A. SAFETY REGULATIONS

Safe practice in the laboratory requires an open attitude and knowledgeable awareness of potential hazards. Safety is a collective responsibility and requires full cooperation from everyone in the laboratory. This cooperation means each student and instructor must observe standard safety precautions and procedures and should:

1. Follow all safety instructions carefully.

2. Become thoroughly acquainted with the location and use of safety facilities such as fire extinguishers, first aid kits, emergency showers, eye- wash stations and exits. See marked floor plan posted near exit staircases for equipment locations.

3. Become familiar with experimental procedures and all potential hazards involved before beginning an experiment.

ELECTRICAL HAZARDS

General Safety Principles

Electrical currents of astonishingly low amperage and voltage under certain circumstances may result in fatal shock. Low-voltage dc circuits do not normally present a hazard to human life, although severe burns are possible. Voltage as low as 24 volts ac can be dangerous and present a lethal threat. The time of contact with a live circuit affects the degree of damage, especially where burns are concerned. Very small electrical shocks, even small "tingles", should serve as a warning that an electrical problem exists and that a potentially dangerous shock can occur. The equipment and circuits in use must be immediately disconnected and not re-used until the problem is discovered and corrected by the instructor and/or technologist.

1. When handling electric wires, never use them as supports and never pull on live wires.
2. Report and do not use equipment with frayed wires or cracked insulation and equipment with damaged plugs or missing ground prongs.
3. Report and do not use receptacles with loose mountings and/or weak gripping force.
4. Avoid pulling plugs out of receptacles by the cord and avoid rolling equipment over power cords.
5. Be sure line-powered equipment has 3-wire grounding cords and that you know how to use the equipment properly. Ask for help and instruction when needed.
6. Any electrical failure or evidence of undue heating of equipment should be reported immediately to the instructor and/or technologist. If you smell over-heating components or see smoke coming from any circuit or equipment, switch the power off immediately.
7. Ensure all equipment is powered-off at the end of each experiment.
8. Only qualified ECE personnel should maintain electric or electronic equipment.
9. Cardiopulmonary resuscitation (CPR) often will revive victims of high-voltage shock. Only qualified people should attempt CPR.

FIRST AID

1. For simple cuts or minor first aid use the First Aid Kits available in each room. The University Health Services may also be contacted at **8492**. All injuries, no matter how minor, should be reported to your instructor and/or technologist.
2. For medical emergencies call **911** and Campus Security at **7599**.

INDIVIDUAL RESPONSE PROCEDURES FOR FIRES

If **you discover** a fire, smoke or an explosion:

1. Shout for assistance.
2. Activate the nearest fire alarm.
3. If it is a small fire, attempt to put it out with available fire equipment. See the marked floor plan posted near exit staircases for equipment locations.
4. If the fire is out of control and it is too large to handle with one fire extinguisher, isolate the fire by closing the doors and windows behind you as you leave. Do **not** lock the doors.
5. Warn others and leave the building with reasonable speed using recommended exits. Assist disabled and injured persons in reaching assembly areas when conditions permit.
6. Stand by to identify yourself and provide information to fire personnel.

If a **Fire Alarm sounds**:

1. Secure any equipment you are using and switch the power off.
2. Close windows and doors behind you as you leave. Do **not** lock doors.
3. Leave the building with reasonable speed using recommended exit.
4. Follow instructions of your floor warden or deputy. Wardens will ensure evacuation of assigned rooms.
5. **DO NOT** use elevators for evacuation.
6. **DO NOT** re-enter the building until allowed to do so by the Fire Department.

INDIVIDUAL RESPONSE PROCEDURES FOR EARTHQUAKES

IF INDOORS:

Take action at the first indication of ground shaking.

1. Stay inside; move away from windows, shelves, heavy objects and furniture that may fall. Take cover under a table or a desk, or in a strong doorway (anticipate that doors may slam shut).
2. In halls, stairways or other areas where no cover is available, move to an interior wall. Turn away from windows, kneel alongside the wall, bend your head close to your knees, clasp your hands firmly behind your neck covering the sides of your head with your elbows.
3. Elevators must not be used. They are extremely vulnerable to damage from earthquakes. Ground shaking may cause counterweights and other components to be torn from their connections, causing extensive damage to the elevator cabs and operating mechanisms.
4. When exiting a building, move quickly through exits and away from buildings. Parapets and columns supporting roof overhangs may fall.
5. Assemble away from gas, sewer and power lines.

IF OUTDOORS:

1. Move to an open space away from buildings, trees and overhead power lines.
2. Lie down or crouch low to the ground (legs will not be steady) and constantly survey the area for additional hazards.

B. LABORATORY OPERATION GUIDELINES

During the operation of the laboratories, the following simple procedures and guidelines are essential and **must** be adhered to by all students.

- **FOOD,** DRINKS and **SMOKING** are **NOT** permitted in the laboratories.
- Before starting your experiment, make sure proper equipment and circuit connections are made as per instructions in the laboratory manual. Verify your set-up with your instructor.
- All damaged or missing equipment or parts should be reported as soon as possible to the technologist. A Repair Request form (available in each lab) must be completed before equipment can be serviced.
- Equipment should not be removed from the lab station. If equipment is required elsewhere, it is to be returned to the lab station once the requirement is finished.
- All electronic components, such as capacitors, resistors, transistors etc., must be returned to their respective storage trays when the experiment is finished.
- All leads and cables are to be returned to the wall racks when the lab is finished and oscilloscope probes are to remain with the oscilloscope.
- Benches and equipment set-ups are to be tidied up after each lab session. All garbage is to be placed in the garbage cans provided. No writing on equipment or benches is permitted.
- If students have any questions about the experiment, they should consult the instructor first and then the technologist.
- Abide by all safety rules and regulations of the laboratory.

ELECTRICAL AND COMPUTER ENGINEERING LABORATORIES

ACKNOWLEDGMENT FORM

NAME: _____

COURSE: _____

LAB INSTRUCTOR: _____

Experiments conducted in the Electrical and Computer Engineering laboratories involve the handling of electric and electronic equipment and circuits. Failure to handle this equipment properly may lead to injury or even fatal shock. For the safety of everyone, it is required that you understand and follow the appropriate laboratory procedures as outlined in the laboratory manuals and by your laboratory instructor.

Your signature below is your acknowledgment that you have read the *Safety Regulations* and the *Laboratory Operation Guidelines* and agree to abide by them.

_____ _____

STUDENT'S SIGNATURE DATE

_____

STUDENT NUMBER