Procedures for Training New Lab Members for the Fabrication Research Lab Spaces: CSE2 G15 & CSE 615

Revised by Alexander Lefort 2024.05.08

Purpose

This document is intended to guide current, established researchers in training new members of the lab and ensuring that all safety training points of which are required are properly covered.

How to Use

To use this document, walk through the checklist below, checking off each section covered. All check boxes must be covered. Once completed, both the trainer and trainee(s) must sign the document and submit it to the Fabrication Research Lab manager.

Training Checklist

- ☐ Read the introduction to the lab below:
  - ☐ Our goal is to provide support for prototyping devices and testing physical fabrication methods in line with Allen School lab research by providing equipment, collaborative space, and manufacturing advice/troubleshooting services.
- ☐ State that all information from the training will also be available on the Fabrication Research Lab site (fablab.cs.washington.edu) and that a link to this will be sent in the email from the lab manager after their training.
- ☐ Relay the services provided by the lab manager:
  - ☐ Training on proper use of the machines
  - ☐ Equipment upkeep
  - ☐ Prototyping advice & troubleshooting
  - ☐ Project and materials storage
  - ☐ Software availability (Fablab laptops)
- ☐ Relay the materials policies of the space:
  - ☐ Generally we do not stock materials for the labs, though there are some exceptions:
    - Stratasys F123 printers are fully stocked.
    - Form 3 resin printers are stocked with basic Black V3 resin.
  - ☐ Not all materials are allowed in the lab. See materials policies on the Fablab site for more information and contact the lab manager with questions.
- ☐ Relay access policies to the space:
  - ☐ ONLY those who have undergone basic safety training and have finished all necessary EH&S online trainings are permitted access to the lab. New members are afforded a 30

day grace period in which to complete the additional EH&S trainings, though access to certain machines will be restricted based on specific machine requirements.
    - Lab use is strictly for research purposes only; It cannot be used for classes or personal projects.
- Read through the General Lab Safety sheet (appendix A) with the new member.
    - It may help to do this by taking turns reading lines.
- Use a Fablab laptop to cover digital safety materials, as listed below:
    - General SOPs: Point out lab bench SOP, chemical waste SOP, adding new chemicals SOP, and disposing of lightly contaminated materials SOP.
    - Machine SOPs: Step through one example SOP to cover how they are structured.
    - Chemical SOPs: Point out these SOPs and note that they are required to be read before using those chemicals, including in the machine utilizing them.
    - Materials Policies page: Make note of where it is and what it contains.
    - Where to find the Shop Safety Manual and Lab Safety Manuals
    - Where to find documents from training and how to check EH&S training status
    - Where to find quick links to OARS
    - How to enter and navigate MyChem to find Safety Data Sheets (SDS)
    - How to read a SDS, going over the 16 sections of one example.
    - State that they will have access to MyChem when they are granted access to the labs.
- Conduct lab tour, touching on following points:
    - Review the lab safety board:
        - Read through “In Case of Injury, Near-miss, or Emergency” sheet.
        - Confirm user knows what OARS reports are and where/how to submit them.
        - Point out lab CAUTION sign and how to read it:
            - Fire hazard diamond
            - Compressed gas presence (Argon in CSE2 G15) and where it is located in the room
            - Basic PPE for room
            - No food or drink
            - Point out emergency contacts, particularly Alexander Lefort and J. Sean Yeung’s cell numbers on the inside sign; Encourage people to take a picture or record these numbers in their phones in case of emergency.
        - Walk through Globally Harmonized Systems pictograms and ensure they are familiar with each.
        - Step through Exposure Response quick sheet. Note that they should consult the chemical SOP and SDS of the chemical for further guidance.
        - Step through Spill Response quick sheet; Note that they can ignore the biologicals and radioactive sections.
        - Show users the regular lab hours sign and equipment access chart.
        - Walk through safety map with the students, pointing out each safety feature of the space:
            - Emergency exits & fire pull stations.
            - Note building Evacuation Assembly Point (AA lawn).

- Fire extinguisher locations & type; Note that CSE2 G15A access is restricted until trained on at least one machine in that space.
- Safety board and phone location.
- Laptops location
- Electrical panel locations.
- Exhaust system switch.
- Flammables cabinet location
- Non-flammable chemical cabinet
- Sink
- First-Aid kit
- Chemical spill kit
- Eye wash and emergency shower
- Where/how to access the lab safety information (QR code on safety board)

- Show users the fume extraction system switch:
  - Inform them that the cover should always be closed when not switching the system on or off and note the labeled indicator below the switch:
    - "Furnace Off" means that the system should be turned off when done with it.
    - "Furnace On" means that the system should already be on and should NOT be turned off when done with it; The system connects to the sintering furnace which also uses the extraction system.
- Walk users over to the sink area and cover the following:
  - First aid kit: Open up the kit and let them know that the kit is appropriately stocked for all hazards in the shop. The kit is restocked every quarter, but if anything is missing or expired, let the lab manager know.
  - Chemical spill kit: Pull the spill kit from under the sink and open it up. Walk through all of the components:
    - Nitrile gloves and splash goggles are present for use with spill clean-up. Still also want to grab a disposable lab coat from the PPE drawers (shown later).
    - Multi-absorbent pads may be used for wet spills.
    - Foxtail broom and pail may be used for dry spills and the yellow bags for collecting the dry powders/materials.
    - Baking soda present for acid neutralization if/when we have acids in the space; None currently.
    - Chemical waste collection request form to be submitted to lab manager.
    - The bucket may be emptied out and used as a chemical waste container for used multi-absorbent pads. Ensure the container is labeled correctly with the waste inside.
    - If any questions about how to deal with a particular spill, call the lab manager.
- Show users the eye wash and shower station:
  - Walk them through how to use the eye wash station:
    - Handle pushed 90 degrees to start water.
    - Place eyes so water splashes directly on them; Keep eyes open and remove contacts if able.

        - Generally will stay in the eye wash for 15 minutes; See specific chemical SOPs for specific times.
    - Walk them through how to use the emergency shower:
        - IF chemicals require it and absorb through clothing and onto skin, use shower.
        - Stand under the shower head and pull down on the shower handle up above. This will start water rushing.
        - Fully disrobe of all clothing. Follow instructions on chemical SOP or SDS for time required for flush.
    - Depending on the chemical, call 9-1-1. A buddy will make the call and find the chemical SOP and SDS to give to first responders.
    - State that the eye wash is tested once weekly by the lab manager and both are tested yearly by UW Facilities.
- Walk users over to the PPE drawers:
    - Show them how to open the cabinets (that they need to pull the latch to open them and that only one drawer can be open at a time)
    - Top drawer:
        - Talk about hearing protection: Muffs and earplugs available. Show them how to don and doff each. Note that if they have glasses that are higher profile, they may need to use earplugs. Earplugs are single use.
        - Talk about eye protection: Safety glasses and safety goggles (yellow goggles) are for mechanical hazards (i.e. shop equipment). Chemical splash goggles are for chemical hazards (e.g. resin printer, support dissolving tank).
        - Work gloves available for unpowered work and material handling. Remind them to never use work gloves with rotating and cutting machinery.
    - Middle drawer:
        - Talk about gloves available: Nitrile gloves are sufficient for all chemicals in the space; If the size does not work, contact the lab manager to purchase a more appropriate size.
        - Talk about respiratory protection: Not required anywhere in the space as we have good enough ventilation, but always recommended with dusty work. Please do not use outside of the lab.
        - Show users the lockout-tagout (LOTO) cord caps and LOTO signs. Remind them not to use a machine if it is locked out.
    - Bottom drawer:
        - Show them the disposable lab coats: Only needed if the machine training states that they are needed. They can be reused so long as they are not sullied by chemicals or torn/worn out. Label the left breast pocket with your name and hang them up on the hooks toward the entrance of the lab.
        - Cleaning wipes: All permanent PPE must be wiped down before it is put back into the cabinets.
- Show users the electrical panels in CSE2 G15C:
    - Where they are
    - How to open them
    - How to read the circuit reference sheet

        - How to turn off, on, and reset a breaker.
        - Note that generally, they will never have to use these.
    - Briefly show users what equipment they have available to them.
- Read through the “Rules for the Use of the Fabrication Research Lab” document in appendix C with users and have them sign the sheet and turn it in to you. Return these to the lab manager after the training.
- Walk through the required EH&S training sheets:
    - Only trainings in the “Yes” column need to be taken.
    - Both sheets must be completed. Users should submit these to the lab manager either physically or digitally via email.
    - If a training is labeled on both sheets, it only needs to be taken once.
    - Users have 30 days to complete these where they will retain access to the space. However, if not completed, the lab manager will revoke access.

(SECTION BELOW ONLY IF ALSO UTILIZING THE CSE 615 UBICOMP FABLAB):

- Walk users over to the CSE 615 lab space and review the lab safety map and safety features:
        - You DO NOT need to cover all of the ins and outs of the policies again, as these are the same as the CSE2 G15 Fablab.
    - Show all of the following, referencing the lab safety map for assistance:
        - Safety board location
        - Fire extinguishers
        - Evacuation route
        - Eye wash station
        - Electrical panels
        - Fume extraction system switch, along with snorkel and plenum.
            - Note that this switch also interlocks with laser cutters’ power.
        - Flammables storage cabinet
        - Spill kit
        - PPE and lab coats
        - First aid kit

FOR USE AFTER THE TRAINING

Read the statement below and sign as the trainer. List all members who attended the training and submit to the lab manager for follow-up:

I attest that I have trained the following new users to the best of my ability and in accordance with the set lab safety program and shop safety program implemented for the Fabrication Research Lab (CSE2 G15 suite and CSE 615). I understand that if training was conducted improperly or incompletely, all users listed here, including the trainer, will have their access revoked until retrained by the lab manager. Depending on the severity, access may be limited or fully revoked.

Trainer

Name _____ Signature _____ Date _____

New Users

Name _____ Utilizing Ubicomp Fablab? (Y / N)

Name _____ Utilizing Ubicomp Fablab? (Y / N)

Name _____ Utilizing Ubicomp Fablab? (Y / N)

Name _____ Utilizing Ubicomp Fablab? (Y / N)

Name _____ Utilizing Ubicomp Fablab? (Y / N)

Appendix A

“General Lab Safety” Sheet

Print off one for each new user being trained. To increase engagement and break up talking, you may want to read each line in a ‘round-robin’ style with the users.

Paul G. Allen School of CSE Fabrication Research Lab
CSE2 G15

GENERAL LAB SAFETY

1. There are no stupid questions! This is a collaborative environment and as such, questions will benefit everyone.
2. When entering G15A, and depending on what tools are in use, eye protection, hearing protection, and dust masks may be required. Refer to door signs for more information.
3. All injuries, accidents, and spills must be reported immediately to the lab manager, no matter how small.
4. If in doubt as to a proper or safe procedure, stop work and ask for guidance.
5. Report unsafe or hazardous conditions wherever noted. If possible and safe to do so, correct them.
6. **NEVER work alone in the lab outside of posted regular hours, or when the lab manager is not present!** Exceptions exist for starting or finishing 3D prints on the FDM and resin printers, laser cutter usage, as well as small, unpowered projects at the work benches. Otherwise, always have a Fablab-trained buddy with you when working after-hours.
7. **Before you turn on a machine**, be knowledgeable about procedures and safe-guards; Know where emergency shut-offs and power cut-offs are located for each machine. Machines with these devices will require machine-specific training.
8. Open-toed or open-heeled shoes are not allowed in the lab. **DO NOT** wear loose or torn clothing, neckties, necklaces, or other hanging pieces. Tie back long hair, as it can easily become caught in machines and pull you into them. Prevent clothing from being caught in moving machinery.
9. Rings, watches, bracelets, and necklaces, are to be removed before working with any of the equipment in the space. These pieces can be easily caught in machines, as well as promote electrical shock.
10. Use tools for their intended purpose only. For example, don't use a screwdriver as a chisel, or a wrench as a hammer.
11. Always inspect tools before use to ensure they are in good, working quality with no signs of damage. For example, sharp blades are safer than dull ones and will speed up your work. Cracked cases and damaged cords can increase the risk of fires and electric shock.
12. **Abide by all lock-out signs on equipment.** If a piece of equipment is locked out, it may not be used. If you need access to a machine urgently, contact the lab manager and they will attempt to escalate repairs, or search for other accommodations for your work.
13. **NEVER** cut or work toward any part of yourself and **ALWAYS** ensure you know exactly where your fingers are! Do not place them under or behind the piece that you are working on where you cannot see them!!
14. Never direct a stream of compressed air at yourself or others. Ensure that compressed air lines are off before switching lines to another machine.
15. Remove all non-essential tools, tooling, and materials from machine surfaces and work areas prior to turning the machine on. Vibrations can knock these materials into moving or rotating equipment.
16. Machined and sheared metals, plastics, and wood often have very sharp edges. Use caution when handling these. Sand down edges when possible.
17. Soldering and related processes have the potential of causing toxic fumes, burns, fires, or electric shocks if not properly executed. Be sure to read standard operating procedures and follow all safety guidelines.
18. **NEVER** work on live circuits or circuits with charged capacitors. Be sure to discharge all capacitors before proceeding. If you have questions on how to do so, please ask the lab manager or other qualified persons.

Paul G. Allen School of CSE Fabrication Research Lab CSE2 G15

19. **Permission is required** from the lab manager to work on circuits with voltages higher than 50V. Additional EH&S trainings may be necessary.
20. When testing circuits with oscilloscopes, digital multimeters, power supplies, etc. ensure that the set-up is fully hooked up before turning on the power. DO NOT touch any metal part of the probe leads, supplied power leads or the circuit under test until the device has been fully powered down again. Keep fingers behind guards.
21. Never use a file without a handle installed. File sets are each equipped with a single handle.
22. **ALWAYS concentrate** on the operation you are performing at hand. Do not talk on your cell phone or allow yourself to be distracted while operating equipment. Additionally, allot enough time for your particular procedure to avoid rushing.
23. Do not bring food or drinks into any laboratory or shop space. Spilled drinks may promote electric shock, damage to equipment, or even a slipping hazard.
24. Use proper technique when lifting, moving, or carrying loads. Ask for assistance whenever needed to distribute loads and avoid strains. For heavier pieces and anything more than a few feet, use carts to move objects. Contact the lab manager for options.
25. **Keep all walkways free of obstacles.** Do not place any objects or materials in walkways or passageways. Watch for those that may be present and address when found or alert the lab manager.
26. Know the location of fire extinguishers, emergency exits, and first aid kits. This will be covered during the lab tour.
27. **Be aware of emergency procedures** such as:
    - **a.** Call 9-1-1. If done by cell phone, let them know that you are located on the University of Washington and be sure to include exact location (building, floor, room). If calling from a local UW phone line, you will be immediately connected to UW dispatchers.
    - **b.** If the space becomes unsafe, leave via the nearest exit and move away from the building.
    - **c.** Report any emergencies to the lab manager as soon as it is safe to do so.

Appendix B

EH&S Required Shop Safety and Lab Safety Training Sheets

Print off for each new user being trained. Both sheets must be printed. Tell students that only the trainings marked “Yes” must be completed and that trainings appearing on both sheets only need to be taken once. They should submit the forms to the lab manager either physically or digitally via email.

ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

Safety Training for Laboratory Personnel

What? *This document outlines the EH&S training classes **required** (◆) or **recommended** (O) for all personnel working in a lab setting. Answer the questions below with your PI/supervisor to determine which tasks are part of your job. If your answer is yes to a question, the diamond or circle to the right represents a training class that supports that task.*

Who? *PIs, lab supervisors, research personnel, graduate & undergraduate students are all expected to complete the lab training. PIs are expected to complete all of the training required for any of their personnel, graduate & undergraduate students.*

Are you UW Faculty, staff, or student….		Complete this EH&S Training Requirement (See Key Below)																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Fire Ext.	working in a lab, unless written policy is to not use extinguisher and evacuate.	◆																									
	working with flammables, reactives, pyrophorics,		O																								
Electrical	working with electrical equipment or apparatus.			O																							
	work with high voltage research																										◆
Chemical Safety	using chemicals or working in wet lab?				◆																						
	working in a lab where splashes to eyes or body are possible																						O				
	using Formaldehyde																			◆							
	using Hydrofluoric Acid																				◆						
	working in fume hood?				O		O																				
	working in a lab around compressed gases?				O			O																			
	using a respirator?				◆					◆																	
	in a laboratory supervisor role			O	◆	◆	O	O	◆		O																
	who may be required to administer first-aid as a duty of your work or working in a remote location?										◆																
	use liquid Nitrogen																							◆			
	shipping or transporting				◆							◆	◆	◆	◆												
Biosafety	working in a lab where biohazardous materials are present?				◆											◆											
	working in a biosafety cabinet																					O					
	working with Bloodborne pathogens?				◆											◆	◆										

Radiation	working in a lab with radioactive materials?				◆														◆								
	working in a lab with Uranium																									◆	
	working in a lab with a sealed source																								◆		
	working in a lab with class 3b or 4 lasers?																			◆							

Use the table below to select EH&S training classes and as a record of completion. Have your supervisor sign off below once all requirements have been completed. Maintain this document in your lab training records.

Key	Requirements	Frequency	Necessary for your position	Date completed
1	Fire Extinguisher - Online	Annual	Yes ☒ No ☐	
2	Fire Extinguisher Hands On	Initial	Yes ☐ No ☒	
3	Electrical Safety, Basic - Online	Initial	Yes ☒ No ☐	
4	Managing Laboratory Chemicals – Online	3 Years	Yes ☒ No ☐	
5	Laboratory Safety Compliance – Online	Initial	Yes ☐ No ☒	
6	Fume Hood Training - Online	Initial	Yes ☐ No ☒	
7	Laboratory Compressed Gas Safety - Online	Initial	Yes ☒ No ☐	
8	Laboratory Safety Practices	Initial	Yes ☐ No ☒	
9	Respiratory Training and Fit Testing	Annual	Yes ☐ No ☒	
10	First Aid and CPR Certification	2 Years	Yes ☐ No ☒	
11	Shipping Hazardous Materials	2 Years	Yes ☐ No ☒	
12	Shipping Biological Substance Category B - Online	2 Years	Yes ☐ No ☒	
13	Shipping Dry Ice with non-dangerous goods for Exempt Patient Specimens - Online	2 Years	Yes ☐ No ☒	
14	Shipping Dangerous Goods in Excepted Quantities - Online	2 Years	Yes ☐ No ☒	

Key	Requirements	Frequency	Necessary for your position	Date completed
15	Biosafety Training - Online	3 Years	Yes ☐ No ☒	
16	Bloodborne Pathogens for Researchers - Online	Annual	Yes ☐ No ☒	
17	Radiation Safety Training - Online	Initial	Yes ☐ No ☒	
18	Laser Worker Training - Online	Initial	Yes ☐ No ☒	
19	Formaldehyde Training - Online	Annual	Yes ☐ No ☒	
20	Hydrofluoric Acid (HF) Safety - Online	Initial	Yes ☐ No ☒	
21	Biosafety Cabinet (BSC) Safety - Online	Initial	Yes ☐ No ☒	
22	Eyewashes and Safety Showers - Online	Initial	Yes ☐ No ☒	
23	Liquid Nitrogen Safety - Online	Initial	Yes ☐ No ☒	
24	Sealed Source Training - Online	Initial	Yes ☐ No ☒	
25	Radiation Safety Training for Uranium Users - Online	Initial	Yes ☐ No ☒	
26	Arc Flash and Electrical Safety Best Practices (NFPA 70E 2021 Edition) - Online	Initial	Yes ☐ No ☒	

Lab staff name (printed): _____ Signature: _____

Supervisor Signature: _____ Date: _____

Please find the links and more detailed descriptions to all EH&S courses at https://www.ehs.washington.edu/training/find-your-course.

ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

EH&S Safety Training Matrix for Shop Personnel

What? *This document outlines the EH&S safety training required (◆) or recommended (O) for all personnel working in a shop setting. Answer the questions below with your principal investigator (PI) or shop safety coordinator to determine which tasks are part of your job. If your answer is yes to a question, the diamond or circle to the right represents a training class that supports that task.*

Who? *Principal investigators (PIs), lab supervisors, shop and research personnel, graduate students & undergraduate students in academic support shops.* ***UW Facilities Shop Personnel should follow departmental training requirements.***

Are you a UW faculty, staff, or student…		Complete this training requirement (see key below)																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Fire & Life Safety	Working in a shop?	◆	O																	
	Working with flammables, combustibles, or reactive materials?	◆	◆																	
	Required (assigned) to administer First Aid as a duty of your work?			◆																
Chemical Hazards	Working with chemicals?				◆															
	Working in a fume hood?				◆	◆														
	Working with compressed gasses or cryogenic fluid?				◆		◆													
	Using a respirator (for anything beyond nuisance dust)?				◆			◆												
Physical Hazards	Working with hand or power tools?								◆	O										
	Working with electrical or powered equipment?										◆									
	Servicing or maintaining equipment?									◆	◆	◆								
	Around equipment or machines being serviced or maintained?									◆			◆							
	Working in a noisy area or using loud equipment?													◆						
	Operating a forklift?														◆					
	Using portable or fixed ladders?															◆				
	Lifting more than 20 lbs.?																◆			
	Operating a crane?																	◆	◆	O
	Hoisting or rigging a load?																	O		◆

Key	Requirements	Frequency
1	Fire Extinguisher – Online	Initial
2	Fire Extinguisher - Hands On	Initial
3	First Aid and CPR Certification	2 years
4	Globally Harmonized System (GHS) / HazCom – Online	Initial
5	Fume Hood Training – Online	Initial
6	Compressed Gas Safety - Online	Initial
7	Respiratory Training and Fit Testing** - In person	Annual
8	Hand and Power Tools* - Online	Initial
9	Machine Guarding* – Online	Initial
10	Basic Electrical Safety – Online	Initial

Key	Requirements	Frequency
11	Lockout/Tagout* – Classroom	Initial
12	Lockout/Tagout – Online	Initial
13	Hearing Conservation – Online	Annual
14	Forklift Operator* – In person	3 years
15	Ladder Safety - Online	Initial
16	Back Safety and Injury Prevention - Online	Initial
17	Overhead and Gantry Crane* - Online	Initial
18	Crane Operator Training***	Initial
19	Rigging Safety* - Online	Initial

*Shop Specific training is required in these areas and any other Shop specific processes. Document on Shop Specific Training form.
**Respiratory Training/Fit Testing requires EH&S approval including formal respirator request and medical clearance prior to training
***Crane operator training is not offered by EH&S; see Shop Safety webpage or contact us for information on training vendors.

Document completed safety training courses on the EH&S Safety Training Log for Shop Personnel.

ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

EH&S Safety Training Log for Shop Personnel

Complete the following chart using the EH&S Safety Training Matrix. Shops must maintain a log of shop personnel training records (one sheet per one shop personnel) or in another documented, organized method. The PI or shop safety coordinator must sign off once all training requirements have been completed. Update training records as appropriate. Maintain training documents with all Shop Safety records.

Shop Employee/Student name: _____ Signature: _____

Shop Safety Coordinator Signature: _____ Date:_____

Please find the links to all of the EH&S courses at www.ehs.washington.edu/training.

Key	Training Requirement	Necessary for your position		Date complete
1	Fire Extinguisher - Online	☒ Yes	☐ No	
2	Fire Extinguisher - Hands On	☒ Yes	☐ No	
3	First Aid and CPR Certification	☐ Yes	☒ No	Required every 2 years
4	Globally Harmonized System (GHS) / HazCom - Online	☒ Yes	☐ No	
5	Fume Hood Training - Online	☐ Yes	☒ No	
6	Compressed Gas Safety - Online	☒ Yes	☐ No	
7	Respiratory Training and Fit Testing** - In person	☐ Yes	☒ No	Required annually
8	Hand and Power Tools* - Online	☐ Yes	☒ No	
9	Machine Guarding* – Online	☐ Yes	☒ No	
10	Basic Electrical Safety – Online	☐ Yes	☒ No	
11	Lockout/Tagout* – Classroom	☐ Yes	☒ No	
12	Lockout/Tagout – Online	☒ Yes	☐ No	
13	Hearing Conservation – Online	☒ Yes	☐ No	Required annually
14	Forklift Operator – In person	☐ Yes	☒ No	Required every 3 years
15	Ladder Safety - Online	☐ Yes	☒ No	
16	Back Safety and Injury Prevention - Online	☒ Yes	☐ No	
17	Overhead and Gantry Crane - Online	☐ Yes	☒ No	
18	Crane Operator Training**	☐ Yes	☒ No	
19	Rigging Safety - Online	☐ Yes	☒ No	

*Shop Specific training is required in these areas and any other Shop specific processes. Document on Shop Specific Training form.
**Respiratory Training/Fit Testing requires EH&S approval including formal respirator request and medical clearance prior to training
**Crane operator training is not offered by EH&S; see Shop Safety webpage or contact us for information on training vendors

Appendix C

Rules for the Use of the Paul G. Allen School Fabrication Research Lab Sheet

At the end of the training, read through this sheet with the new users and have them sign the form. Submit this form along with this checklist to the lab manager.

You may want to reiterate that rule #6 has exceptions for 3D printers, laser cutters, and small, unpowered projects.

RULES FOR THE USE OF THE PAUL G. ALLEN SCHOOL FABRICATION RESEARCH LAB

Our goal is to keep the Fabrication Research Lab as safe, accessible, accommodating, and efficient as possible for the many research groups that we support. In order to ensure this, we require your compliance with the set safety and operating procedures listed below:

1. PRIVATE/INDEPENDENT WORK IS NOT ALLOWED in the lab. This space is for research purposes only and those activities that support it.
2. READ AND OBSERVE THE SAFETY RULES, particularly those regarding proper clothing and personal protective equipment. Refer to the appropriate standard operating procedures for the machines you wish to use. For additional questions, ask the lab manager.
3. YOU MUST CHECK IN WITH THE LAB MANAGER when working with woodworking machines and/or power tools. Ensure that you have on-hand detailed plans for your specific project.
4. RETURN TOOLS AND CLEAN UP. All tools are to be returned clean and in good condition to their proper places and the area in which you worked is to be fully cleaned of debris and spare parts.
5. LET US KNOW IMMEDIATELY if any equipment does not operate properly or needs attention. Inform the lab manager of any damage to tools or machines, especially if it occurs while you are using it. This allows us to keep everyone safe and machines/tools running in good condition as much as possible.
6. NEVER WORK ALONE outside of posted regular hours for the lab. Certain pieces of equipment will be completely unavailable unless scheduled ahead of time with the lab manager. This is to ensure that no emergencies occur when help may not be available.
7. IF YOU NEED HELP OR INSTRUCTION, do not hesitate to ask. We want to keep everyone safe and to avoid injuries to you and others, as well as damage to the machines.

Failure to abide by the aforementioned rules may result in suspension of access, required re-training, as well as complete ban from Fabrication Research Lab facilities.

I have read and understand the rules listed above and agree to abide by them.

Print Name _____ Date_____

Signature _____ Student ID/EID_____