Laboratory Safety Guidelines

General Safety Measures

The general safety measures that should be taken in the college are summarized as follows:

- The college building should be equipped with surveillance cameras for security purposes.
- A health center should be available in the University for all students.
- Smoke detectors should be installed everywhere in the college building.
- Fire extinguishers should be installed everywhere in the college building.
- Sprinklers should be installed everywhere in the college building.
- All labs should be equipped with an Emergency Button enclosed in a breakable glass that can be activated in emergency situations.
- An emergency evacuation procedure should be affixed in laboratories and in different appropriate places in the college building.
- A General computer laboratory safety procedure should be affixed in each laboratory.

Laboratory Safety Guidelines

The College of Engineering offers these suggestions for improving laboratory safety. We believe that having an understanding of inherent hazards and learning how to be safe should be an integral and important parts of the education process.

The College of Engineering to insure safe practices in our laboratories has adopted the following guidelines. They will be consistently enforced. Non-compliance will result in suspension from the laboratory. These guidelines are also published through the web:

http://colleges.tu.edu.sa/en/engineering/Depts/Civil_Eng/Laboratories/Pages/Laboratory-Safety-Guidelines.aspx

Or Through the Mobile App.
https://play.google.com/store/apps/details?id=com.business.abdelhafiz.omar.collegeofengineeringtaif.

➢ *Personal Safety*

- Perform no unauthorized experiments, tasks or job and perform given experiments, tasks or job only according to directions.
- Never work in a laboratory alone or at least without another person within easy call.
- Wear safety glasses or face shields when working with hazardous materials and/or equipment.

- Wear gloves when using any hazardous or toxic agent. They should be removed before leaving the lab, using telephones, opening refrigerators, or entering common areas.
- Clothing: When handling dangerous substances, wear gloves, laboratory coats, and safety shield or glasses. Shorts and sandals should not be worn in the lab. Shoes are required when working near machinery.
- Do not use any equipment unless you are trained and approved as a user by your Professor or Instructor.
- Wash hands before leaving the lab and before eating.
- Consumption of food or beverages in the laboratory 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.
- Know the location of all safety equipment and how to use them.

➢ *General Laboratory Safety*

- Keep aisles clear.
- Maintain unobstructed access to all exits, fire extinguishers, electrical panels, emergency showers, and eyewashes.
- Do not use corridors for storage or work areas.
- If leaving a lab unattended, turn off all ignition sources and lock the doors.
- Do not store heavy items above table height. Any overhead storage of supplies on top of cabinets should be limited to lightweight items only. Also, remember that a 36" diameter area around all fire sprinkler heads should be kept clear at all times.
- Spills should be cleaned up immediately.
- Be careful when lifting heavy objects. Lift comfortably, avoid unnecessary bending, twisting, reaching out, and excessive weights, lift gradually and keep in good physical shape.

➢ *Electrical Safety*

- Electrical equipment should 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.
- Maintain a 36" unobstructed access to all electrical panels.
- Avoid using extension cords whenever possible. If you should use one, 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.

➢ *Mechanical Safety*

- When using compressed air, use only approved nozzles and never directs the air towards any person.
- Guards on machinery should be in place during operation.
- Exercise care when working with or near hydraulically- or pneumatically-driven equipment. Sudden or unexpected motion can inflict serious injury.
- Hearing protection should be worn when excessive noise levels exist.
- Loose clothing, watches, ring and other accessories or other similar items that could get caught by the moving machine should not be worn.
- Machines and tools which are in service should always visually check before the operation and cleaned after each use.
- No eating or drinking inside the workshop.
- A proper housekeeping for the frequently used hand tools.
- Machines designed for a fixed location should be securely anchored to prevent movement.

➢ *Chemical Safety*

- Make sure 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.
- Secure all gas cylinders and label all chemicals to show nature and degree of hazard.
- Use volatile and flammable compounds only in a fume hood. Procedures that produce aerosols should be performed in a hood to prevent inhalation of hazardous material. Be sure the fan is on at all times when using a fume hood. Fume hoods should not be used for storage.
- Material Safety Data Sheets (MSDS) shall be provided for all hazardous chemicals before use. MSDS shall be kept in a predetermined area for each laboratory.
- Clean up of large spills should not be attempted by students or teaching assistants. Ask a faculty member for help Evacuation of a laboratory should be conducted in event of a large chemical spill.
- Know the proper use of chemicals and proper disposal of waste. Your Professor or Laboratory Instructor can supply this information.