Makerspace Training and Info Document

Our 3D Printers

The Fort Frances SGEI Makerspace has four 3D Printers, two MakerBot Replicator +'s, and two Raise3D Pro2 Plus. If you're not familiar with these printers, they are both FDM (Fused Deposition Modelling) printers that use plastic filament like PLA (Polylactic Acid).

If you're not familiar, 3D Printing is a method of turning a digital 3D model into a physical model. It's perfect for making prototypes, replaceable parts, toys, gifts, furniture, and so much more. With FDM printers, extruders on the machine heat plastic filament and extrudes it through a nozzle onto a build plate. The machine will draw out a layer on the plate before moving up and drawing another layer on top of the first. With each layer, the machine slowly builds the model.

If you're looking to start your 3D Printing journey, MakerBot is a perfect printer for any beginner. Designed for classroom settings and an easy to navigate user interface, users can learn the basics of printing with MakerBot before moving to more advanced printers and projects. MakerBot also designed the popular 3D printing website, Thingiverse (https://www.thingiverse.com/), which gives users access to free 3D models and prints, as well as provide a community for people with similar 3D Printing interests.

For more information regarding the MakerBot Replicator + and Thingiverse, here are some videos and links you can go to that will tell you more about the machine!

https://www.makerbot.com/ (MakerBot Website)

https://www.makerbot.com/3d-printers/replicator/ (MakerBot Replicator + Info)

If you're looking for more advanced printing, we suggest trying the Raise3D Pro2 Plus printer. It has dual extrusion, a heated build plate and a large 12x12x24" build volume. Designed for long print times, higher quality and better precision, Makers with big ambitions can print miniature statues, helmets, apparel, mechanisms like clocks, and so much more. Because of its design, it can use many different filament types from different brands. Raise3D also provides information regarding what filament you should use for what project.

For more information regarding the Raise3D Pro2 Plus, here are some videos and links you can go to that will tell you more about the machine!

https://www.raise3d.com/ (Raise3D Website)

https://www.raise3d.com/pro2-series/ (Raise3D Pro2 Series info)

How to use our 3D printers!

If you would like to learn how to use the 3D Printers in advance before booking a training day in the Makerspace, here are some links to help you get familiar with the machines:

MakerBot

https://www.makerbot.com/learn/ (MakerBot Replicator + Tutorial Page)

MakerBot Print Software Tutorial (MakerBot Print Software Tutorial by Christopher Townsend)

Raise3D

A Complete Presentation of the Pro2 Series - Raise3D Livestream Recap (Complete Presentation of the Pro2 Series)

3D Printing Filament Basics | RaiseAcademy (Filament Basics)

Recover your 3D print after a Filament Run-Out pause | Raise Academy (Filament Runout Recover)

How to 3D Print with ideaMaker | Slicing Software Basics (Raise3D ideaMaker Basics)

For all other videos by Raise3D Technologies, here is a link to their YouTube Channel: https://www.youtube.com/c/Raise3D

Please note that we allow the use of your own filament on our Raise3D printer if the brand is in the Raise3D recommended filament list and the type is PETG or PLA. Filament that produces high VOC (Volatile Organic Carbon) or other toxic fumes like ABS is prohibited. If proof of what the filament you're using is not provided, we will deny the use of it with our 3D Printers. If you would like to look at the recommended list, please check out this link:

https://www.raise3d.com/filaments/ (Filament Navigation based on project requirements)

https://www.raise3d.com/compatible-filaments/ (Open Filament Program (OFP), contains all compatible filament brands)

Our Laser/CNC Cutters

The Fort Frances SGEI Makerspace has an Epilog Fusion Edge, which is a CNC laser cutter. If you're unfamiliar with laser cutters, these machines focus a high-power laser that uses CNC (computer numerical control) to draw out shapes or engravings on a material beneath the laser. Our Epilog Fusion Edge uses a 50-WATT, Class 4 laser to cut and engrave into material like wood, glass, acrylic and metal. Due to Epilog's design and safety systems, the Epilog Fusion Edge is considered a Class 2 laser machine, meaning we can safely use it without the need of protective laser goggles. The Epilog Fusion

Edge is perfect for open creative spaces like Makerspaces as it can help Makers create decorations, things to sell, and more.

If you're interested in checking out some of the neat things you can do with the laser cutter, or want to learn how to use the machine ahead of time, check out these links:

The Epilog Fusion Edge Laser - Discover What is Possible! (Epilog Fusion Edge by Epilog Laser)

If you're curious about what our laser cutter can engrave/cut, see our list of allowed and banned materials (Currently based off the official Epilog Website):

https://www.epiloglaser.ca/how-it-works/laser-material-compatibility.htm (Material Compatibility)

http://support.epiloglaser.com/article/8205/30188/material-safety-and-your-laser (Material Safety and your Laser)

The Kenora SGEI Makerspace has an Epilog Helix, which is a CNC laser cutter. If you're unfamiliar with laser cutters, these machines focus a high-power laser that uses CNC (computer numerical control) to draw out shapes or engravings on a material beneath the laser. Our Epilog Helix uses a 50-WATT, Class 4 laser to cut and engrave into material like wood, glass, acrylic and metal. Due to Epilog's design and safety systems, the Epilog Helix is considered a Class 2 laser machine, meaning we can safely use it without the need of protective laser goggles. The Epilog Helix is perfect for open creative spaces like Makerspaces as it can help Makers create decorations, things to sell, and more.

If you're interested in checking out some of the neat things you can do with the laser cutter, or are interested in learning how to use the machine ahead of time, check out these links:

(Links)

If you're curious about what our laser cutter can engrave/cut, see our list of allowed and banned materials:

(Links)

Book Assembly Machines

The SGEI Makerspace has a Xerox Versant 180 Press printer that can do mass printing for books, magazines, business cards, pamphlets and more. When paired with our EBA 5260 Guillotine Paper Cutter and our MAMO Glue Binder, you can easily create booklets, or large scale textbooks for projects, self-publishing, or school related resources. These machines also go well together when doing book repairs or page replacements.

The Xerox Versant 180 is equipped with a scanner, 5 different paper size trays plus a bypass which can hold a maximum paper size of 13" x 26". It can do a variety of different media types as well and can staple and fold booklets. If you'd like to learn more about the machine, check out in the links below:

https://www.xerox.com/en-us/digital-printing/digital-presses/xerox-versant-180/specifications#Capabilities

Xerox Versant 180 Press: Driving your Business to New Levels (Xerox Versant 180 by Xerox)

The EBA 5260 Paper Cutter uses a large guillotine blade to cut large stacks of paper. It can cut stacks of paper that are 80 mm high and 520 mm wide. It uses a screen that allows you to determine the length of paper to achieve more accurate cuts. If you would like to see more technical specs of the paper cutter, you can find them here:

eba_5260_engl.pdf

The MAMO LEGA 420 Glue Binder is great for binding books with high precision, binding up to 420mm length and up to 50mm wide spines. It can do both hard and soft cover books and is user friendly/easy to use. If you would like to see more technical specs of the paper cutter, you can find them here:

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Laminator

The SGEI Makerspace has a Royal Sovereign RSH-1651 Laminator for large laminating jobs. The laminator can handle jobs up to 65" wide, and uses a digital interface that's easy to use and can control temperatures and speed to deliver a high quality finish. To learn more about this laminator, check out this demonstration video:

Royal Sovereign RSH 1151 and RSH 1651 Wide Format Roll Laminator (Royal Sovereign RSH 1151 by MyBinding.com)

List of our other devices that do not need training, but recommended links are provided anyways:

Sewing Machine

The SGEI Makerspace has 20 Janome 2030 QDC sewing machines. Using an LED screen, users can easily choose which stitch, stitch length/width and speed they'd like to use for their project. This machine is great for sewing clothes, decorative pillows and repairs! Additionally, it has a fun feature that allows the machine to be run without a pedal.

If you're not familiar with this sewing machine, or how to use a sewing machine in general, here are some links to help you get familiar with the machine before using it:

Janome 2030QDC ! (Janome Demonstration by Janome HQ Janome Canada)

Cricut

In our Makerspace, we have 4 Cricut Explore Air 2 for all vinyl and paper type projects! If you don't know what a Cricut Cutter is, it is a machine that uses a sharp blade to cut through material like Vinyl, Paper, Iron-On Shirt Vinyl, Fabric, and many more thin crafting material! It takes any design you have and puts it through their design app to turn it into an SVG file and transfers it to the machine. The machine then takes the file and cuts out a design, following the transferred file. You can also change the blade to cut through thicker material like carboard, corkboard, bristol board, and more. Additionally, you can swap out the blade for a marker to draw out designs for cards or even your own shirt designs. It's a great, versatile machine to help make scrap books, cards, décor, and so much more.

If you'd like some video tutorials on how to use the Cricut Explore Air 2 before trying it out yourself, here are some links you can follow along:

https://help.cricut.com/hc/en-us/articles/360038150194-Tutorial-Videos (Tutorial Videos, Cricut Design Space)

https://learn.cricut.com/ (Learn from the pros – Cricut Tutorials)

What is a Cricut Cutting Machine and What Does it Do? (Cricut Cutting Machines + Playlist by Cricut)

We also have access to a Cricut EasyPress 2 which allows Makers to make designs for t-shirts, bandanas, bags, etc. If you would like to know how to use the EasyPress 2 before trying it out, here are some links you can follow along:

https://help.cricut.com/hc/en-us/articles/360009378134-How-to-use-Cricut-EasyPress#easypress2

How to Use Cricut EasyPress 2 | Easy Press | Beginner | Cricut™ (How to use Cricut EasyPress 2 + Playlist by Cricut)

For more tutorial videos and demonstrations of their products, check out Cricut's official channel:

https://www.youtube.com/@Cricut