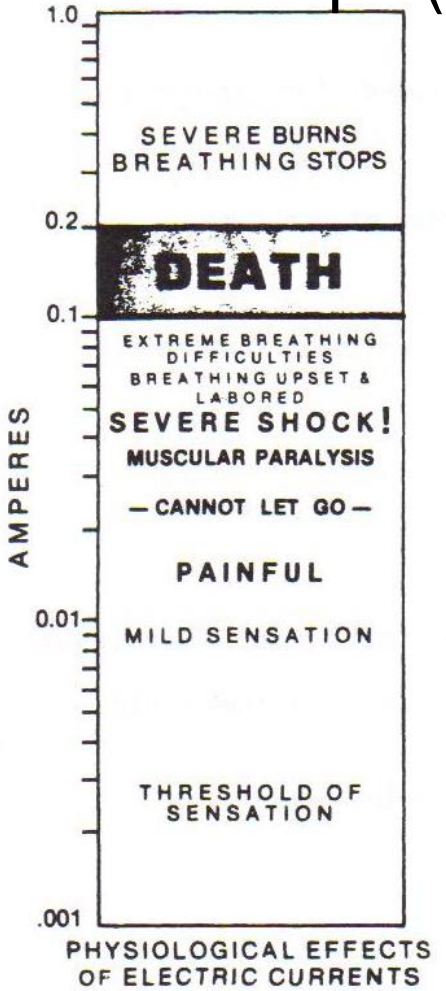
Electrical Safety Instructions

Electricity & You

- Your body operates on electrical impulses from your brain that travel along your nerves.
- It does not take much electrical energy to interrupt these electrical messages
- What do you think would happen to you if the messages from your brain to your heart/ lungs are interrupted?

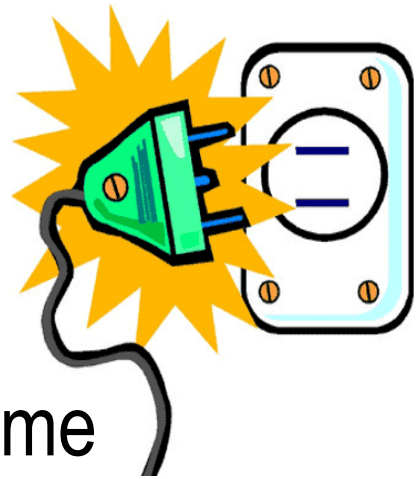
How much electricity does it take to hurt you?

- 100 milliamps (0.1 amps) of current is more than enough to kill you.



How much electricity is in the wall?

- Most common electrical appliances operate on 120 VAC or 240 VAC
- The circuits these appliances operate on can range from 15 to 50 amps depending on the fuses/ circuit breakers they are wired to
- These protective devices are not designed to protect you, but rather protect the electrical system in your home



GFCI

- GFCI (ground fault circuit interrupter) breakers and outlets are designed to protect you in the case of severe/ fatal electrocution by sensing any current not traveling through the hot or neutral wires

How do you avoid injury?

- Generally, electricity takes the easiest path to ground
- One way to protect yourself is to take steps to insulate yourself from ground
  - Rubber soled shoes
  - Avoid damp areas
  - Always power down
  - Work with one hand

Using lab equipment

- **Soldering:**
  - Always place soldering iron in holder
  - Always solder over a workbench
  - Always treat iron as hot
  - Unplug with 5 to 10 minutes left in class
- **Using power equipment:**
  - Follow all specific safety rules posted on wall

General lab safety rules

- **Never** plug in an electronics project without first asking the instructor
- **Never** work on electronics equipment with wet hands/ in wet areas
- **Never** work on energized electronics equipment with both hands
- If you were not trained how/ asked to use it in this class, don't touch it

General lab safety rules

- There must be at least two (2) people in the laboratory while working on live circuits.
- Shoes must be worn at all times.
- Remove all loose conductive jewelry and trinkets, including rings, which may come in contact with exposed circuits. (Do not wear long loose ties, scarves, or other loosing clothing around machines)
- Consider all circuit to be “hot” unless proven otherwise.
- When making measurements, form the habit of using only one band at a time. No part of a live circuit should be touched by the bare hand.

General lab safety rules

- Keep the body, or any part of it, out of the circuit. Where interconnecting wires and cables are involved, they should be arranged so people will not trip over them.
- Keep the work area and workbench clear of items and not used in the experiment.
- Always check to see that the power switch is OFF before plugging into the outlet. Also, turn instrument or equipment OFF before unplugging from the outlet.
- When unplugging a power cord, pull on the plug, not on the cable.
- When disassembling a circuit, first remove the source of power.
- No ungrounded electrical or electronics apparatus is to be used in the laboratory, unless it is double insulated or battery operated. Keep fluids, chemicals, and flammable materials away from instruments and circuits.

General lab safety rules

- Report any damages to equipment, hazards, and potential hazards to the laboratory instructor.
- In the event of an electrical fire, leave the area, call 114, and pull the nearest fire alarm. Do not use any
- water on an electrical fire. The appropriate fire extinguisher is labeled “C” or “ABC”. If safe and
- possible, shut down the main power source.
- In an electrical emergency, if a person received an electrical shock, do not touch the equipment, cord or
- person. Call 114 so that the Fire Department can treat the injured person and evaluate the situation. If safe and possible, shut down the main power source.

General lab safety rules

IN CASE OF EMERGENCY, CONTACT LAB TECHNICIAN IMMEDIATELY OR CALL HOTLINE :

- **Security: 028-37244270 Ext: 3525**
- **or Facility Management: 028-37244270 Ext: 3223**
- ***or Call : 0906962557 (Mr. Tuan)***
- ***or Call 0906074543 (Mr. Tri)***
- ***or Call 0913084563 (Ms. Uyen)***