UNIVERSAL LASER TRAINING

BEFORE YOU START

Materials:

- Ensure all materials are approved and safe to use in the laser. If you're not sure, ask a staff member. Supervisory staff has complete authority to refuse the use of any material.
- In general, light woods and wood composites (similar to those found in the scrap pile near the laser) are recommended for prototyping. The only plastic allowed is the acrylic found near the laser, and larger amounts can be purchased for projects that may require more than scrap.
- For a full list of materials, check in with a staff member.
- If you have not used a specific material before, and nobody is available to check your material, **DO NOT USE IT.**

Design:

- If you are making a reservation for the laser, setup time **must** be included in your reservation.
- Bring your design file on a USB.
- File requirements:
  - Vector image files preferred (.svg, .ai, etc). Other image types (.jpg, .gif) will work, but will require additional setup. Vector images also ensure the highest possible resolution and etched image quality. Vectors are required for cutting or linear etching.
  - RGB color space required. Images with other color settings will not cut.
  - For raster-only projects (no cutting/etching), grayscale or black and white images are acceptable.
  - Simple shapes and high contrast will result in the clearest etched images.

Laser:

- Ensure cutting bed is properly positioned by opening front door and gently pressing the bed towards the back left corner until it fits snugly against the ruler barrier.
- Check nozzle for dust or debris, notify a staff member if it needs to be cleaned.

Design Setup

1. Open Corel Draw
2. File → Import
   a. Alternatively, image files can be dragged directly into the workspace.
3. Project area represents the full build area, 32" x 18"
   a. Changing the dimensions of the workspace may make it more difficult to position the image on the print.
4. Rescale image to fit the build area (if necessary).
5. Place material in top left corner of the laser bed.
6. Convert image to vector. If your image is already in a vector format, skip to Step 6. If no cuts will be made (rastering only), skip to Step 7.
   a. Right click image → Outline Trace
   b. If necessary, adjust settings in dialogue box to clarify image
   c. Ensure "Delete Original" box is checked
7. Convert all intended cut lines into appropriate color and format:
   a. Select all lines to be cut
   b. In Object Properties box, change line thickness to "Hairline"
   c. Change color to R:255 G:0 B:0
   d. <u>RED LINES THAT ARE NOT SET TO HAIRLINE THICKNESS WILL BE CONVERTED TO GREYSCALE RASTERED IMAGES AND WILL NOT CUT.</u>
8. Rescale image to final size. Once sent to the printer, only position may be changed.

Material Setup

1. Open Print dialogue (Ctrl+P or File → Print)
2. Select Universal Laser: VLS6.60
3. Open Printer Preferences (to the right of the printer selection)
   a. Measure material thickness using calipers, round to two decimals.
   b. Select appropriate material from database. If you have not selected a material, or have accidentally selected a category rather than a specific material, the entry boxes will be greyed out.
   c. Enter thickness into bottom left box in the materials properties window. <u>HIT TAB TO CONFIRM ENTRY.</u>
   d. Leave Vector Settings at Standard.
   e. Leave intensity and power settings at 0%. *(If you are doing a second print, and need to adjust intensity, you may do so now).*
   f. Ensure units are on appropriate setting (inches by default)
   g. **<u>DO NOT TOUCH MANUAL CONTROL TAB</u>**
   h. Click Apply
   i. Click OK
4. You will return to the print dialogue. Press Apply, and then Print. <u>Your print will **not** start yet, *don't panic*</u>!

Laser Setup

1. In the task tray on the bottom right of the desktop, click on the UCP (Universal Control Panel) icon. It will appear as a small red square with a diamond inside. The UCP will open.
2. If the top of the laser is not open, open it now to activate the guidance laser.
3. Orient the print within the workspace:
   a. Using the rulers on the cutting bed, estimate the center of your image on the material.
   b. Click Relocate View (crossed arrows)
   c. Select the middle anchor point on your image in the workspace, and manually drag the image to estimated material center. Alternatively, manually enter the x/y coordinates into the boxes on the right.
   d. Click Focus View (nozzle image)
   e. Click anywhere on your image to move the indicator light to that point on your material.
   f. Adjust your image using the Relocate View tool until you are satisfied with the position. Alternatively, material can be moved manually inside the machine to match your image positioning.
   g. Using Focus View tool, check boundary or all extremes (outermost points) of your image with the indicator light to ensure your whole image is on your material. *Images can safely exceed your material if you want an overlay, the laser cannot damage the print bed.*
4. Close any open doors. The print head will still run with the door open, but the laser will not be active until all doors are closed.
5. Click Print Estimate ("0:00" button) and the small red "Start" button near the middle-bottom of the right hand side (not the big green one!) to generate an estimated print time for your project.

During Operation

1. Hit ***THE BIG GREEN BUTTON*** to start your print.
2. Don't look directly at the laser.
3. Do not leave the station during printing. If you have to step away, always ensure someone else is monitoring the machine until you return.
4. <u>Don't</u> look directly at the laser.
5. Keep an eye on the amount of smoke inside the print chamber. If it starts to look extremely thick, pause your print for a while to let the smoke clear. <u>When resuming your print</u>, **do not click the green button**<u>, as this will restart your print from the beginning.</u> Simply click the pause button again to resume.
6. <u>Don't look directly at the laser.</u>
7. If the machine begins making weird noises or smoke does not clear after a prolonged period, pause your print and notify a staff member.
8. <u>**Don't look directly at the laser.**</u>

After Printing

1. When your print is done, let it ventilate for several minutes. If you are using acrylic, leave closed for <u>at least ten minutes.</u>
2. Close UCP window if open (closing the window during a print will not end your print).
3. Save project files and close Corel Draw.