Youngstown State University recognizes its responsibility to protect the health and assure the safety of the students, employees, instructors and visitors. The following entry-level orientation information contains general safety information for the students of the ETC, WTC and STEM Programs. Completing this orientation grants STEM, ETC, WTC students minimal access to tools, chemicals and equipment. Students will not need to repeat the Orientation after completing it once.

This general safety training does not authorize people to use lab equipment or operate machines they will be required to use. Only people thoroughly trained by their Department Instructor/Professor or Competent Person, or those undergoing supervised on-the-job training are permitted to use equipment or operate machinery.

YSU is Ohio’s first and only college dedicated to **STEM (Science, Technology, Engineering and Mathematics)**. Our faculty are academic experts. But they are also working professionals involving students in their daily research.

The Frank and Norma **WTC (Watson Team Center)** is a facility designed to better prepare YSU engineering teams for regional, national and international competitions.

The YSU **Division of Workforce Education and Innovation** is building inclusive, sustainable, and connected approaches to careers and education for YSU students and the community.​ The ETC (Excellence Training Center) is a one-of-a-kind workforce, education, research and commercial center focused on advanced manufacturing. Career pathways for all types of students include traditional and non-traditional certifications and industry recognized credentials offered in a wide range of areas such as manual and CNC machining, industrial maintenance, robotics, automation and additive manufacturing.

 **A) General Safety Rules when working in the ETC, WTC, STEM laboratories**

1. In case of an emergency, turn off the machine and follow your professor/instructor/competent person's instructions.
2. Know how to report accidents.
3. Report all near misses and injuries, no matter how small, to your professor/instructor/competent person as soon as possible.
4. Safety and Health incidents must be investigated. The person(s) involved must provide a written Incident Report Form to EOHS in case of minor spills, fires, or hazardous material release regardless of whether an injury occurred. This form is available online. Incident and Injury reporting form [Incident and Injury Reporting Form](https://ysu.edu/environmental-occupational-health-and-safety/incident-and-injury-reporting-form)
5. Stay within designated walkways. All walkways, aisles and means of egress must be kept clear and free of obstructions.
6. Never operate any equipment or handle chemicals in the lab without first receiving safety training and reviewing (and signing) the safety acknowledgement form with the professor/instructor/competent person.
7. You must always wear required PPE (Personal Protective Equipment) in the shop area.
8. No unauthorized individuals are allowed in the lab/work areas. Guests must be escorted at all times.
9. No metal objects, non-digital watches, credit cards or other magnetic objects are allowed near magnetic devices. Avoid bringing small metal objects (i.e., paper clips, staples) into the Instrumentation facility.
10. Do not allow people with pacemakers or unapproved metal implants near the magnetic devices.
11. Before entering the shop, secure loose clothing, remove loose jewelry, remove dangling cords (like those from headphones and hoodies), roll up long sleeves, and tie back long hair.
12. Only one person is permitted to stand inside the safety zone, or the areas around the machines, at one time.
13. Open-toed shoes may NOT be worn in the shop.
14. No Horseplay. Do not make unnecessary movements and noises in the lab because they could distract other students and cause accidents.
15. Keep your work area clean and tidy. Wipe up and dispose of sawdust, water, glue, paint and other spills correctly and as soon as possible. A clean work area helps to prevent tripping and slipping.
16. Leave backpacks out of the work area by placing them in your regular classroom, preferably under a desk or table so they are not in the way where other people might trip over them.
17. All exits are to be kept access free.
18. To avoid spills and personal contamination, do not bring food, chewing tobacco, gum or drinks into the work areas/labs. Only eat and drink in designated areas.
19. If you notice a damaged tool in the work area/lab, report it to your professor immediately.
20. When using a sharp tool such as scissors, always point the sharp edge away from your body, hands and eyes. Wear cut-resistant gloves when required.
21. Do not remove safety guards from machines. Do not operate any equipment with missing/damaged safety guards.
22. Only the machine operator is permitted to turn the machine on or off.
23. Tools, machines, chemicals and other hazardous items may only be used when the professor/instructor/competent person is present, you have received permission from them, and you have received instruction and training in their specific safety precautions.
24. Equipment and tools may only be used for their intended purpose and may only be used for school projects approved by the professor/instructor/competent person.
25. Use a bench brush to clean debris and scraps from tables and machines.
26. You may need two or more people to safely handle or move large, long or heavy materials.
27. No individual may operate any power tool unless they have been properly trained in power tool safe use.
28. No individual may use compressed air to clean debris from the body or clothing. It is strictly prohibited to direct compressed air towards an individual.
29. No individual may operate an industrial truck or a mobile crane without having been properly trained and certified in its safe use.
30. Never walk under a crane in use without a hardhat and never pass under a load overhead.
31. No individual may use a ladder without having been properly trained how to inspect and use ladders.
32. Verify machines are anchored as designed (to the floor, bench, etc.) before operating.
33. When working with machines that produce fumes/dust/particulates, ensure the appropriate collection system is turned on and operating as designed.
34. Assure electrical receptacles are operating properly. Verify GFCI (Ground Fault Circuit Interrupter) is operational on GFCI outlets.
35. Make sure all electrical cords and plugs are in good operating order before using any equipment requiring electrical power. Do not run cords through wall openings or let them lay in water.
36. Do not block access to electric panels/breakers.
37. Always clean up during and after equipment use to prevent slip and trip fall hazard accidents.
38. Know where to locate the YSU Lab Safety Plan. Read and understand the laboratory standard operating guidelines and rules. [YSU Lab Safety Plan](https://ysu.edu/sites/default/files/users/tmstyranec/YSU%20Lab%20Safety%20Plan%20%28004%29.pdf)
39. Know locations of fire extinguishers and keep them in their designated location.
40. Flammable materials for disposal (rags) should be placed in an appropriate metal disposal container. The container must be emptied into a secondary holding container outside of the building at the end of the day.
41. All flammable liquid chemicals shall be stored properly in a flammable liquid cabinet.
42. Read SDS (Safety Data Sheet) safety data sheets of chemicals being used. [SDS Search](https://chemicalsafety.com/sds-search/)
43. If the work area lighting goes out, stop work and notify professor/instructor/competent person.
44. Note locations of a means of communications (intercom, telephone, cell phone) is available in case of an emergency.
45. An emergency eye wash and shower with 10 second access and tepid water (60-100 degrees F) are available.
46. When leaving the lab, remove PPE. (Goggles and Lab Coats can be removed once all chemicals in the room are put away and the Instructor/Competent Person indicates it is appropriate to do so.)

**B) Working Alone or Outside Normal Business Hours**

High risk work with chemical or physical hazards (high voltage, mechanical hazards) or any other work that might prove immediately dangerous must NOT be conducted alone. All high risk ETC, WTC, STEM work must be conducted with a partner or co-worker and MUST always have a Competent Person in site of the activity.

High risk work on YSU campus outside of normal business hours (M-F 7:30am to 5pm) must be pre-approved in writing by the department chair and must include emergency contact information. Experiments or other tasks that continue to operate while someone is not present (unattended) must be pre-approved in writing by the department chair and must include emergency contact information. The “Unattended Operations Taking Place” form must be completed. Do not allow visitors, including children and pets, in work areas where high risk activities are in progress.

Students from primary and secondary schools (minors) occasionally may enter these areas as part of educational programs under carefully controlled and supervised conditions. Colleagues, prospective students, and others may be invited into ETC, WTC, STEM work areas but must be escorted the entire time and wearing proper PPE where required.

It is essential that all ETC, WTC, STEM workspace workers understand the types of hazards, recognize the routes of exposure, and are familiar with the major hazard classes of chemicals. In many cases, the specific hazards associated with new compounds and mixtures will not be known, so it is recommended that new chemical compounds be treated as if they were potentially harmful and to use appropriate eye, inhalation and skin protection equipment.

 **C) Emergency Situations**

The following general information is important when reporting emergencies on campus. Remember---**STAY CALM, DON’T PANIC, HELP IS ON THE WAY. NEVER PUT YOURSELF AT RISK!**

[ALL Emergencies](https://ysu.edu/eohs/emergency-response) -- Environmental.Safety.Security.Medical -- YSU Police Department

The YSU Police are available 24 hours a day 7 days a week all holidays

Emergency Phone Number 330-941-3527

Campus phone dial 3527 or 911 Cell phone MUST be 330-941-3527 \*if you dial 911 from a cell phone it will be routed to Youngstown City Police and could delay response times\*

### **BUILDING EVACUATION**

* Threat Inside building
* Occupants expected to leave building immediately
* Activating a fire alarm is a quick way to initiate building evacuation even if it’s not a fire
* Stop classes, work, or business operations
* Make your work area safe for the responders‐ close chemical containers, shut down equipment
* Take only essential personal items such as car keys and handbags
* Close all doors behind you if you are the last one out of the room
* Walk to the nearest exit – do not use elevators
* Go to the building pre‐designated assembly area for accountability and further instructions
* Keep listening and check cell phone for Penguin Alert message updates
* Do not leave the assembly area unless instructed to do so by your department chair or onsite safety officer or accountability police officer

### **LOCK DOWN PROCEDURES**

* Security Threat Outside building
* Building is locked from the outside to prevent entrance
* Occupants stay inside building
* If you're outside remove yourself from campus as quickly as possible, avoid using vehicles
* Facilities personnel will lock the outside doors
* If in a room where the door doesn’t lock, then barricade it closed (bathrooms)
* Staff ‐ remain in office and LOCK door
* Faculty ‐ assist getting students to a room that locks, classroom doors automatically lock when closed
* Keep listening and check cell phone for Penguin Alert message updates

### **MEDICAL EMERGENCY**

* Any injury or illness requiring assistance
* Call YSU Police Department at 330‐941‐3527
* If an ambulance is needed tell the dispatcher at the beginning of the conversation
* Do not hang up until told to do so by dispatcher
* Do NOT move the person
* Administer first aid and CPR if trained to do so
* Assure the person that help is on the way
* Remain on the scene until Police arrive to give any further information they may require

### **PREPLANNING FOR INDIVIDUALS WITH DISABILITIES**

* At the first 2 classes announce that individuals that may need help in an emergency should privately talk to the instructor
* Ask for at least 3 student volunteers to assist any disabled individuals
* If the classroom is in an area that makes removal of the individual extremely difficult, the instructor should ask for a room change to a ground floor location
* Room changes must be made with assistance from the Registrars Office
* If a room change is not possible and the individual cannot use the stairs, then the instructor should help move the person to the nearest designated refuge area
* Notify the accountability officer at the building's assembly location for an evacuation or call YSU Police dispatch for a shelter in place

### **SHELTER IN PLACE PROCEDURES**

* Environmental Threat Outside building
* If outside proceed to the nearest building
* Take refuge in a designated area of safety within a building
* Basement or lower levels, interior rooms without windows
* Stop classes, work, or business operations
* Make your work area safe for the responders - close chemical containers, shut down equipment
* Close all windows, exterior doors and any other openings to the outside
* Take only essential personal items such as car keys and handbags
* Close all doors behind you if you are the last one out of the room
* Walk to a basement or lowest level of a building - do not use elevators
* Go to the building pre-designated shelter area for accountability and further instructions
* Keep listening and check cell phone for Penguin Alert message updates- Do not leave until the All Clear is given

**For building or other facility non-emergency issues call Facilities Maintenance at ext 3232 after 5pm call YSU Police at ext 3527 \*elevator malfunction, power outage, water leak\***

**Incident and Injury Reporting**

First aid kits for minor injuries are located throughout campus. Do not touch another person’s blood or other bodily fluids unless you have been properly trained. Call the EOHS Department immediately at x3700 (330-941-3700) to assist with treatment as well as all clean up.

If a minor injury requires treatment beyond first aid immediately contact your supervisor and the EOHS department. Do not seek medical attention without first reporting the injury and speaking with the Director of EOHS or designee.

Call the EOHS Department at x3700 (330-941-3700). For night and weekend shifts call Campus Police to file a report before going to the doctor. If it is a medical emergency call 911 first and then notify your supervisor and EOHS.

Employees needing emergency medical assistance should call the YSU Police at (330-941-3527) or 911. Campus police are onsite and can respond at all times. The police will notify the ambulance as necessary and guide their arrival.

The Student Health Center is available to treat YSU students with minor injuries or illnesses. Employees seeking treatment for work related injuries or illnesses at the Student Health Center will be referred to the EOHS Department.

All safety and health incidents involving faculty, staff and others must be reported and documented.

Basic follow up steps will be taken by EOHS and depending on the severity, an investigation may be conducted.

**Motor Vehicle Accident**

In case of an accident, please contact YSU Police Department at (330) 941-3527 and they will contact additional University departments. Additional information can be found at [Risk Management Programs- Vehicle Use](https://ysu.edu/risk-management/risk-programs)

**D) Personal Protective Equipment**

Personal Protective Equipment Personal protective equipment serves as a person’s last line of defense against exposures and is required for everyone entering an ETC, WTC, STEM workspace containing hazards. The primary goal of PPE is to mitigate, at a minimum, the hazard associated with exposure to hazardous substances.

The SDS for a chemical or material should always be consulted to determine the appropriate required PPE. Personal protective equipment (PPE) should be kept clean and stored in an area where it will not become contaminated. PPE should be inspected prior to use to ensure it is in good condition. It should fit properly and be worn properly. If it becomes contaminated or damaged, it should be cleaned or repaired when possible, or discarded and replaced.

In cases where spills or splashes of hazardous chemicals on clothing or PPE occur, the clothing/PPE should immediately be removed and placed in a closed container that prevents release of the chemical. Heavily contaminated clothing/PPE resulting from an accidental spill should be disposed of as hazardous waste. Non-heavily contaminated PPE should be cleaned. ETC, WTC, STEM personnel should never take contaminated items home for cleaning or laundering.

The PPE policy outlines the basic PPE requirements, which include but are not limited to:

1. Safety eye protection with ANZI Z87.1 markings is mandatory in ETC, WTC, STEM workspaces and labs where there are hazards of flying objects or splashing chemicals. Safety glasses with clear side shields are adequate protection for general use. Goggles must be worn when there is danger of splashing chemicals or flying particles, such as when chemicals are poured, or glassware is used under elevated or reduced pressure. Safety goggles differ from safety glasses in that they form a seal with the face, which completely isolates the eyes from the hazard. A face shield with goggles offers maximum protection (for example, with vacuum systems that may implode). Normal glasses do not provide sufficient protection; people whose vision requires corrective lenses, and who are required to wear eye protection, must wear goggles over their eyeglasses, or prescription safety glasses. If contact lenses are worn, they should not be handled in the ETC, WTC, STEM workspaces and labs and must be worn with required eye protection.
2. When working with or around power air tools, portable hand tools, or equipment that generates loud noise (in excess of 85 decibels), hearing protection is required. Contact EOHS at ext. 3700 if it is suspected hearing protection may be indicated.
3. Persons who are near an unprotected edge four feet or more above lower levels must be protected from falling by guardrails, safety nets, or personal fall arrest systems. See your professor/instructor/competent person if you will be encountering this situation.
4. Protective gloves, laboratory coats and face shields are to be worn whenever it can reasonably be anticipated there could be exposure to materials that may cause cuts or abrasions or whenever there may be exposure to hazardous chemicals.
5. Hard hats must be worn when there is a danger of falling objects or working under overhead cranes.
6. Close-toed shoes must be worn at all times. Do not wear sandals, cloth sport shoes, perforated shoes, or open-toed shoes. Safety shoes/toe guards must be worn at all times by those individuals who have been identified as being part of the YSU Safety Footwear Program.
7. Full length pants must be worn at all times.
8. Flame resistant laboratory coats are required when working with pyrophorics, and flammables and conducting hot work activities. Consider wearing flame-resistant moisture wicking or all cotton undergarments/shirt/pants.
9. Gloves are made for specific uses. For adequate protection, select the correct glove for the hazard in question. Leather and Kevlar gloves provide good protection for picking up broken glass, handling objects with sharp edges. However, because they absorb liquid, these gloves do not provide protection from chemicals, nor are they adequate for handling extremely hot or cold surfaces. Select glove materials resistant to the chemical being used and change gloves periodically to minimize penetration. The chemical resistance of common glove materials varies according to the glove manufacturer. Nitrile gloves are typically required when handling corrosive, flammable or toxic chemicals.
10. Respirators must be worn when working with chemicals or generating particles that may constitute an inhalation hazard. Respirators must be issued in accordance with the [YSU Respirator Protection Program](https://ysu.edu/sites/default/files/users/jagentile/RespiratoryProtection%20prf3.pdf). Typically, respiratory protection is not needed in a workspace where there is adequate ventilation. Under most circumstances, safe work practices, small-scale usage, and engineering controls adequately protect workers from airborne hazards. Under certain circumstances respiratory protection may be needed.
	1. For voluntary use of a respirator, fill out a [Voluntary Use of Respirators form](https://ysu.edu/sites/default/files/eohs/Voluntary%20Use%20of%20Respirators%20Review%20update%202023.pdf). Review it with your professor/instructor/competent person and have them return the completed form to EOHS. EOHS will then contact the employee to evaluate the potential exposure.

**E) General Guidelines when Working with Flammable Chemicals**

* Chemicals defined as “Flammable” have a flash point of <100°F (<37.8°C)
* Vapor from flammable chemicals can be ignited and lead to fire or explosion.
* Some flammable chemicals are also considered toxic or health hazards.
* Combustible chemicals (flash point >100°F / 37.8°C) are also considered fire hazards.

Examples of flammable chemicals: Acetone, acetonitrile, chloroform, dichloromethane, diethyl ether, ethanol, ethyl acetate, hexane, isopropanol, methanol, pentane, tetrahydrofuran, toluene

**Flammable engineering controls**

* Work with flammable chemicals should be performed in a ventilated fume hood.
* Work with flammable chemicals **MUST** be done in a ventilated fume hood if:
* The volume you are working with is greater than 500mL.
* The flammable chemical is irritating to the eyes or respiratory system.
* The flammable chemical is also Toxic or a Health Hazard
* Know the location of the nearest fire extinguisher, emergency eyewash/shower and how to use them.
* Keep all flames and sources of electrical spark away from work area (e.g., stirring hotplates) Close containers of flammable chemicals when not in use.
* Follow proper bonding/grounding requirements for containers and flammable liquid transfers.

 **Flammable storage and transportation**

* Store containers of flammable chemicals in a flammables cabinet or explosion-proof refrigerator. Do not store combustible materials or flammables on top of either.
* Never store flammable chemicals near oxidizers
* Never use a standard refrigerator or freezer to store flammable material.
* Transport flammable chemical bottles in secondary containment

**F) Hot Work Requirements**

Operations including cutting, welding, brazing, soldering, or any other similar activity that has open flames or produces sparks must follow the Hot Work requirements.

**Hot work is prohibited under the following conditions:**

1. Any area outside of a Safe Hot Work Area where a hot work permit has not been obtained.
2. Near areas where large quantities of flammable or combustible materials can ignite.
3. In close proximity to an explosive atmosphere.
4. On any drums, tanks, containers or any vessel that may have contained chemical materials that when heated may produce flammable, explosive, or toxic atmosphere.

**HOT WORK PERMIT PROCEDURE**

YSU personnel engaged in hot work must be authorized to do so by the Qualified YSU Supervisor or Project Manager who understands hot work hazards and what automatic fire detection devices may be affected by the hot work. In the absence of the above contacts, the Environmental Occupational Health and Safety (EOHS) Office can authorize the planned hot work.

* 1. Obtain or request a current YSU Hot Work Permit by printing the [Hot Work Permit](https://ysu.edu/sites/default/files/eohs/Hot%20Work%20Fillable%20Rev%201.pdf)  from the EOHS website.
	2. Complete the Hot Work Permit.
	3. The Hot Work Permit must be signed by a Qualified YSU Supervisor or Project Manager authorizing the work. In the absence of both, the EOHS Office can be authorized to sign off on the permit.
	4. The Required Precautions Checklist noted on the Hot Work Permit must be in effect prior to starting the hot work and the permit must be posted in the work area.
	5. The completed Hot Work Permit must be kept for one year by department supervision then discarded after an annual audit.

**Welding**

1. Be sure the welder is properly installed and grounded.
2. Never weld without adequate ventilation.
3. Wear respiratory PPE when required. (Only medically evaluated and fit-tested personnel can wear respirators.)
4. Take proper precautions to prevent fires.
5. Protect your entire body with fire retardant clothing, shoes, and gloves. Consider wearing flame-resistant moisture wicking or all cotton undergarments/shirt/pants.
6. Wear safety eye protection with ANZI Z87.1 markings. This includes safety glasses, goggles and welding helmets as required.
7. Weld only in a Safe Hot Work Area or where a hot work permit has been issued.
8. Never do any welding, cutting, or hot work on used drums, barrels, tanks, or other containers.
9. Electrode holders should be in good repair and rated for the maximum capacity of equipment used.
10. All cables and connectors should be in good repair, tightly attached, fully insulated, and rated for the maximum capacity of the work.
11. The welding lead will have a safe current capacity equal to, or greater than, the specified maximum output of the arc welding or cutting unit which it serves.
12. When a single work lead services more than one unit, its safe current carrying capacity should equal or exceed the total specified maximum output capacities of all the units which it services.
13. All electrical equipment (welding machines) and work should be properly grounded. The welding lead is not a ground lead. It is used only to complete the electrical circuit. A separate connection may be required to ground the work piece. Do not mistake the work lead for ground.
14. Pipelines containing gases or flammable liquids, or conduits containing electrical circuits, should not be used as a ground.
15. When electrode holders are to be left unattended, the electrode should be removed and the holders placed or protected so that they cannot make electrical contact with personnel or conducting objects. Always put stub ends in proper containers, not on the floor.
16. Do not weld while standing in water, or if clothing and gloves are wet.
17. Inspect equipment for loose connections or bare or damaged wires. Do not use faulty equipment.
18. Have workers turn off the welding machine at the end of the shift or when they will not be using it for an extended period.

**Fire** **Prevention**

1. Sparks or spatter from welding or arc gouging may ignite burnable items in the area. Always be sure hot work areas have a minimum 35-foot clear area free of combustible materials.
2. Burnable materials should be removed from the area where welding or arc gouging is to take place or protected with flame-retardant materials. Use a fire watch as appropriate.
3. Sparks and spatter from arc gouging travel considerable distances. Whenever possible, orient the spark stream to minimize concern for fire or damage resulting from the spark stream. Use fire-retardant shielding and/or fire watch as appropriate.
4. Be sure to have full knowledge of the location and use of all fire extinguishing equipment in the area.

**Explosion** **Prevention**

1. Do not weld or use arc gouging equipment when the smell of propane, acetylene, or any other fuel or gas is present. Determine the cause of the leak and get it corrected.
2. Do not perform any “hot work” (electric or gas welding, cutting, and brazing or similar flame-producing operations and grinding) in, or on, a tank or container unless it is properly vented.
3. Do not perform any “hot work” in, or on, any vessel, tank, or container which carries, or has carried, flammable materials, liquids, or gases until the container has been cleaned, tested, and declared safe for “hot work” by the job safety authority.
4. Use appropriate ventilating devices before and during “hot work.”
5. Ensure that hollow spaces are vented or purged prior to hot work activity.
6. Acetone and alcohol are commonly used for cleaning parts to be welded. Be sure to keep these containers and rags a safe distance from “hot work.”
7. Disposable butane pocket lighters are not allowed where any “hot work” is being performed.
8. Never strike an arc on a compressed gas cylinder.

**Burn Prevention**

1. Exposed skin is an invitation to burns. Be sure to wear Flame Resistant Moisture Wicking or cotton undergarments and long-sleeved shirts that are not open at the chest and always fasten the top button of your shirt or jacket. Use leather or flame-resistant jackets when appropriate. Avoid polyester/synthetic clothing since they melt easily and can increase severity of burns.
2. Falling slag, spatter, or molten filler metal can cause burns to ankles and feet. Wear leather, steel-toed, high-topped boots during welding and cutting activities. Fire-resistant boot protectors may also be necessary. Avoid pants with cuffs.
3. Never carry flammable items such as matches and lighters in your pockets while involved with “hot work.” Disposable butane pocket lighters are not allowed where any “hot work” is performed.
4. Always wear the appropriate type of leather gloves for the welding or cutting process.
5. Do not place hot work material where others can accidentally come in contact with it. Remember, metal can look normal but still be very hot.

**Arc Radiation**

1. Infrared or ultraviolet radiation from the arc can burn the eyes or skin. Intense light can cause an irritation in the eyes known as “welder’s flash,” “arc-eye,” or flash burn. Always view the arc when protected with a shield using protective altered lenses of the appropriate shade. Use appropriate area shielding for work area.

**G) Hand, Power Tool, Machine & Equipment Safety Guidelines**

**Machine Operation and Guarding Requirements**

All mechanical motion is potentially hazardous. Motion hazards such as rotating devices, cutting or shearing blades, in running nip points, reciprocating parts, linear moving belts and pulleys, meshing gears, and uncontrolled movement of failing parts are examples of motion and are peculiar to any one machine or job operation. Personnel working within areas where they are exposed to machinery or equipment hazards must be aware of the potential for accidents.

1. Once trained, ask for Instructor/Competent Person’s permission before using tools and equipment.
2. All manufacturer safety practices must be followed while using tools. This means all employees must read, know and understand all safeguards prior to using equipment. If an individual does not understand the safe operation of a piece of equipment, he/she should notify their professor/instructor/competent person to obtain clarification. All required personal protective equipment must be worn at all times when using equipment. Once you are trained, ask for Professor/instructor/competent person’s permission before using any tool.
3. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
4. Always wear safety eye protection with ANZI Z87.1 markings while operating any tool.
5. Wear hearing protection (ear plugs or earmuffs) when necessary.
6. Ask the Professor/instructor/competent person for safety information specific to each tool.
7. Only use a tool for its intended purpose (ex. a flat screwdriver is not a chisel).
8. Select the correct tool to safely complete the task.
9. Use tools in the proper environment (i.e., Do not use a grinder that emits sparks around flammable vapors or dust).
10. Do not use hand tools with loose or damaged handles.
11. Do not use portable power tools which have frayed, cut, or separated cords from the tool housing.
12. Keep tools and equipment well maintained (i.e., blades sharp, cords well maintained, guards in good working order, etc.).
13. On all metal portable power tools make sure that a 3-pronged grounding type plug is always used.
14. When working outside always use a "Ground Fault Circuit Interrupter" (GFCI) type extension cord, and do not put extension cords around your or shoulders when using portable power tools.
15. Keep hands clear of all cut lines or areas of impact.
16. Never leave a blade or tool unattended.
17. Do not leave any tool hanging over the edge a workbench or table.
18. If hot, do not touch the tool, and let it tool cool down before returning it to its proper location.
19. All tools should be inspected prior to each use by the operator. Inspections should include, but are not limited to, the following items:

**HAND TOOLS**

1. All hand tools such as chisels, punches, etc. which develop “mushroomed” heads must be taken out of service and reconditioned.
2. Handles on hammers, axes and similar equipment that are cracked or fractured should be replaced prior to use. Care should be taken to assure the head is properly and securely attached.
3. Wrenches whose handles are bent or whose gripping surfaces are worn should be replaced.
4. Screwdrivers that are bent or whose ends are chipped should be replaced.
5. Tools should be stored in a secure, dry location where they will not be tampered with.
6. Tools should be stored in such a way that sharp edges do not present a danger when reaching into tool cribs and storage areas.
7. Tool cutting edges should be sharp so the tool will move smoothly and not bind.
8. All handles should be free of burs and splinters and should be firmly attached to the working head of the tool.

**PORTABLE POWER OPERATED TOOLS**

1. Once trained, ask for professor/instructor/competent person’s permission before using portable power tools.

1. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
2. Always wear safety eye protection with ANZI Z87.1 markings while operating any tool.
3. Wear hearing protection (ear plugs or ear muffs) when necessary.
4. All grinders, saws and similar equipment must be fitted with appropriate guarding as specified by the manufacturer. Hand grinders must have accessory handle attached and used when operating grinder.

3. The adjustable tongue on the top side of the grinder must be properly guarded to prevent physical contact by the operator.

4. All corded electrically operated tools and equipment must be effectively grounded by either a grounding prong or an approved double-insulated case. Inspect all prongs to ensure they are not bent or otherwise damaged and all cases to ensure they are not cracked or damaged.

5. All electric cords must be in good condition; free of frays or other physical defects.

6. Pneumatic hoses must be free of damage or deterioration.

**ABRASIVE WHEEL EQUIPMENT**

1. Once trained, ask for professor/instructor/competent person’s permission before using abrasive wheel equipment.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety eye protection with ANZI Z87.1 markings while operating any tool.
4. Wear hearing protection (ear plugs or ear muffs) when necessary.
5. The work rest shall be within 1/8 inch of the wheel.
6. The adjustable tongue on the top side of grinder must be within ¼ inch of the wheel.
7. The grinder must be mounted in such a way that it is secure and will not shift or tip.
8. Check that on-off control switches are clearly marked and readily accessible to the operator for easy deactivation of equipment in case of emergency.
9. Never exceed the maximum RPM rating indicated on the wheel.
10. Assure grinding wheels are not cracked or otherwise damaged before use.
11. Grinders that use a coolant must be equipped with splash guards to prevent coolant from coming into contact with the operator.

**MACHINE GUARDING**

* + Machine guards will be clean, secure and so arranged so they do not offer a hazard in their use.
	+ All moving chains, gears, pulleys, etc. will be properly guarded.
	+ All emergency STOP buttons will be colored red and easily accessible to the operator in an emergency.
	+ All non-current-carrying metal parts of electric equipment will be properly grounded.
	+ Sufficient clearance must be maintained around equipment to ensure safe operation, maintenance and wasteremoval.

**Jointer Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Jointer.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety eye protection with ANSI Z87.1 markings while operating the Jointer.
4. The guard should be covering the cutterhead at all times when not operating the machine.
5. Make all adjustments with the power off.
6. Be sure to check all material for loose knots, nails and other foreign objects.
7. Do not place your hands within 12 inches of the cutterhead.
8. Students should NOT adjust the height of the outfeed table.
9. Only joint boards with the grain.
10. Stand off to the left and out of line of the cutterhead.
11. Never joint stock less than 12 inches long.
12. Cut with the concave side of the board facing down.
13. Hold firmly against the fence and the table.
14. A push stick is required when hands would pass over or within 2 inches of the cutterhead.
15. Adjust the infeed table to cut 1/32 of an inch per pass.
16. Never make cuts more than 1/16 of an inch thick.
17. Material should be pushed through, not pulled.
18. Run stock the entire way through the jointer until the cutterhead guard has returned over the throat and knives.
19. Turn off and wait for the cutterhead to come to a complete stop before cleaning it. Do not use fingers to clean cutterhead.
20. Assure power is off then clean up all scraps and dust from the Jointer before you leave it.

**Laser Engraver/Cutter Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Laser Engraver or Cutter.
2. When required, wear the proper eye protection with ANSI Z87.1 markings while operating and observing the Laser Engraver or Cutter.
3. Never leave the Laser Engraver or Cutter unattended during operation.
4. Ensure exhaust is working for proper CO2 ventilation.
5. All parts of the machine must be fully grounded in case the static electricity cuts out.
6. Flammable and explosive substances are not allowed near the Laser Engraver or Cutter.
7. Before cutting, ensure the lens housing (laser head and gantry) will not collide with any objects on the honeycomb (cutting) table.
8. Do not push and/or pull the laser head and its gantry.
9. The cover must remain down and in place during the entire operation.
10. The continuous working time for the Laser Engraver or Cutter cannot exceed 5 hours.
11. Any total reflection objects or diffuse objects are prohibited inside the machine to prevent the laser beam from reflecting out to hurt people.
12. Do not attempt to engrave/cut nylon, ABS, polyethylene, Lexan/polycarbonate, PVC, vinyl, Teflon, or carbon fiber. Also, do not inhale glass dust.
13. Make all adjustments with the power turned off.
14. If applicable, the water cycle must be kept clean and at a temperature recommended by the manufacturer.
15. Small sparks and smoke are acceptable, but large flames are not.
16. If there are large flames or the machine malfunctions, immediately cut off the power supply.
17. When the operation is finished, carefully remove parts.
18. Follow all safety guidelines provided by the Laser Engraver or Cutter manufacturer.

**Lasers Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using and device with a laser.
2. Always wear the proper ANSI Z87.1 eye protection with markings when working around lasers.
3. Do not look directly into the laser.
4. Do not operate Lasers over a CLASS II rating.
5. NEVER point the laser at another individual.
6. NEVER point the laser at a reflective surface (e.g., mirrors, glass, Mylar balloons, etc.) unless granted permission by the Professor/instructor/competent person.
7. Appropriate “Laser in Use” warning signage must be posted at all entrances.
8. Follow all manufacturer procedures and safety rules.

**Motorized Miter Saw Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Miter Saw.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety glasses with ANSI Z87.1 markings while operating the Miter Saw.
4. Check all material for foreign objects before cutting.
5. ONLY CROSSCUTTING (cutting across the grain) is allowed on the Miter Saw.
6. Check to ensure that all the safety guards and tables are in place and working correctly.
7. Disconnect the power before making any angle or blade adjustments.
8. Have all cut lines clearly marked before operating the Miter Saw.
9. Keep your fingers away from the cut line and blade.
10. Do not start the blade while it is touching the stock.
11. Support long stock on the ends to prevent binding or jamming.
12. Hold the stock firmly on the down on the table and against the fence while cutting.
13. Allow motor to reach full speed before beginning to cut.
14. If using a Sliding Miter Saw, pull the blade toward you as far as possible, then cut down and away from you to avoid kickback.
15. Wait for the Miter Saw blade to come to a complete stop before cleaning it. Do not clean blade with your fingers.
16. Assure power is off then clean up all scraps and dust from the Miter Saw before you leave it.

**Planer Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Planer.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety eye protection with ANSI Z87.1 markings and ear protection while operating the Planer.
4. Be sure to check all boards for loose knots, nails, and other foreign objects.
5. If the machine is not working or sounding proper, immediately shut off the power and inform the teacher.
6. Feed boards into the planer going with the grain of the wood.
7. Do not force boards through the planer. Keep hands off the board and let the power feed operate.
8. Be careful not to pinch fingers between the board and table.
9. Do not attempt to plane a piece that is shorter than the distance between the rollers.
10. Select the proper depth of cut and the rate of speed depending on the stock being planed.
11. Depth of cut should not exceed 1/16th of an inch per pass (1/2 turn of the handwheel).
12. To remove a board that is stuck, shut off, once Planer completely stops lower the table.
13. Never look or directly into the throat of a planer at table level while it is running or in operation.
14. Keep hands away from the chip guard and the point of operation. Never reach into the Planer.
15. Do not stand directly behind the board being planed in case of kickback.
16. Wait for the Planer blades to completely stop spinning before cleaning the machine. Do not clean blades with fingers.
17. Assure power is off then clean up all scraps and dust around the Planer before you leave the area.

**Robot/Cobot Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using any Robot.
2. Understand the program of the robot actions and motions prior to use.
3. Before robot operation check for signs of damage to the robots, observe if there are any fluid spills, broken wires, loose cables, etc. Check for malfunction lights or messages before beginning.
4. E-stops must be operational and within reach at all times when the robot is powered on. E-Stop pushbuttons must always be within reach of any person working with the robot.
5. Before starting any robot movement, communicate with others loud and deliberately on the operation about to be executed, such as “Starting robot motion.”
6. Wear safety eye protection with ANSI Z87.1 markings and other suitable PPE as required for the task. Remove loose-fitting clothing (ties, scarves, extra-long or loose sleeves, hoodies with drawstrings, etc.). Tie up long hair.
7. Stay out of the designated safety zone during operation.
8. Ensure the safety zone is free of tools and materials.
9. When possible, run a simulation before having the robot execute the program.
10. Start with slow movements until points are confirmed.
11. If a malfunction occurs, immediately press the emergency stop button and contact the Professor/instructor/competent person.
12. If you notice a damaged or possibly stuck robot arm, keep everyone clear and notify the Professor/instructor/competent person immediately. Do not attempt to fix or free the robot arm.
13. If uncertain of the safety of the operation to be undertaken, notify the Professor/instructor/competent person and obtain guidance before proceeding.
14. Use extra caution when performing motion experiments for the first time or if recovering from a collision. When running any new code, observe the robot carefully with a hand on the E-Stop (Emergency-Stop) button.
15. During robot operation everyone in the vicinity of the robot must be mentally alert and paying attention (no headphones, etc.)
16. Do not operate robots/cobots alone.
17. For collaborative robots (ISO/TS 15066:2016), personnel can be within the robot’s workspace while the robot is performing autonomous functions, but it is highly recommended to avoid entering the robot’s workspace unless necessary.
18. For non-collaborative robots, all personnel must be outside of the robot workspace while the robot is performing any autonomous function.
19. Disable the robot after experimentation is complete.
20. Assure power is off then clean up area when finished and return robot to the home position.

**Scroll Saw Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Scroll Saw.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety glasses with ANSI Z87.1 markings while operating the Scroll Saw.
4. Check all material for foreign objects (nails, staples, etc.) before cutting.
5. Clearly mark all lines to be cut.
6. Hold the material away from the blade before you turn on the Scroll Saw.
7. Keep your fingers 2 inches minimum away from the cut line and blade.
8. Hold material firmly down on table.
9. When cutting a tight curve, first cut relief cuts then push the work piece slowly without twisting or bending the blade.
10. Do not force the work into the blade.
11. Slowly cut around tight curves – speed up on the straight lines.
12. Be cautious when gently blowing sawdust away so that you can see the line of cut.
13. If the blade breaks turn the power off and notify the professor/instructor/competent person immediately.
14. Turn off the Scroll Saw when finished cutting.
15. Wait for the Scroll Saw to come to a complete stop before cleaning it.
16. Assure power is off then clean up all scraps and dust from the Scroll Saw before you leave.

**Table Saw Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Table Saw.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety glasses with ANSI Z87.1 markings while operating the Table Saw.
4. Check all material for foreign objects before cutting.
5. Check to ensure that all the safety guards are in place and working correctly.
6. Always use the saw guard, splitter, and anti-kickback device if equipped.
7. Make all adjustments and remove chips or dust with the power off.
8. NEVER use the miter gauge and fence together in the same operation.
9. The saw blade should extend above the work piece until the gullets of the blade clear the material.
10. NEVER cut free hand. Use the miter gauge when cross cutting (cutting across the grain), and the fence when ripping (cutting with the grain).
11. NEVER reach over the saw blade.
12. Use a push stick when ripping narrow stock or when hands would be close to the blade.
13. Do not stand in line of the cut when operating the saw in case of kickback.
14. Use extra care and precaution when sawing large material, or when using a dado or molding cutter head.
15. Use a helper to support cutting long stock, but operator should control the cutting.
16. Be sure the machine has come to a full stop and lower the blade and before leaving.
17. Do not start the saw with the blade touching the material.
18. Turn off the Table Saw when finished cutting.
19. Wait for the Table Saw blade to come to a complete stop before cleaning it. Do not clean blade with fingers.
20. Assure power is off then clean up all scraps and dust from the Table Saw before you leave.

**Lathe Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Wood Lathe.
2. Remove all jewelry, neckties, loose clothing, hoodies/clothing with drawstrings and confine long hair. Button long sleeves.
3. Always wear safety glasses with ANSI Z87.1 markings or a face shield while operating the Wood Lathe.
4. Check the stock for any foreign materials, soundness, and proper centering before cutting. When centered properly, clamp tailstock firmly in place and tighten the tailstock spindle lock.
5. Be sure to allow laminated or glued-up blanks to dry thoroughly before turning.
6. Never leave the lathe running unattended.
7. The proper speed should be selected for the diameter and hardness of the material. In general, roughing stock and beginning cuts are done at low speeds.
8. Adjust the tool rest and turn the stock using the headstock handwheel before power is turned on to be sure it can run clear of the tool rest. All adjustments to tool rest are to be made when machine is COMPLETELY stopped.
9. The lathe tool rest should be set 1/4 of an inch or less from the rough stock. The tool rest should be 1/8 of an inch above the center of and parallel to the stock.
10. Be sure that you have selected the proper sharp tools for the operations and that the handles are secure.
11. Hold the lathe turning tool firmly down against the tool rest.
12. Never use your fingers to check the work for roundness while the lathe is running, especially during roughing operations. Stop the lathe to check the progress.
13. The tool rest shall be removed for all sanding operations.
14. Wear a dust mask when performing sanding operations.
15. Do not ever wrap sandpaper around hands to sand material in the lathe.
16. Tools should not be left on the bed of lathe while it is in operation.
17. Do not allow anyone to stand behind the lathe while it is in operation. (Lathe tools caught by the wood can be thrown in that direction.)
18. Assure power is off then clean up all scraps and dust with the power turned off before leaving the Lathe.

**3D Printer Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the 3D printer.
2. When required, wear safety glasses or goggles with ANSI Z87.1 markings while operating and observing the 3D printer, removing the model from the platform, and removing the support material.
3. Run the printer at the temperature specified by the manufacturer.
4. Make all adjustments with the power turned off.
5. DO NOT touch the print nozzle.
6. Select the correct scale and other settings to print your model.
7. Properly load the platform tray so it is level.
8. Doors of the printer must remain closed for the entire operation.
9. Once printer is completely finished, remove the platform (may still be HOT and require heat insulated gloves), and carefully remove the model using a putty knife.
10. Remove all support material from the printing platform to ensure a smooth surface for the next print.
11. Some printers allow the removal of support material by carefully using chisels, pliers, and wire cutters.
12. Some support material must be removed using hazardous chemicals. Refer to the manufacturer instructions provided with these chemicals. To avoid contact with skin, some removal chemicals require the use of neoprene gloves, chemical splash goggles with ANSI Z87.1 markings, and steel or plastic (not aluminum) tongs.
13. If chemical manufacturer specifies, have a source of fresh water nearby to rinse chemical solutions from your skin or the model. If chemicals are hazardous or corrosive know emergency eyewash station locations and how to use them.
14. Only use the printer in a well-ventilated area which can accommodate potentially hazardous vapors and fumes.
15. Follow all safety precautions provided by the manufacturer.

**Band Saw Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Band Saw.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety glasses with ANSI Z87.1 markings while operating the Band Saw.
4. Check all material for foreign objects before cutting.
5. Set the blade guard 1/8th of an inch above the piece to be cut.
6. Check to ensure that all the safety guards are in place and working correctly.
7. Have all cut lines clearly marked before operating the Band Saw.
8. Hold the material away from the blade before you turn on the Band Saw.
9. Hold the material firmly on the table while cutting on the Band Saw.
10. Keep your fingers 2 inches minimum away from the cut line and blade.
11. When cutting a tight curve, first cut relief cuts then push the work piece slowly without twisting or bending the blade. Do not force the work into the blade.
12. Do not cut a smaller radius than the blade width will allow.
13. Use a V-Block to cut material that is round.
14. Turn off the Band Saw when finished cutting.
15. Wait for the Band Saw to come to a complete stop before cleaning it.
16. Assure power is off then clean up all scraps and dust from the Band Saw before you leave.

**Belt/Disc Sander Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Sander.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety glasses with ANSI Z87.1 markings while operating the Sander.
4. Check all material for foreign objects before cutting.
5. Check to ensure that all tables are at the correct angle and secure.
6. Make sure the belt and disc are not loose, torn, or clogged up.
7. Hold the material firmly on the table while sanding.
8. Keep your fingers away from the belt/disc.
9. Use only the downward side of the disc while sanding.
10. Do not force material against sanding surfaces.
11. Make all adjustments with the power off, EXCEPT when adjusting the belt tension.
12. Hold the material away from the belt/disc before you turn on the Sander.
13. Turn off the Sander when finished.
14. Wait for the Sander to come to a complete stop before cleaning it. Do not clean blade with fingers.
15. Assure power is off then clean up all scraps and dust from the Sander before you leave it.

**CNC Machines Safety Guidelines**

1. Some CNC Machines may have unique, machine specific operation and safety requirements. Once you are trained, assure your professor/instructor/competent person reviews this information with you and ask permission before using the equipment.
2. Remove all jewelry, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety glasses with ANSI Z87.1 markings while operating and observing a CNC machine.
4. Make sure the power is turned off (and if required under the Lockout/Tagout Procedure, properly locked out per lockout tagout instructions) before setting up the machine or making adjustments.
5. Check spindle rotation, speed, depth of cut, and all power feed adjustments before starting the cut.
6. Run a simulation or dry run (without a tool bit) before starting the final run to ensure all movements are correct and prevent tool or machine damage.
7. Keep set-up tools off of machine and out of the work area.
8. Make sure the work piece is mounted or clamped securely.
9. Make sure all doors to the work area are fully closed.
10. Remain with machine for the duration of its operation.
11. If a malfunction on occurs, immediately press the emergency stop (E-Stop) button and contact the professor/instructor/competent person.
12. Use brush to remove chips and shavings only when the machine is completely stopped.
13. Use the proper tools to tighten the bit/cutter head in the collet chuck, then remove all tools from the work area before operating the CNC machine.
14. Carefully remove bit when finished using gloves as bit can be hot and sharp.
15. Assure power is off then clean up area when finished and return the CNC to the home position.

**Drill Press Safety Guidelines**

1. Once trained, ask for professor/instructor/competent person’s permission before using the Drill Press.
2. Remove all jewelry and gloves, eliminate loose clothing, hoodies/clothing with drawstrings and confine long hair.
3. Always wear safety glasses with ANSI Z87.1 markings while operating the Drill Press.

Center punch all holes to be drilled.

1. Check the end of the drill bit – Make sure it is not square.
2. Make all adjustments with the power turned off.
3. Use the chuck key to tighten the drill bit in the chuck.
4. REMOVE THE CHUCK KEY before turning on Drill Press.
5. Make sure drill bit lines up with the hole in the center of the table to avoid drilling into the table.
6. Back up stock being drilled to avoid splintering.
7. Clamp material to the table – It should extend to left.
8. Check the depth stop.
9. Do not force the drill bit through the material.
10. Carefully remove drill bit when finished using gloves as bit can be hot and sharp.
11. Assure power is off then clean up the Drill Press and area around it.

**H) Battery Disposal**

Follow the [YSU Battery Disposal Guidelines](https://ysu.edu/eohs/risk-management/chemical-management-center/battery-disposal-guidelines)

**I) Radiation Safety**

All students will work under the direct supervision of an authorized user.

Before students are allowed to handle radioactive materials, the following procedures shall be completed. Faculty must be present at all times during the use of radioactive materials.

1. The specific procedures to be conducted by the students must be submitted to the RSO for review and approval.
2. The Radiation Safety Rules and General Safety Rules for Laboratories must be distributed and reviewed by authorized user with students.
3. The specific techniques to be performed must be demonstrated by authorized user with students.
4. The techniques for monitoring facilities and personnel must be reviewed by authorized user with students.
5. The procedures for the proper disposal of all generated wastes must be reviewed by authorized user with students.
6. The procedures for handling spills or other emergency events must be reviewed by authorized user with students.

**J) X-Ray Generating Equipment Safety Guidelines**

Prior to working with x-ray generating equipment, all users will be required to review the EOHS [X-Ray Generating Equipment Procedure](https://ysu.edu/eohs/x-ray-generating-equipment) and training material provided.   Individual faculty members will be responsible for assuring that graduate and undergraduate students using x-ray generating equipment are adequately trained and the documentation of this training is recorded.

**K) Lockout/Tagout**

Only Trained and Authorized Personnel are permitted to lockout/tagout equipment. Students are never permitted to lockout equipment alone.

**Youngstown State University ETC, WTC, STEM General Safety Orientation Acknowledgement**

After reading this document, please sign below and give to your professor/instructor/competent person.

Student Name (Print): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Name (Signature)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Course/Club/Organization: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

Instructor/Advisor/Competent Person Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Safety is of utmost importance in the laboratories and club and organization workspaces in the ETC, WTC, STEM College at Youngstown State University. I take responsibility for myself and will follow all ETC, WTC, STEM safety and health rules, policies and procedures. I will complete all safety and health training.

I understand that ETC, WTC, STEM activities may involve high risk work with chemical or physical hazards (high voltage, mechanical hazards) and must NOT be conducted alone. All high-risk ETC, WTC, STEM work must be conducted with a partner or co-worker and MUST always have a Competent Person in site of the activity.

I understand that high risk work on YSU campus outside of normal business hours (M-F 7:30am to 5pm) must be pre-approved in writing by the department chair and must include emergency contact information.

I understand that experiments or other tasks that continue to operate while someone is not present (unattended) must be pre-approved in writing by the department chair and must include emergency contact information.

The first offense for a safety and health violation in the ETC, WTC, STEM College is a grade of zero for that session. The second offense will result in a grade of F in the course.

Your professor/instructor/competent person will discuss each of these at the start of the semester and during each session as needed.

**There are no exceptions to the safety and health requirements. By signing this document, you, the student, acknowledges that you understand the safety and health expectations of the YSU ETC, WTC, STEM College*.***