Electronics Zone SBU

Zone manager:
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List of Equipment

- Soldering Irons (Hakko, Radio Shack)
- Hot Air Tool (Sparkfun 303D)
- DC Power Supply (Agilent 6644A)
- Oscilloscope (Tektronix TDS3054)
- Digital Multimeter (Extech)
- Logic Analyzer (HP 1650A)

Safety Rules

Rule 1 - Common Sense

IF YOU AREN'T SURE HOW SOMETHING WORKS DON'T USE IT.

Rule 2 - Eye Protection

Wear eye protection when soldering. Solder does splatter and your eyes won't appreciate it.
Wear eye protection when clipping leads as leads tend to fly quickly in random directions and your eye is a place you don't want small pointy bits of metal.
Wear eye protection when powering on newly made and uncased circuitry for the first time as electrolytic capacitors can explode when installed backwards or if too high a voltage is applied.

Rule 3 - Fire Extinguisher

A class C fire extinguisher is accessible in the electronics lab. In case of a fire, first attempt to extinguish the fire as long as the room is not unsafe. Should you fail to extinguish the fire, alert anyone else in the building, evacuate to the street and call 911.

Rule 4 - High voltage/high power

High voltage and high power projects must be approved by the electronics zone manager. IFL defines high voltage to be anything over 25VAC or 60VDC.

How to Operate (Procedures)

Soldering Iron

Safety
SOLDERING IRONS ARE HOT. They stay hot after you turn them off and unplug them.
Wear eye protection.
Don't put more solder on the iron than you need. It is more likely to splatter if you use too much.
Put the soldering iron in the stand when you are not holding it.
NOT A LEAD-FREE STATION. You can bring and use lead free solder if you wish but it will comingle with the lead on the irons. If you are pregnant, you should research the risks involved with lead soldering.

Maintenance
Cleaning (sponge and water, metal sponge, tip cleaner/tinner)

Basic Use
Types of solder (lead, lead-free/silver, rosin core)
Solder Flux (cleans surfaces, helps solder to stick)
Temperature (usually 750, higher for desoldering, higher for silver solder)
Cleaning (sponge and water, metal sponge, tip cleaner/tinner)
Soldering
Desoldering (braid, sucker)

Hot Air Tool

Safety
Hot. Keep pointed away from flammable and meltable materials. Put in stand when not using.
Move around while using to spread heat.
Turn air flow up to cool faster after turning off heat.

Power Supply

Safety
Don't short
Use correct voltage for your project
Wear eye protection when powering on newly made and uncased circuitry for the first time as electrolytic capacitors can explode when installed backwards or if too high a voltage is applied.

Basic Use
Turn on (standby)
Adjust settings
Turn on output
Turn off

Oscilloscope

Safety
Do not try to measure circuits outside the ratings on the scope.

Basic Use
See manual and *XYZs of Oscilloscopes* book.

Multimeter

Safety
Do not use the meter over the limits stated on its faceplate

Basic Use

Multimeters are used in many different ways so search on the internet for a how-to. Only use banana plug style connectors in the terminals.

Logic Analyzer

Safety

Do not try to measure circuits outside the ratings on the analyzer.

Maintenance & Cleanup

Lights

There is fluorescent task lighting underneath the first shelf on the bench.

Cleanup Procedure

- THROW AWAY your garbage and sweep off the workbench after you are done.
- PUT AWAY any tools or supplies you have brought out.
- SWEEP off all debris from bench. A brush and dustpan are kept on the bench for this.
- CLEAN any brushes you have used. Paper towels are good for this.

Before you leave the zone...

- TURN OFF all soldering irons or hot air tools if leaving the bench at all.
- TURN OFF all equipment and lights if leaving the zone for more than 10 minutes.
- Do not leave any project materials you wish to keep on the bench. They will be thrown away.

Resources

Free-to-Hack Bin

If you have an electronic item that you do not want and think it would be useful to someone to hack, you can place it in the Free-to-Hack Bin. If you are interested in taking any of the items in the bin, go for it. Items in the bin are great for stealing parts, practicing soldering, and practicing desoldering. When the bin is overfull, a select amount of items will be removed and sent to an electronics recycler.