



College of  
**Technology, Architecture  
and Applied Engineering**

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# **LAB SAFETY MANUAL**

## **Part 1: General Policies & Procedures**



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**INTRODUCTION**

The College of Technology, Architecture, and Applied Engineering at Bowling Green State University is committed to excellence, in teaching, research and service. A primary goal of the University is to create a campus environment that encourages the active involvement of students in their own personal and intellectual development, thereby promoting responsible citizenship. The general policies and procedures stated herein are designed to serve as a guide for maintaining and promoting safety – for both, self and others.

Though it is impossible to summarize every aspect of safety, these policies and procedures are intended to provide information that may be considered critical throughout the course of a student’s education in the lab setting. It is recommended that every student become familiar with the contents of this document. Specific policies and procedures relevant to individual labs, as shown in part 2 of this safety manual, are to be followed in addition to these general policies. Furthermore, safety procedures for individual equipment must be followed as instructed by the equipment manual or the lab Supervisor.

**GENERAL INFORMATION**

The labs in the College of Technology, Architecture, and Applied Engineering (COTAAE) are designed to be used as a practical lab extension of the lecture component of courses offered in the College. The labs are equipped for all phases of computing, woodworking, metalworking, and machining and other technical equipment and are available to all students in the College.

All college facilities including the labs are non-smoking zones as is the campus.

**SAFETY**

Safety, though difficult to define because it is an attitude, can be described as “the minimization or elimination of injury and loss resulting from non-deliberate acts such as accidents.” Failure to develop proper, safe attitudes, habits and skills is the real culprit of accidents.

## **GENERAL POLICIES & PROCEDURES**

### **Lab Guests/Visitors**

Any faculty or staff familiar with lab safety policies may accompany lab guests and visitors. He or she is responsible for that guest/visitor. Guests and visitors will not be allowed to operate any equipment. All guests or visitors must wear eye protection. Guest and visitors will be allowed in the labs with permission of the Assistant Director of Laboratories and Facilities or Lab Supervisor, usually an instructor, responsible for the area. Safety glasses are available in the technology stores.

### **Eye Protection**

Eye protection must be worn at all times in the mechanical/manufacturing/construction lab facilities. The eye protective glasses and over the prescription safety glasses are available in the Technology Stores. Failure to wear eye protection will result in loss of lab privileges. At the first offense a warning will be administered. A second offense will result in a loss of lab privileges until meeting with the Assistant Director of Laboratories and Facilities.

### **Safety Class Requirements**

Every student must become familiar with the safety policies before becoming a lab user. All students taking lab classes must become familiar with the policies on first week of the class.

### **Injury Causing Accidents**

In the event of an injury causing accident, the following procedures must be followed:

- 1) Notify the Lab Supervisor immediately. The Lab Supervisor is the person in charge of the lab activity. Lab personnel will follow established university procedures.  
<https://www.bgsu.edu/environmental-health-and-safety/about-us/injury-and-illness-reporting.html>
- 2) All personal injury accidents require a meeting between the injured person, the Assistant Director of Laboratories and Facilities and the Department Chair or School Director are informed. The purpose is to determine the cause of the accident for the prevention of future accidents. Depending upon the severity of the injury the injured may be allowed to continue working in the lab. Otherwise, University policy is followed to treat the injured.

### **Non-Injury Accidents**

In the event of accidents resulting in equipment damage, material "kickbacks," jamming, or other unsafe events, the following procedures must be followed:

- 1) Notify the Lab Supervisor immediately if equipment is damaged. Alert all others in the lab to prevent another individual from using the equipment which is in an unsafe condition.
- 2) A meeting is required between the person involved in the accident and the Assistant Director of Laboratories and Facilities to determine the cause and prevention before lab privileges will resume.

### **Lab Occupancy Limits**

In order to maintain a safe working environment, strict user limits are enforced. Therefore, faculty or other users, should schedule their on-going lab related project with the Assistant Director of Laboratories and Facilities at the beginning of the semester.

### **Cleaning of Lab Facility**

The Lab facility is under the control of the College of Technology, Architecture, and Applied Engineering and is not cleaned by the janitorial staff. Therefore, lab users are responsible for all clean-up efforts as listed below:

- 1) Each student is responsible for clean-up of his or her own debris and return of tools to their designated place.
- 2) Each student is required to assist in a general lab clean-up at the end of the class or when deemed necessary by Lab Supervisor.
- 3) Students failing in their clean-up responsibilities will face a loss of lab privileges. At the first offense a warning will be administered. A second offense will result in a loss of lab privileges until meeting with the Department Chair or School Director and Assistant Director of Laboratories and Facilities.

### **Theft of Materials and Equipment**

Theft of materials or equipment will not be tolerated. Any student caught stealing will be dismissed from the College of Technology, Architecture, and Applied Engineering permanently and may be expelled from the University.

### **Storage of Materials and Projects**

Storage shall be orderly at all times and occur in designated areas only. Paths of egress and proper clearance near ceilings, fire safety and electrical equipment must be maintained per BGSU guidelines.

Special arrangements may be made for large material storage. Such storage is allowed only for limited time periods and requires a specific removal date.

### **General Lab Hours**

The lab is available for users as needed by scheduled classes or as needed for special projects. For further information, contact the Assistant Director of Labs and Facilities.

### **General Safety Rules**

- Keeping the labs clean, organized, and functioning properly can help to prevent incidents and injuries. A safe attitude will protect you and others. Think, develop and practice good, safe habits.
- The following general safety rules govern the use of the labs. Specific policies and procedures relevant to individual labs are to be followed in addition to these general policies:
  1. All accidents, even if very small, must be reported to the Lab Supervisor.
  2. In case of emergency, report to Lab Supervisor or the Assistant Director of Laboratories and Facilities and if severe Dial 911 immediately.
  3. Use equipment for its intended use. If in doubt, ask for help.

4. No one should use equipment until he or she has received proper and safe instruction and feel comfortable with its operation.
5. If you have made an adjustment on a piece of equipment, return it to its normal position after you are done.
6. Students are not to attempt repairs to any equipment that is broken. Notify the Lab Supervisor immediately.
7. Do not use broken or damaged equipment.
8. Follow all special and regular safety rules for operation of equipment.
9. Respect the rights and property of other students. Horseplay, running, yelling and/or fighting will not be tolerated. Violation of this policy will result in permanent loss of lab privileges.
10. Be thoughtful and helpful towards others in the lab.
11. Stack and store projects carefully in assigned areas.
12. No food, drink, or smoking, including electronic cigarettes, in the lab.
13. Do not displace or remove laboratory equipment without Lab Supervisor authorization.
14. Never obstruct access to exits and emergency equipment such as eyewashes, fire extinguishers, and safety showers.
15. Keep the work area clean, uncluttered, with equipment, and hazardous materials properly stored.
16. Keep drawers, cabinets closed, cords, and cables off the floor to avoid tripping hazards.
17. Promptly notify Assistant Director of Laboratories and Facilities when laboratory equipment is not functioning properly.

**Lab use privileges**

- Labs are only used as part of a class.
- Labs are only used under supervision or permission of the class Lab Supervisor or Assistant Director of Laboratories and Facilities
- Labs are only used with at least 2 persons present who are knowledgeable of safety and reporting procedures. Lab Supervisors and Assistant Director of Laboratories and Facilities may work alone for lab preparation. It is preferred that in such a case they inform the departments beforehand.

**Phone numbers and email addresses**

Assistant Director of Laboratories and Facilities – Benson Ezea - 419-378-0156 –  
bezea@bgsu.edu



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# **LAB SAFETY MANUAL**

## **Part 2: Rules for Specific Labs**

## ENGINEERING TECHNOLOGIES & CONSTRUCTION MGMT

### Detailed Lab Guidelines

In addition to the Lab Safety General Policies and Procedures see below for specific guidelines for the Engineering Technologies and Construction labs. Engineering Technologies includes ECET, Engineering Technology and Mechatronics labs.

In addition to the general and these specific guidelines, the safety practices for individual equipment **MUST** be followed. These are available from your Lab Supervisor and equipment manuals.

1. No one shall use any equipment without proper training by the Lab Supervisor or the Assistant Director of Laboratories and Facilities.
2. There must be at least 2 people in lab while using equipment.
3. Eye protection must be worn at all times, As defined on page 3 of general policies/procedures.
4. Closed toed and hard soled shoes must be worn at all times.
5. Remove all rings, jewelry, wristwatches and necklaces before operating machinery.
6. Never wear loose clothing- tuck in shirttails, etc.
7. Tie back/up long hair when operating machinery.
8. All safety guards must be in place while operating equipment. (Do not remove).
9. Always keep your eyes on your fingers, ears tuned to the sound of the machine, and nose tuned to the smell of smoke.
10. Operator never talks while operating a machine.
11. Never talk to someone who is operating a machine.
12. Make sure machines are in the "off" position and motion has stopped before leaving them.
13. Make sure machine's work surface is clean, unobstructed and ready for use.
14. Clean up your mess. Wipe up all spilled liquids. Pick up your materials. Sweep up any loose debris. To prevent slipping the Lab Supervisor and students should be watching and routinely sweep the area where a slipping hazard could occur during the class.
15. Disposal of solvents, finishes, chemicals, and other hazardous materials of any kind must be done as per the university policy under the supervision of the Assistant Director of Laboratories and Facilities.
16. Return all tools/supplies to their proper storage place after use.
17. If you are unsure of the operation of a piece of equipment, read the safety manual and ask for help from the Lab Supervisor.
18. Please refer to Job Hazard Analysis for additional Personal Protective Equipment (PPE) requirements.
19. No one shall use compressed air for personal cleaning of clothing and/or self.

## PACKING & DISPLAY | ROOM 235, 237 & 238

### **Detailed LAB Guidelines**

In addition to the general and these specific guidelines, the safety practices for individual equipment **MUST** be followed. These are available from your Lab Supervisor and equipment manuals.

1. No one shall use any equipment without proper training by Lab Supervisor or the Assistant Director of Laboratories and Facilities.
2. There must be at least two people in the lab while using power equipment.
3. Eye protection must be worn at all times during screen washout.
4. All safety guards must be in place while operating equipment. (Do not remove).
5. Please refer to SDS binders for a description of Personal Protective Equipment (PPE) requirements.
6. All flammable liquids must be stored in fire safe cabinets and discarded as per SDS and Lab Supervisor directions.
7. Disposal of solvents, finishes, chemicals, and other hazardous materials of any kind must be done as per the university policy under the supervision of the Assistant Director of Laboratories and Facilities.





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# **LAB SAFETY MANUAL**

## **Part 3: Roles & Responsibilities**

## **Introduction**

The Policy of the College of Technology, Architecture and Applied Engineering (CTAAE) is to take every reasonable precaution in the performance of work to protect the health and safety of staff, students and visitors, and to prevent property damage.

No employee at CTAAE is required to perform a task that he or she considers unsafe, nor is any employee to knowingly commit an unsafe act. An optimum safe environment can be achieved most effectively by early identification and understanding of safety issues; close interaction among administrators, faculty & staffs, students, the BGSU Environmental Health & Safety (EHS) Office; and adherence to the policy and guidance of this manual.

## **Roles & Responsibilities**

Administrative responsibility and safety responsibility go hand in hand. Effective environmental, safety, and health performance can result only if all persons, from the President of the University down to the individual worker, are responsible and accountable for safety conditions. To ensure a management structure, which fosters the culture of safety, the following responsibilities are assigned.

### **DEANS, DIRECTORS, AND CHAIRS**

Deans, Directors, and Chairs are responsible for the safety, health, and well-being of employees, students, and visitors within the labs and the college. They shall do the following in coordination with the BGSU Environmental Health & Safety office:

- Develop College safety plans and policies.
- Ensure compliance with all safety requirements within their departments.
- Ensure information and training is provided.
- Ensure technical guidance is provided as needed.
- Ensure exposure assessments and safety audits are carried out.

### **ASSISTANT DIRECTOR OF LABORATORIES AND FACILITIES**

- Generally overseeing the lab facilities
- Provide information and training.
- Provide technical guidance as needed.
- Conduct exposure assessments and safety audits as needed.
- Monitor compliance with safety policies.
- Ensure compliance with all safety requirements within their departments.
- Conduct safety checks of first aid boxes, eye wash etc. as per schedule.
- Log all accidents reported and ensure reporting is followed as detailed below.
- Provide safety eye ware as needed.
- Ensure that only University related work is carried out in the labs.
- Report to department chairs any irregularities such as a lab left unclean after use, abuse or theft of materials & equipment.
- Make arrangements with faculty for special cases for using the labs as needed.
- Dispose of solvents and other chemical in prescribed manner.

## **LAB SUPERVISOR/S (TEACHING) and PRINCIPAL INVESTIGATORS (RESEARCH)**

It is the responsibility of the Lab Supervisors (or Principal Investigator) to provide in writing safety practices to be used for specific lab equipment and experiments.

It is the responsibility of the Lab Supervisors/ Principal Investigators to ensure the safety of persons working or volunteering in his/her labs. They shall do the following in coordination with the Assistant Director of Laboratories & Facilities:

- Undertake responsibilities for the Lab activity.
- Ensure compliance with all safety requirements within the laboratory or labs in accordance with CTAAE and BGSU safety manuals. BGSU Lab Safety manual is available at <https://www.bgsu.edu/content/dam/BGSU/envhs/documents/Lab-Safety/Lab-Safety-and-Chemical-Hygiene-Guide.pdf>.
- Read and be familiar with Part 3: Roles and Responsibilities of the Lab Safety Manual.
- Train lab employees and students when there is new lab-specific safety information or when a new employee or student is assigned to the lab. Document training as described under Lab-specific Training. Training must be documented for all paid employees (graduate students, post-docs, paid work-study, or other wage or salaried personnel) in the lab; it is recommended that training be documented for non-paid students as well. Examples of topics to be included in the training are detailed under Lab-specific Training.
- Post the Emergency Response and Incident Reporting Guide (available at <https://www.bgsu.edu/content/dam/BGSU/envhs/documents/Lab-Safety/Lab-Safety-and-Chemical-Hygiene-Guide.pdf>) in the lab near the door or main laboratory telephone.
- Coordinate interaction with the BGSU Environmental Health & Safety Office, and other BGSU departments or outside agencies as needed for laboratory audits, incident/accident investigation, medical care, and emergency response.
- Environmental Health and Safety: <https://www.bgsu.edu/environmental-health-and-safety.html> .

## **LAB EMPLOYEES (TAs) AND STUDENTS**

They shall:

- Plan and conduct laboratory operations in accordance with federal regulation and applicable University safety policies as follows:
- Abide by all policies and procedures described in any department or lab-specific policies.
- Report all injuries, other incidents, and unsafe conditions to their Lab Supervisor and PI, and to the appropriate university support groups as described in the Laboratory Emergency Response and Incident Reporting Guide available at <https://www.bgsu.edu/environmental-health-and-safety/about-us/injury-and-illness-reporting.html>.

## **THE BGSU ENVIRONMENTAL HEALTH & SAFETY OFFICE (EHS)**

The EHS office shall:

- Develop and provide general lab safety training for faculty/staff.
- Conduct annual and more frequently upon request safety audits of labs.
- Investigate lab accidents and injuries upon request for faculty/staff when deemed necessary.
- Review and provide input on safety measures for High Risk Procedures when requested by the College/Department.

### **Emergency Response & Incident Reporting**

Supervisors (Principal Investigators or Lab Supervisors) must ensure that all employees promptly report injuries or illnesses that may be related to their work. Supervisors must conduct an investigation to address any workplace safety issues and determine accurate account of what happened, where the incident occurred, who saw the incident, etc. as part of the reporting requirements. The reporting form must be completed for compliance with a standard from the Public Employment Risk Reduction Program (PERP) and university policy. The form (required BGSU login) is available at <https://services.bgsu.edu/InjuryIllnessForm/injuryform.htm>.

The online report must be submitted within 24 hours of the occurrence of an accident. Anybody including the person who was injured or taken ill, a supervisor, or a witness can complete the required reporting form as long as it is a person who has precise knowledge of how the accident occurred.

Each lab should keep emergency contact information for lab personnel, especially the Lab Supervisor and Principal Investigator. Each lab should also post an up-to-date copy of the BGSU Emergency Response and Emergency Reporting Guide near the exit and/or primary telephone for the lab. This guide lists emergency contacts and procedures for various types of incidents. BGSU Emergency Procedure poster is as follows.

## **BOWLING GREEN STATE UNIVERSITY EMERGENCY PROCEDURES**

### **FIRE**

1. Close door behind you to contain fire.
2. Sound alarm by using fire alarm pull station.
3. Immediately and calmly evacuate building. Do not use elevator – use stairwell only.
4. **CALL 911** – Give location and description.
5. Do not re-enter the building for any reason. Only emergency personnel can authorize re-entry.

Note: Use portable fire extinguishers only if you have been trained and it is safe to do so. Use on very small fires only. Safe evacuation is your main priority.

### **MEDICAL - SEVERE ILLNESS OR INJURY**

1. Check the scene. Do not place yourself in a life-threatening situation.
2. **CALL 911** – Give location and description of incident.
3. If you are trained in CPR and/or first aid, assess the need for support.

### **CRIMES IN PROGRESS OR SUSPICIOUS PERSONS**

**CALL 911** and give information on the person and situation.

### **SUSPICIOUS OBJECT OR PACKAGE**

1. Do not touch or disturb the object or package.
2. If there is a written threat or suspicious substance, leave object and vacate room. Wash hands.
3. **CALL 911** and follow Dispatcher's instructions. Wait for emergency officials.

### **BOMB THREAT**

1. Get as much information as possible from the caller (location, when it was placed, etc.)
2. **CALL 911** and follow Dispatcher's instructions.

### **TORNADO**

1. Monitor local weather stations with radio, weather radio, or TV.
2. Know your shelter locations, listed on tornado information posters in building.
3. Seek shelter when tornado warning siren or other warning systems advise.
4. Take battery-powered radio to shelter to monitor weather conditions.

### **HAZARDOUS MATERIALS INCIDENT - CHEMICAL OR RADIATION SPILLS, LEAKS**

1. Evacuate to a safe distance.
2. **CALL 911** – Give location and description of material.
3. Prevent access to area until response team arrives.
4. If chemical or radiation material contacts eyes or skin, flush immediately and continuously for at least 15 minutes. Use eye wash station, safety shower or other water source.

### **UTILITY EMERGENCIES - GAS LEAK, FLOODING, ELEVATOR OR POWER FAILURE.**

**CALL 372-7647**, M-F 8:00A.M. - 5:00 P.M., After these hours, call Public Safety at 372-2346.

## CONTACT INFORMATION

In the event of an injury or illness in the work area, an initial determination must be made of whether treatment is necessary. Based on the level of needs, following contact information can be used:

### **EMERGENCY CONTACTS AND PHONE NUMBERS**

#### **College of Technology, Architecture and Applied Engineering**

##### **124 Technology Building**

Primary Contact Name: Benson Ezea  
Primary Contact Office Phone #: (419) 378-0156  
Primary Contact Office Location: 124P Technology Building

Secondary Contact Name: MD Sarder  
Secondary Contact Office Phone #: (419) 372-6085  
Secondary Contact Office Location: 263 Technology Building

Tertiary Contact Name: Anna Johnston  
Tertiary Contact Office Phone #: (419) 372-2438  
Tertiary Contact Office Location: 202 Technology Building

BGSU POLICE DEPARTMENT (24 HOUR) (419) 372-2346

NOTE: All issues requiring assistance (fire, life safety, health, chemical spill, bomb threat, utility emergencies, theft, etc.) should be reported to BGSU Police.

EMERGENCY 911 (24 HOUR) 911  
BOWLING GREEN FIRE DEPARTMENT (24 Hour) (419) 352-3106  
ENVIRONMENTAL HEALTH & SAFETY (M-F 8AM-5PM) (419) 372-2171  
CAMPUS OPERATIONS (M-F 8AM-5PM) (419) 372-2251  
NATIONAL POISON CONTROL CENTER 1-800-222-1222

## REFERENCES

BGSU's Laboratory Safety and Chemical Hygiene Plan | Code of Federal Regulations, Title 29 Part 1904 (OSHA) as adopted by PERP, Recording and Reporting Occupational Injuries and Illnesses



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# **LAB SAFETY MANUAL**

## **Part 4: Student Agreement**

To ensure safe practices in our labs, the College of Technology Architecture and Applied Engineering has adopted the following guidelines. These guidelines will be continuously enforced, and non-compliance may result in suspension from the lab. We believe having an understanding of inherent hazards and learning how to be safe should be an integral and important part of the lab.

All staff, students, and Graduate Assistants who work in the labs must understand and agree to the information in this document and students *must sign the document at the beginning of each semester for each class using a lab*. Every employee should attend Lab Safety Training with the Environmental Health and Safety Office.

### Lab Orientation

The following items have been reviewed with me:

- Location and information in Emergency Response Guide.
- Emergency evacuation routes & nearest fire alarm pull station.
- Location and proper use of safety shower and emergency eye wash stations.
- Location of first aid kits and explanation of when and how to report injuries.
- Personal Protection Equipment (PPE) Policy, location of required PPE, information on acquiring additional PPE and how to maintain, store and ensure PPE is in good working condition.
- Location of Safety Data Sheets for hazardous materials used in the lab.

### Student Agreement

I have read, understand and agree to abide by the rules and information in the Labs Safety Manual Guidelines and Policy. I agree to abide by the rules in BGSU's Laboratory Safety rules and information. I agree to abide at all times by the training I have received to work in the labs. I understand that violations of safety guidelines may result in disciplinary action; up to and including termination.

\_\_\_\_\_

Student Name (Please print clearly)

\_\_\_\_\_

Student Signature

\_\_\_\_\_

Date

\_\_\_\_\_

Lab Supervisor's Name (Please print clearly)

**(Student Agreement will be received via CANVAS course shells)**



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# **LAB SAFETY MANUAL**

## **Part 5: Appendices**

## Emergency Shower/Eyewash/Drench Hose Activation Log

Shower Station   
  Eyewash Station   
  Drench Hose

Building: \_\_\_\_\_ Room: \_\_\_\_\_

<u>Date</u>	<u>Initials</u>	<u>Operational?</u>		<u>Date</u>	<u>Initials</u>	<u>Operational?</u>

**A weekly activation of emergency flushing stations listed above is required per the American National Standards Institute (ANSI) Z358.1 Standard.**

**Weekly activation should be ~30 seconds in duration.**

# Monthly Self Inspection Checklist

Building: \_\_\_\_\_ Room Number: \_\_\_\_\_

Principle Investigator: \_\_\_\_\_ Performed by: \_\_\_\_\_

Answer in the appropriate box for each month; Y = Yes, N = No, N/A = Not Applicable

Academic Year:	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July
Is the Chemical Hygiene Plan Present in the laboratory?												
Are the Safety Data Sheets for all chemicals used in the laboratory present or accessible to laboratory workers?												
Does the laboratory have good housekeeping?												
Are emergency phone numbers prominently displayed in the laboratory?												
Is the laboratory's fire extinguisher present and maintained?												
Are laboratory chemical fume hoods operational?												
Are the laboratory chemical fume hoods kept free of chemical and equipment storage?												
Is the emergency shower station operational and tested within the last 12 months?												
Is the emergency eye wash station operational and tested within the last 12 months?												
Are sharps containers available?												
Are compressed gas cylinders secured?												
Are chemicals stored according to hazard class?												
Are chemicals stored off of the floor?												
Are aisles and emergency exits free of tripping hazards and stored chemicals?												
Are chemical containers stored on low shelving?												
Is the laboratory equipment adequately guarded?												
Is the laboratory free of frayed electrical cords and extension cords?												
Are the hazardous waste containers labeled and properly sealed?												

# **Job Hazard Analysis (JHA) Checklist**

Note: This table will be completed and included over time.