

ENSC 220 2001-03

1. The contents of this bag should agree with the parts list contained in the bag.
2. These are the components for your experiments this term, except for resistors and some capacitors that are in floor stock. These components may be used in several experiments. Look after them.
3. In the event that components are lost or destroyed, you will be responsible for sourcing and procuring replacements at your own expense from local suppliers.
4. Additional materials, such as aluminium foil, plastic foil, and tape will be supplied when you have to build your coil and capacitor. You are not limited to these materials, especially when building the capacitor.
5. Your lab manual is invaluable. In the beginning, pay particular attention to sections dealing with parts marking and identification (section 2.3), semiconductor reliability problems (section 2.3.6.d), and breadboard construction (section 2.4.1).
6. A soldering station is available in the lab. You should need this only for tinning the taps on your coil.
7. Most semiconductor components can be destroyed by improper practices. Handle them in accordance with information in your lab handbook (section 2.3.6.d).
8. We can destroy any semiconductor junction with a sufficiently high voltage; some junctions are more susceptible than others. You will be told in your labs to check power supply voltages carefully and to apply proper current limiting. Be sure to do so. Also be sure to follow the lab manual advice in section 2.3.6.d.

While we all expect that a device will be destroyed if we apply an excessively high supply voltage to it, there is a more common, and less obvious, cause of device degradation and outright failure. Potentially destructive voltages can be generated electro-statically and transferred to the semiconductor, damaging or destroying the junction. Common actions, such as removing a part from a plastic bag, peeling tape from a dispenser, or moving across a carpet, can generate hundreds or even thousands of volts.

We are not going to ask you to follow strict static protection practices in this lab (the devices are fairly robust), but it can't hurt to be aware and avoid obvious problems. Keep your parts wrapped in aluminium foil when they are not in use.

9. Put your ICs into your breadboard immediately to preserve the mechanical integrity of the IC pins.
10. Read the lab instructions and any references carefully and completely before starting the lab. Pay particular attention to any comments about power supply setting and bypass capacitors.
11. Build your breadboard circuits in a neat and logical manner, to reduce problems and make the inevitable troubleshooting simpler. See lab handbook Section 2.4.1.
12. Double check everything before applying power, and ensure that your power supply is current limited to the maximum expected for normal circuit operation.
13. Be sure to read the entire coil winding instructions before starting the coil.