DONALD'S GARAGE

General Safety Rules

Definitions

Power tools

- Any tool that uses power from a plug or battery
  - Drill press, hand drills, sanders, etc.
- Any forced air tools (air compressor, airbrush)

Hazardous materials

- Any liquids that could be harmful to your eyes (resin, super glue, epoxy). Eye protection is optional when using paint applied by brush.

Eye Protection

You are required to use eye protection (safety glasses) whenever there is the possibility of splashing or flying debris, dust or harmful fumes. This includes, but is not limited to the use of power tools or hazardous materials.

Hand protection

Chemical Protective Gloves - Latex/Nitrile Gloves

You are required to wear chemical protection gloves:

- While using resin or resin printer this includes the resin wash tank
- While using casting resin
- While using epoxy glues
- While handling any other hazardous materials
- Gloves are optional while using super glue or white glue

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Cut Resistant Gloves

The lab has a few pairs of cut resistant gloves for your use. These are optional and can be worn at the user's discretion. Please remember they don't protect you from stabbing yourself, only cutting yourself.

Dressing Safely

Dressing recommendations when using power tools or hazardous materials:

- Short sleeve shirt or securely rolled up sleeves
- Long Pants
- Closed-toed shoes
- No Scarfs or other loose item (long necklaces etc)
- There are aprons in the shop and it is highly recommended that they be used.
- Anyone with hair that touches the top their shoulder or longer must bind their hair while

Storing your Projects

- Each student or team must obtain a box that will fit on the student storage shelves (Please ask staff for these).
- Student storage boxes must fit on the student storage shelves and be labeled with the **student's name, class, semester**
- Student's personal and project material must be placed in the labeled box or removed from the lab at the end of each day.
- Failure to properly store personal or project items may result in them being permanently removed (the trash is collected everyday)
- Everything left in the lab at the end of a semester will be absorbed into the collective or trashed (Including not picked up 3D prints).

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Clean Up

All students are **REQUIRED** to clean up after themselves. This means:

- Put away all tools and supplies in their original location.
- Wipe down work surfaces.
- Throw away debris
- Sweep the floor around your area
- Wash all molds, paint brushes or other soiled equipment.
- Return all equipment to its default condition.

Equipment Specific Safety

FDM Printers

NEVER pry parts from the print plates with a spatula or razor. **USE** the ice bags in the freezer to cool the plate and the part should lift easily. If you are having trouble removing a print, get help from a staff member.

Resin Printers/Casting

1. **Wear Protective Gear:** Always wear gloves to protect your skin from resin, which can cause irritation. Safety goggles are also recommended to shield your eyes from any splashes or spills. A lab coat or old clothing can help protect your clothes from spills.
2. **Read and Follow Manufacturer Instructions:** Different resins have different handling and safety requirements. Always read the instructions provided by the manufacturer and follow them closely.
3. **Work on a Protected Surface:** Use a disposable or easily cleanable surface to protect your work area from resin drips and spills. Silicone mats or plastic sheets can work well.
4. **Handle Resin Carefully:** Be mindful when mixing and pouring resin. Avoid splashing and spilling, and always handle it with care.

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5. **Proper Storage:** Store resin and hardener in a cool, dry place away from direct sunlight and heat sources. Ensure that containers are tightly sealed when not in use to prevent spills and contamination.
6. **Dispose of Waste Properly:** Follow local regulations for disposing of resin and related waste. Do not pour resin down the drain, as it can cause blockages and environmental harm.
7. **No Eating or Drinking in the Work Area:** Keep food and drinks away from your work area to prevent accidental contamination.
8. **Know Emergency Procedures:** Be aware of first aid procedures for resin exposure. If you get resin on your skin, wash it off immediately with soap and water. In case of inhalation or eye contact, follow the recommended steps in the resin's safety data sheet (SDS) and seek medical attention if needed.
9. **Resin Clean up:** Resin printers and casting are inherently messy and sticky. Users are required to use appropriate safety precautions and to thoroughly clean up after themselves. Do not leave sticky surfaces, dirty molds or tools. All equipment use must be returned to its original condition prior to removing finished pieces from the lab.

Laser Cutter

First time users must be supervised by a staff member.

1. Ensure Proper Ventilation: Make sure the laser fan and air filter are turned on.
2. Check the Machine Before Use: Inspect the laser cutter before each use to ensure it is in good working condition. Check for any signs of damage, loose parts, or obstructions.
3. Never Leave the Machine Unattended: Always supervise the laser cutter while it is operating. Unattended machines can pose fire hazards or other risks if something goes wrong.
4. Keep the Work Area Clean: Maintain a clutter-free workspace to reduce the risk of accidents. Remove any flammable materials and keep tools and supplies organized.
5. Proper Material Handling: Use materials that are safe for laser cutting. Avoid using materials that can release toxic fumes, such as PVC. Verify the material's compatibility with your laser cutter and always follow safety recommendations. Never cut PVC in the laser. Plexiglass is ok

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6. Secure the Workpiece: Ensure that the material being cut is securely positioned to prevent movement during the cutting process. Use clamps or other means to hold it in place if necessary.
7. Be Aware of Fire Risks: Laser cutting can generate heat, so be cautious of potential fire hazards. Keep a fire extinguisher or fire suppression system nearby and know how to use it.
8. Use the Correct Settings: Adjust the laser cutter settings (power, speed, and focus) according to the material and desired outcome. Incorrect settings can lead to poor results or hazardous conditions.
9. Handle the Laser Lens and Mirrors Carefully: The optics of the laser cutter are delicate. Clean them according to the manufacturer's instructions and avoid touching them with your fingers.
10. Know Emergency Shutdown Procedures: Familiarize yourself with how to quickly shut down the laser cutter in case of an emergency. Understand the location of emergency stop buttons and how to use them.