contact.

- Do not open the printer door while a job is running.

Pinch and Moving Parts

The print head and build plate move during printing. Keep hands and loose clothing away from the machine while it is operating.

General Rules

- Only MakerSpace staff operate and handle the 3D printer. Do not attempt to load filament, adjust settings, or remove prints yourself.
- If something looks or sounds wrong during a print, notify staff immediately.

Getting Started

3D printing at the MakerSpace is a staff-assisted process. Here is what to expect from start to finish.

1. Prepare Your File

Before visiting the MakerSpace, make sure your design file is ready:

- Your file should be in .STL format (preferred), or .OBJ / .3MF.
- Bring your file on a USB drive, or know where to download it online.
- If you're unsure about your file, staff can review it with you at the MakerSpace.

2. Review Your Design with Staff

When you arrive, staff will open your file in Creality Print and review it together with you. This is a good time to discuss:

- **Size:** Is the object the right dimensions? It can be scaled up or down.
- **Orientation:** How should the object sit on the build plate? The best orientation usually has the largest flat surface facing down.
- **Quality:** Would you like a faster print with visible layers, or a slower, smoother finish?

3. Choose a Print Preset

The Sermoon D3 has four quality presets to suit different needs:

Preset	Best For
0.16mm High Quality	Detailed prints with smooth surfaces. Slower and uses more material.
0.20mm Standard	A good balance of quality and speed. Works well for most projects.
0.30mm Fast	Quick test prints or simple shapes where detail is less important.
0.30mm Structural	Functional parts that need extra strength (e.g., brackets, mounts, mechanical pieces).

Staff will recommend a preset based on your project and can fine-tune settings if needed.

4. Confirm and Start the Print

Once everything looks good:

1. Staff will slice the file, which generates a preview and an estimated print time.
2. You can preview the print layer by layer to check for any issues.
3. Staff will confirm the estimated cost with you before starting.
4. You'll fill out a Project Intake Form with your name and contact information.
5. Staff will export the file and send it to the printer.

You do not need to stay while the print runs. Staff will contact you when it's ready.

5. Pick Up Your Print

When your print is finished, staff will contact you using your preferred method (email or phone).

- **Pickup window:** You have two weeks to pick up your project.
- **Reminder:** If not picked up within two weeks, staff will reach out once more. Projects left for longer than three weeks may be recycled.
- Payment is collected at pickup based on the actual print time.

Tips for Success

- **Start with a simple design.** If this is your first 3D print, choose something small and straightforward. This helps you learn what to expect before trying more complex projects.
- **Think about orientation.** Objects print best when the largest flat surface faces down on the build plate. This creates a stable base and reduces the need for supports.
- **Ask about supports.** Some shapes (like overhangs or bridges) need temporary support structures to print properly. Staff can enable supports and help you decide if they're needed.
- **Consider how the object will be used.** If your part needs to be strong (for example, a bracket or a clip), mention this to staff. They can adjust settings like infill density and layer height to improve durability.
- **Check your file dimensions.** Before bringing your file in, double-check that the size is correct. Designs are sometimes saved in the wrong scale (e.g., millimetres vs. inches), which can result in a print that's much larger or smaller than expected.
- **Keep expectations realistic.** 3D-printed objects will show visible layer lines, especially at faster settings. Finer detail requires slower print speeds and more time.

Common Issues & Quick Fixes

Problem	What to Do
Print not sticking to the build plate	Staff can clean the plate with rubbing alcohol or add a brim (a thin border around the base) to improve adhesion.
Print failed or broke partway through	Complex or tall prints can sometimes fail. Staff may suggest adjusting the orientation, adding supports, or slowing the print speed.
Object came out the wrong size	Check that the file was designed in the correct units (mm vs. inches). Staff can scale the model in Creality Print before reprinting.
Visible gaps or rough surfaces	This may happen with low infill or fast print settings. Staff can increase infill or use a higher quality preset.
Supports are difficult to remove	This is normal for some shapes. Staff can try tree-style supports, which are generally easier to remove than standard supports.
Print looks stringy or messy	Stringing can happen between separate parts of a model. Staff can adjust temperature and retraction settings to reduce it.

If anything goes wrong with your print, staff will work with you to troubleshoot and find a solution.

Need More Help?

If you need additional support:

- Ask MakerSpace staff for assistance at All Levels Access hours.
- Visit the MakerSpace webpage for booking and contact information.
- Check the MakerSpace guides for file preparation and design basics.