



Laboratory Safety Procedures

Objective

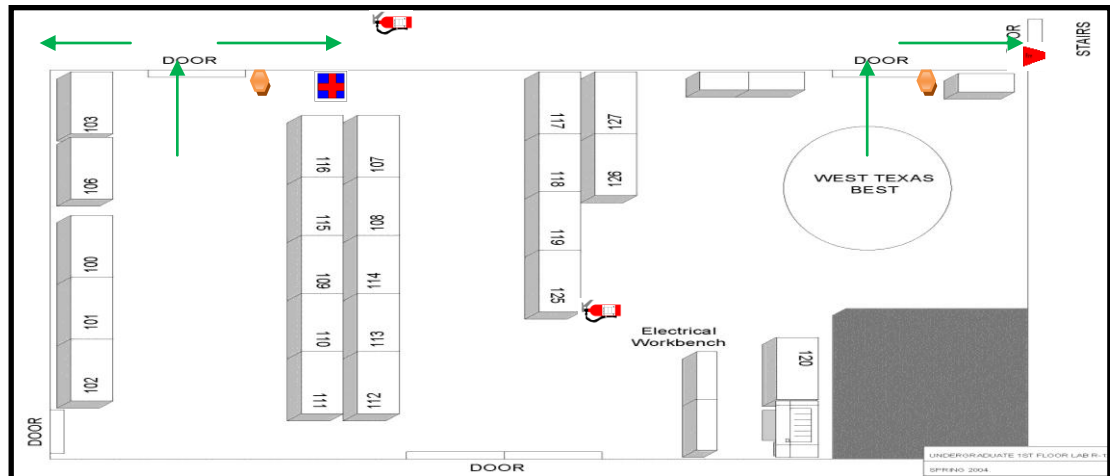
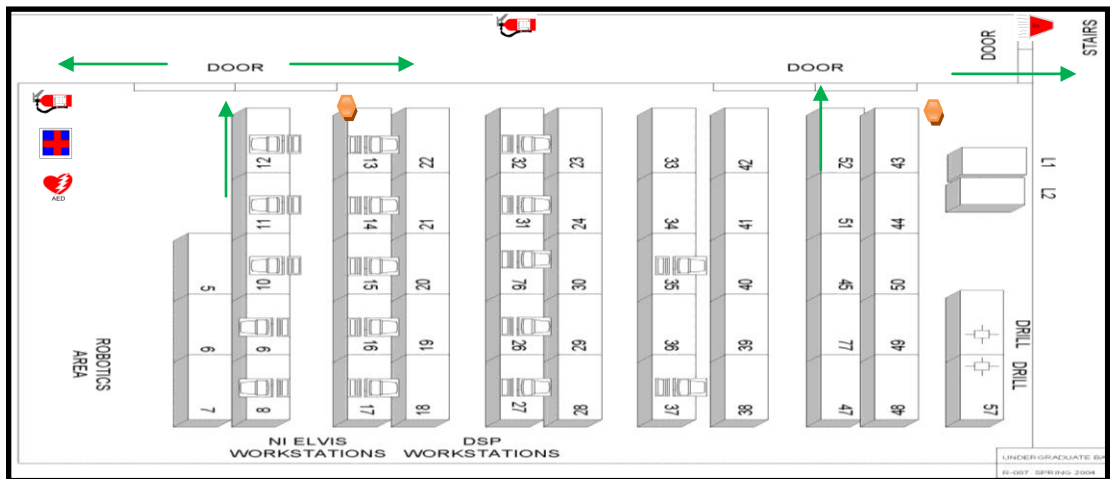
The purpose of this document is to provide students, faculty, staff, and visitors with an explanation of general safety procedures that should be followed when working in the undergraduate laboratories. These procedures are intended to reduce risk of injury and to make the laboratory experience more enjoyable.

Map of Undergraduate Labs

There are two laboratories used for undergraduate projects. They are located in the basement and the first floor of the Electrical Engineering building. Their room numbers are 07 and 126, respectively. The floor maps of these labs can be seen below:

Legend:

- AED
- Emergency Power Cut-off Switch
- Fire Extinguisher
- Alarm
- First Aid
- Exit



ECE Laboratory Safety Procedures



General Safety

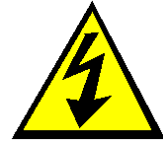
- Wear proper footwear (closed-toe shoes, with skid-resistance) when working in the lab.
- Smoking is never allowed inside the building, including the laboratory.
- Food and drinks are **prohibited** in the lab area. A student lounge is located in room 04 down the hall from the basement lab. Keep all food and drinks there.
- Eye Protection must be worn when operating power tools, machinery, and live circuits. Goggles can be found in the lab or in the stockroom located in room 01.
- Avoid baggy clothing and long loose hair.
- Do not work with wet hands or large amounts of metal jewelry.
- Keep work space clean and free of clutter.
- Horseplay can lead to serious accidents, especially in the laboratory. Act in a mature manner and respect your group members.
- The use of chemicals must be preapproved by the Director of Undergraduate Labs or the unit coordinator in room 02. Always wear eye protection and other safety equipment for these cases.
- Use of etching solution is strictly **prohibited**. Use the milling machine on the first floor to create printed circuit boards.



Electrical Safety

- Check equipment and cables carefully before applying power. Return any faulty equipment to the lab or stockroom.
- Soldering irons are essential in the development of circuits; however, users should handle these tools with great care because they can cause fires, serious burns, and the release of fumes when heating the solder. For this reason, **always**:
 - a. Wear eye protection.
 - b. Be aware of your surroundings and those you are working with.
 - c. Keep soldering iron in stand and far away from flammable materials.
 - d. Work in an open and well ventilated area.
 - e. Never leave a soldering iron unattended
- **Emergency Power Cut-off System:** Both undergraduate labs have an emergency power cut-off system located near the exit doors. They are marked with a large sign. This system is intended to shutdown all power outlets in the workbenches. It should be used in the event of an emergency, such as electrical shock, where power must be turned off before care can be provided. Once activated, please notify the unit coordinator (Miguel Hinojosa) in room 02.

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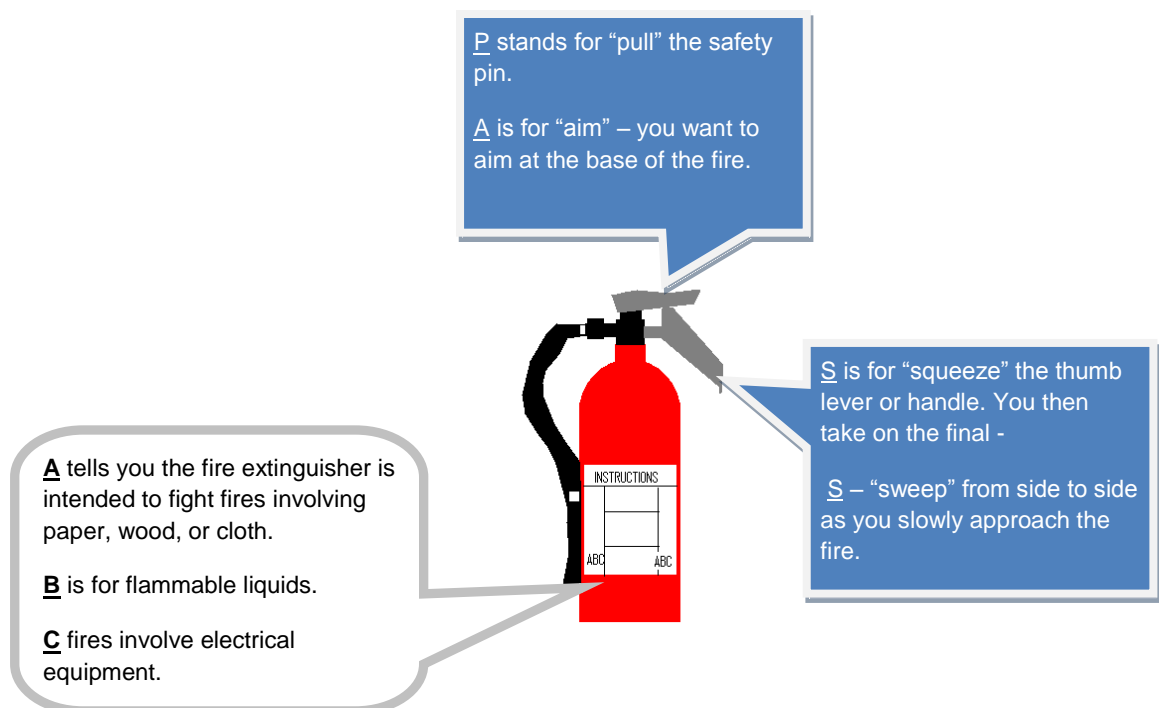
Electrical Safety (Continued)

- **Electrical Shock:** A victim of electrical shock could be knocked unconscious. If the victim is still in contact with the live power source, turn off the live source or press the emergency power cut-off button before administering aid. **Do not touch anyone that is still in contact with a live power source, as you could be electrocuted as well. After disconnecting power, call 911 and administer first aid.**
- Treat voltages above 50V RMS AC and 120V DC with additional care. **Remember, only a few amps of current can potentially injure or kill you.**
- Learn the proper way to handle and store capacitors, batteries, inductors, resistors, and other high-energy storage devices.

Electrical Fire

If a small electrical fire occurs, disconnect the electrical power source. If this is not possible, press the emergency power cut-off button. Only extinguish with the proper extinguisher for electrical fires. **Never use water to extinguish electrical fires.**

How it works (Remember the acronym PASS):



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Evacuation



In the event of an emergency that requires evacuation of the building (such as a fire, significant toxic gas release, explosion, etc.), first:

Rescue: Try to rescue any personnel in immediate danger if it does not put you in imminent danger.

Alarm: Activate the building fire alarm (by pulling a fire alarm pull station) and/or call **9-9-1-1 or 9-1-1**. All of the fire alarm pull stations are labeled. If you talk with a 911 operator, state your name, address, and nature of the problem. Speak slowly and clearly. Wait for the dispatcher to hang up before you hang up.

Confine: Close all doors, windows, and other openings that would aid in the spread of fire or toxic fumes.

Evacuate: Evacuate the building.

When evacuating the building, leave by the nearest staircase. **DO NOT** use the elevators unless under police or fire department supervision. There are four **Designated Outdoor Safe Meet Areas (DOSMAs)** around the Electrical Engineering building. These streets include Boston Avenue to the East; Discovery mall to the South, and Canton Avenue and R-04 parking lot to the West.

Tornado Shelter

The Texas Tech University campus is equipped with sirens to alarm students in the event of a tornado. The closest sirens are located on top of the Industrial Engineering and Chemistry buildings. The North wing of the Electrical Engineering building has basement space which will provide the safest shelter should the building take a direct hit by a tornado.

NUMBERS TO REMEMBER:

Emergencies: **911**

Texas Tech Police: **(806)-742-3931**

ECE Main Office: **(806) 742-3533**

Computer Room: **(806) 742-3459**

IEEE/HKN Office: **(806) 742-3528**