Workshop Wizard Resources

Workshop Wizards are undergraduate students who maintain the labs, provide training to users, design new tools, and build parts for users. This page serves as a reference for documentation specific to lab employees and should not need to be referenced by general lab users.

Supplies & Vendors

Purchasing Resources

Workshop Wizard Handbook

The Weekly Cleaning Guide serves as a general resource for the weekly cleaning and maintenance performed by the Workshop Wizards. This must be completed once a week to insure tools are kept in like new condition and the lab is kept stoked, organized, and clean for all users.

The Workshop Wizard Inventory Checklist should be checked every week and done alongside the weekly cleaning. It lists all frequency used consumables and their suppliers along with the necessary number of each item. Should current inventory fall below the minimum quantity of items, Gateway should be used to purchase new consumables.

Use the Gateway portal to make purchasing procurements and assign carts to lab managers and PI's. Instructions on how to use Gateway for a variety of suppliers can be found here.

Please use the Projects Spreadsheet to sign up for and track ongoing internal jobs.

Training

The Workshop Wizard Training Process Outline provides an overview of the training process for both labs. Please study this before beginning planning for a training.

Wiki Guide

microfluidics_and_innovation_workshop_wiki_guide.pdf

SOPs

Changing gas bottles and ordering gas

Moving gas cylinders

Changing Silane container

Refilling Solvent Squirt Bottles

SCA-1200HT Solution Change

Handouts

Training Sign In Sheet

New User Orientation Handout

End of Orientation LHAT Form

New User Training Sign In

Laser Cutter

Creating New Recipes

To create a recipe for a new approved material, begin by doing research on what power and speed is generally used for your material. Be sure to account for the differences in speed and power of the printer you're using versus the printer which you found the material recipe for. Your recipe will be a Speed(0-100%) and Power(0-100%) setting for both engraving and cutting your material. Cutting will need significantly more power/less speed than engraving. Remember that a lower speed will result in a higher cutting intensity and vice versa. To make a new recipe, click the setting menu in JobControl select Material settings. Create a new recipe for each color indicating whether it is cutting or engraving. Many recipes are already available for use/reference in JobControl. Creating a new recipe for a material will require experimentation of different power and speed values. Always start conservatively so as not to cause a fire or damage the printer. Slowly move up in intensity(higher power, lower speed) until you reach the intended cutting intensity. For example, if the laser is not fully cutting through the material, either increase power or decrease speed. If part is overly burning/melting, decrease power or increase speed.

Maintenance

Lens and Mirror Cleaning

Printer Lens and Mirrors must be cleaned weekly to remove the buildup of dirt and dust and prolong the life of the lens and mirror. There are two mirrors however mirror #2 requires removing the right side maintenance panel and should only be cleaned by IW staff. Always check Lens cleaning log before printing and ensure the lens was cleaned at least 2 weeks before. To clean the lens and Mirror #1:

1. Ensure Laser cutter is off
2. Wearing Nitrile gloves, remove the lens from the head with cloth/bubble wrap underneath incase lens is dropped.
3. Blow off any dust from lens with compressed air
4. Wipe lens once with lens cleaning solution and lens wipes found in the Laser cutter bin
5. Put a drop of lens cleaning solution on lens and let sit for a minute before wiping off
6. Repeat with other side of lens
7. Replace the lens in the correct orientation with concave side pointing up.
8. Remove the mirror using the set screws and clean in the same fashion as the lens. Replace mirror
9. Log the cleaning of the lens and any additional notes such as condition of the lens in the lens cleaning log

Particulate Filter Change for Atmos Compact

1. Turn off the Atmos and unplug the main.
2. Open the filter housing, the black drawer will be seen on the left.
3. Unplug the measurement hose (connected to the front of the drawer) and carefully pull the drawer out of the housing.
4. Unscrew the front of the drawer, this area is the activated carbon housing.
5. Remove the activated carbon and the filter mats (located on the sides) into a disposable bag.
6. Place the new mats in, noting that the blue imprints should face the exterior of the drawer.
7. Pour in a limited amount of activated carbon. If the mats stay in position, proceed to fill the container with activated carbon.
8. Close the chamber with the fasteners.
9. Slide the drawer back into the filter housing. Make sure that the filter is sitting firmly and is attached airtight to the back of the housing.
10. To reset the error signal, press “+” and ”-” on the control panel consecutively for 3 seconds. The LED should then read “Activated Carbon OK.”

Note the following when conducting maintenance on the Atmos:

- All waste from the compact must be labeled as hazardous before disposal.
- A more detailed list of all the error commands on the exhaust system can be found on page 40 of the manual (linked at the beginning of the SOP).

Archived Tools

Tools	Location	Training SOP
Stratasys F270 FDM 3D Printer	IW 2442	FDM Training
MiiCraft 50 DLP 3D Printer	IW 2442	Miicraft 50 SOP
Sonoplot Multimaterial Writer	uFL 3430	
Carbide 3D Nomad	REMOVED	Carbide 3D Training SOP
Optical Microfluidics Punch	uFL 3430	
Droplet Microfluidics Workstation	uFL 3430	
Neytech Qex Furnace	uFL 3430	
Laser Welder	uFL 3430	
Oscilloscope	IW 2448	
Power Supplies	IW 2448	

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