How to do Basic Soldering
What is a Soldering?

- A form of metallurgy that involves joining two pieces of metal using a metal with a lower melting point.
Components Necessary for Soldering

- Soldering Iron and Holster
- Solder
- Solder Flux and Tip Tin
- Dry Tip Cleaner or Wet Sponge
- Vise and Holster
- Wire Clippers and Anti-Static Bracelet
- Solder Wick or Solder Vacuum (For Reworking)
Anatomy of a Soldering Iron

- Soldering tip held against a heating element
- What temperature should it be?
  - In general a good temperature range is somewhere between 650°-750°
  - Always check your data sheet!
Solder, Solder Flux, and Tip Tin

- Solder is a tin/lead mixture
  - Comes in different sizes
  - Includes flux
- Solder Flux
  - Removes oxides that form on copper at high temp
- Tip Tin
  - Cleans the soldering tip and tins it for better heat flow
Dry Tip Cleaner or Wet Sponge

- Dry Tip Cleaner is a gold mesh
  - Stab tip into mesh to clean
- Wet Sponge is just that
  - Wipe tip across sponge

*Dry Tip Cleaner tends to be better for the soldering iron*
Vise and Holster

The Vise holds the PCB and the Holster holds the soldering iron.
Wire Clippers and Anti-Static Bracelet

*Bracelet prevents the shocking of ICs*
Methods of Soldering

- Point Soldering
  - Soldering one joint (solder hole or pad) at a time
  - Can be done for through holes or surface mount

- Link Soldering
  - Similar to Point Soldering except it requires wiring two joints together
  - Only done on proto-boards

- Drag Soldering
  - Method for soldering many pins of surface mount ICs at one time
How to Point Solder

1. Heat tip
2. Clean tip
3. Apply flux
4. Secure component
5. Apply soldering iron to one side of wire and solder to the other \textit{OR} apply solder to iron and then touch soldering iron to joint
6. Trim excess
Any Questions?