Basic Soldering Training

1. What is soldering: fusing of two metallic surfaces together

2. How is this done: with the application of heat, solder, and flux

3. Flux: what is it and why do we need it? A: removes oxidation and preps surface for soldering

4. Rosin core solder: already contains the flux needed!
5. Soldering iron provides the heat needed: usually between 600 – 700 degrees F; choosing the right tip/size for the job, keeping the tips tinned (prevents oxidation)

6. Tools and Equipment: wire strippers/cutters, acid brush, IPA, magnification lenses, third hand, bending tools (pliers, x-mas tree), safety glasses, Kim wipes, tweezers
7. Component Identification: resistors, capacitors, diodes, IC’s

8. Wire stripping and tinning

9. Axial lead forming: using the x-mas tree or needle nose pliers
10. Component orientation on the PCB: i.e. resistor color codes oriented alike, diodes in correct orientation, IC’s have pin 1 correctly identified, polarized capacitors are in correct orientation.

11. Placement of the component in the PCB: how to ‘hold’ the component in place – bend leads or use tape.
12. Applying heat/solder to the surfaces: iron tip properly sized for the component, correctly placed (touches the lead and the pad), applying solder and dwell time (2-5 seconds approximately)

13. Look for good wetting: solder joint should be consistently shiny with no holes/gaps and should not be a big ‘glob’
14. Trimming the axial leads to the proper length: approximately 1 to 1.5 wire diameter

15. Clean up: using the IPA/acid brush to remove flux

16. Remove solder by heating on top of copper wick over solder to be removed