Lab 0: Tool Prep

"I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail."
-Abraham Maslow

Lab procedure

1. There are many powerful and interesting tools available on the COE computers. Go take a quick look what's available at: https://it.engineering.oregonstate.edu/basics

2. To display a remotely running application using a X-terminal, you will need to download a program to do X-11 forwarding through ssh).

   (a) For Windows users use either `mobaxterm`,
   https://it.engineering.oregonstate.edu/accessing-unix-server-using-mobaxterm-ssh
   OR `putty`, https://www.putty.org/,
   PLUS `Xming`, https://sourceforge.net/projects/xming/files/Xming/6.9.0.31/Xming-6-9-0-31-exe/download
   * when connecting with putty make sure X11 forwarding is enabled

   (b) For Mac users:
   Install: `XQuartz`, https://www.XQuartz.org
   Open `terminal` and run ssh with tunneling enabled, like this:
   `ssh -Y username@access.engr.oregonstate.edu`

   (c) For Linux users:
   `ssh` is installed already. Simply type:
   `ssh -Y username@access.engr.oregonstate.edu`

3. Now see if you can open a remote shell using putty/xmobaterm/XQuartz with the commands above. Then type: `gvim`. This should open the graphical version of vim. If you see the window below, you are successfully running secure shell with tunneling.

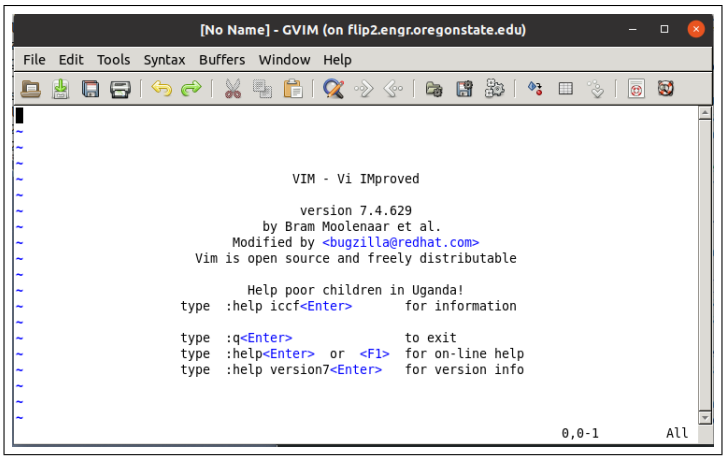

Figure 1: gvim in a X-term Window

4. Now let's see if you can run ngspice. Sometimes an application is not found because of an incomplete $PATH environment variable. Within your terminal window, type: `whereis ngspice`. You will see the path to the executable. If not, see your TA to fix it.

5. Now let's see if you can run ngspice. Download the following files to a working area:
   1n4148.subckt,
   diode.sp

6. Invoke `ngspice` on the spice file diode.sp by typing:
   `ngspice diode.sp`
   You should see the simulation run and produce a I/V graph for a diode as shown below. If so, you are all set. You can exit ngspice by typing `exit` at the ngspice prompt. Show your simulation plot to the TA.

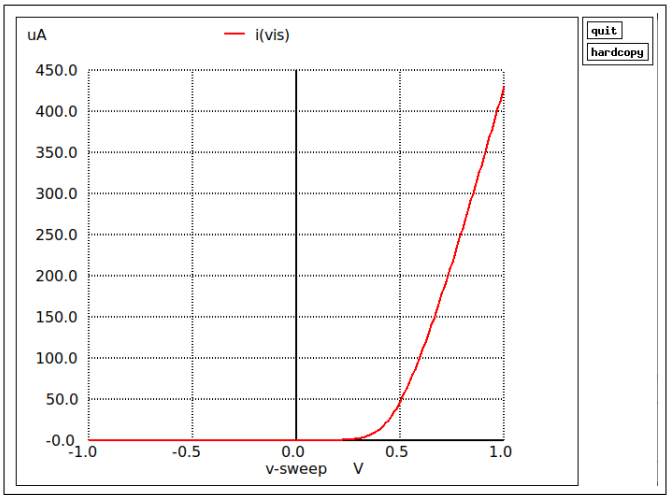

Figure 2: Diode I/V Plot

One more thing

1. Using a random computer from anywhere, you can connect to win10 PCs with lots PC-based software via Citrix (this may require an incognito browser):
   https://apps.oregonstate.edu/Citrix/StoreWeb
   connect to "MIME EECS Desktops"