

Laboratory Safety Guidelines

Tennessee Tech University Civil and Environmental Engineering Department provides a number of hands-on training experiences with working laboratories. These training and research labs are in place to expose student engineers to equipment, procedures and technology used in design, development, and research associated with industry accepted engineering practices. It is the department's view exposure, experience, and confidence with training laboratory equipment and skillsets will strengthen the resume of every graduating engineer. We also believe that having an understanding and confidence of inherent hazards and learning how to be safe should be an integral and important parts of the education process.

The TTU College of Engineering, Civil and Environmental Engineering, 21st ESEP program, ASCE Student Chapter, and Formula SAE Student Chapter to insure safe practices in our laboratories have adopted the following guidelines. They will be consistent with industry guidelines and enforced. Non-compliance will result in suspension from the laboratory.

Personal Safety

Undergraduate Laboratories and Workshops will have designated work times: 8:00 am to 4:30pm Monday- Friday.

Graduate Research laboratory access will be granted by Research Advisors on individual research needs.

Know the location of all safety equipment (eye wash, fire extinguisher, spill kits, first aid kit) in the lab or workshop.

Horseplay or other acts of carelessness are prohibited.

Never work in laboratories or workshops without a partner or team member on call.

TTU is a non-smoking campus this includes all labs and Workshops.

Wear safety glasses, dust masks, and/or face shields when working with hazardous materials and/or equipment.

Wear leather palmed gloves when grinding, welding, cutting, and moving metal objects. Wear rubber or nitrile gloves mixing any hazardous or toxic agent. Contaminated gloves should be properly disposed of to prevent cross contamination in work areas.

Clothing: When machining, cutting, welding, or handling dangerous substances, wear gloves, work aprons, and/or laboratory coats, with proper eye protection. Shorts and sandals should not be worn in the lab. Steel toe shoes are required when working near or loading material into machinery.

Operation manuals and hands-on instruction is available for all machines, tools, and equipment, along with standard procedures for research projects. Do not attempt operation of any

equipment unless you are trained and/or approved as a user by your professor, academic associate, or instructor.

Material Safety Data Sheets are available in every TTU Civil and Environmental Engineering Lab along with emergency contact phone numbers for the department and campus contacts. If your research introduces a new material, chemical, equipment, or standard procedures it is your responsibility to update MSDS, SOP notebooks.

Wash hands before leaving the lab and before eating. Consumption of food or beverages in the laboratory and workshops is forbidden. Food may not be stored in refrigerators located in a laboratory.

Tie back medium length and long hair when working near flames or entangling equipment.

All accidents, no matter how minor, should be reported to the faculty/staff member supervising the laboratory or Dawn Taylor ext.3454 CEE Administrative Associate Room 216 Prescott Hall.

General Laboratory Safety

Keep all walkways clear.

Maintain unobstructed access to all exits, fire extinguishers, electrical panels, and eyewashes.

When working be aware of others working around you.

When entering lab make others aware of your presence and when leaving let others know.

When completing or leaving your project police your area, roll up cords, lines, sweep up, and turn off equipment.

Any overhead storage on top of cabinets should be limited.

Spills should be cleaned up immediately.

Mechanical Safety

When using compressed air, use only approved nozzles and never direct the air towards any person.

Guards on machinery must be in place during operation.

Exercise care when working with or near hydraulically- or pneumatically-driven equipment.

Chemical Safety

All chemicals are clearly and currently labeled with the substance name, concentration, date, and name of the individual responsible.

All pressurized containers (e.g. gas cylinders) will be moved and installed only by staff personnel.

Gas cylinders must be secured in an upright position with a secure restraint system.

Electrical Safety

Electrical equipment must be GFI-protected (i.e. "grounded") when used near any water source. If water or fluid is spilled in or around electrical equipment, FIRST shut off circuit breaker, then unplug the equipment before cleaning up the spill.

When available maintain a 36" unobstructed access to all electrical panels.

Avoid creating trip hazards with water hoses, air hoses, and extension cords whenever possible.

When using electric extension cords obtain a heavy-duty one that is electrically grounded, with its own fuse, and install it safely. Extension cords should not go under doors, across aisles, be hung from the ceiling, or plugged into other extension cords.

I, _____ acknowledge by signature that I understand the guidelines, shop safety perimeters, and responsibilities associated with working in the TTU Civil and Environmental Engineering department's Undergraduate/ Graduate research labs and workshops. I also understand that any violation of the guidelines outlined in this agreement can result in lab/workshop suspension.

Student Name: _____ Date: _____

TTU T#: _____

Research Advisor/ Student Chapter: _____

Signature: _____