LABORATORY #2

Component Identification and Soldering Technique

OBJECTIVE:

The objective of this laboratory exercise is twofold. The first objective is to learn to identify and describe some of the electrical and electronic components used in design. A second objective is to learn to properly solder components on a printed circuit card. The ability to properly solder will help you appreciate the proper connecting of components into a system as well as help you identify when the circuit problem may be caused by poor soldering In addition this lab will provide you a valuable skill that you can use throughout your life.

EQUIPMENT REQUIRED:

- Took kit with assorted tools
- Soldering Iron
- 60/40 Rosin Core Solder
- "Helping Hands" parts holder
- Electronic Soldering Kit

PRE-LAB:

Please review again the documents on the course web site that describe the laboratory instructions for this course. You are to follow these instructions for each of your assigned labs.

In preparation for this laboratory it will be necessary to research the following:

1. Basic tools and methods used to solder electronic components.

   For this portion you must investigate two areas. The first is what the tools used in the soldering process are. The second is to describe in your own words the proper method to solder electrical and electronic components together. For your prelab write brief descriptions of the tools and their proper use. Include pictures where appropriate.

2. Basic electrical components.

   For this portion you must investigate the following electrical components. You are to write a description of each component indicating both electrical as well as physical attributes.

   - Resistor
   - Capacitor
   - Transistor
   - Diode
   - Switch (various types you can find)

There are many resources on the internet which will be useful to you. In addition, you have been taught how to use the resources of the UNH library in order to find information you may need. Please do not merely rely on the first few sites that you come to. You should go further than those sites using such things as: the library, discussions with fellow students and possibly other faculty.

For Prelab you are to answer the following questions:

1. Why must all parts be clean and free from dirt and grease?
2. Why should you secure the work firmly?
3. What does "Tin" the iron tip mean and when do you do this?
4. Why should I clean the tip of the hot soldering iron on a damp sponge?
5. Why should I add a tiny amount of fresh solder to the cleansed tip?
6. Why must I heat all parts of the joint with the iron before I add more solder?
7. How do I know when enough solder is really enough to form an adequate joint?
8. What may happen if I leave the solder iron on a component for too long a time?
9. Why must I not move the soldered parts until the solder has had a chance to cool?

LAB:

In prelab you researched the tools and the proper techniques used for soldering electrical components together. You also put together a detailed procedure that you will follow for soldering together components on a printed circuit board.

Using your newly acquired knowledge and your prelab as a guide you are to solder together the kit provided to you in lab and document your experience being sure to follow the lab write-up guide on the course web site