Laboratory One — Circuit Simulation With Spice

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Pre-Lab

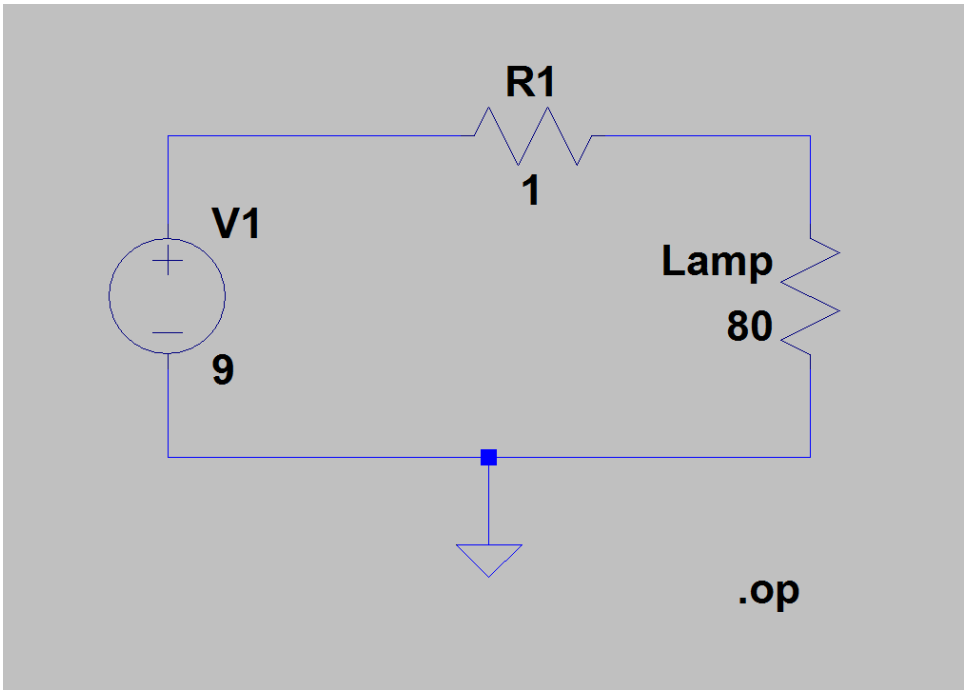

Figure 1: Lamp circuit schematic.

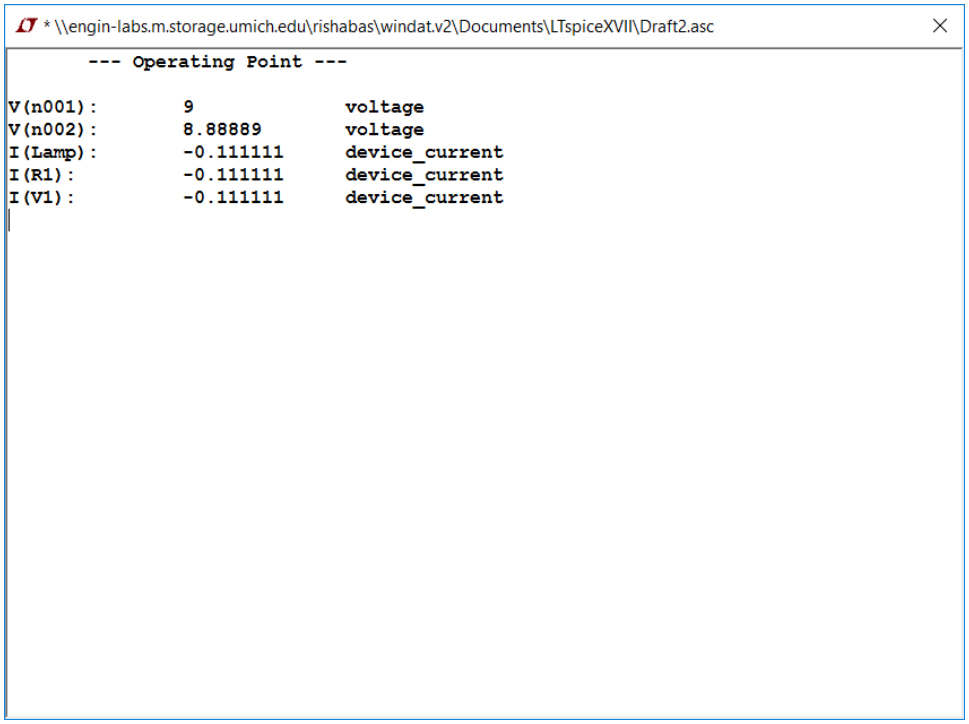

Figure 2: Element and node values for the lamp circuit.

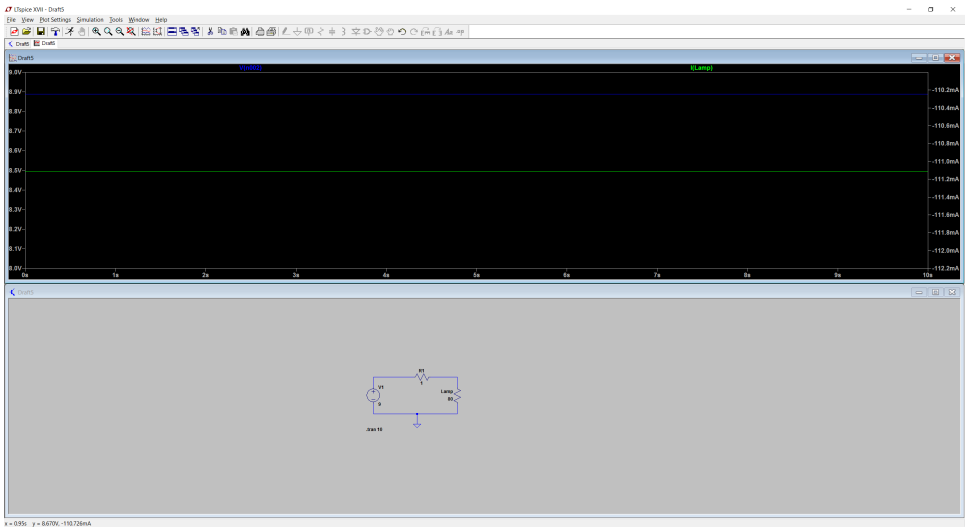

Figure 3: Graph of current through and voltage drop across the light bulb in the lamp circuit.

Post-Lab

Dependent Source Circuit

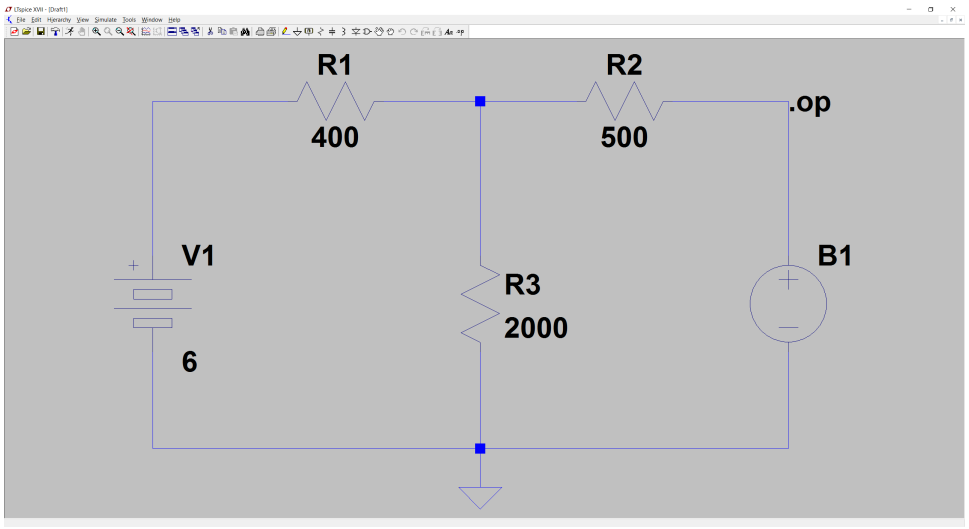

Figure 4: Dependent source circuit schematic.

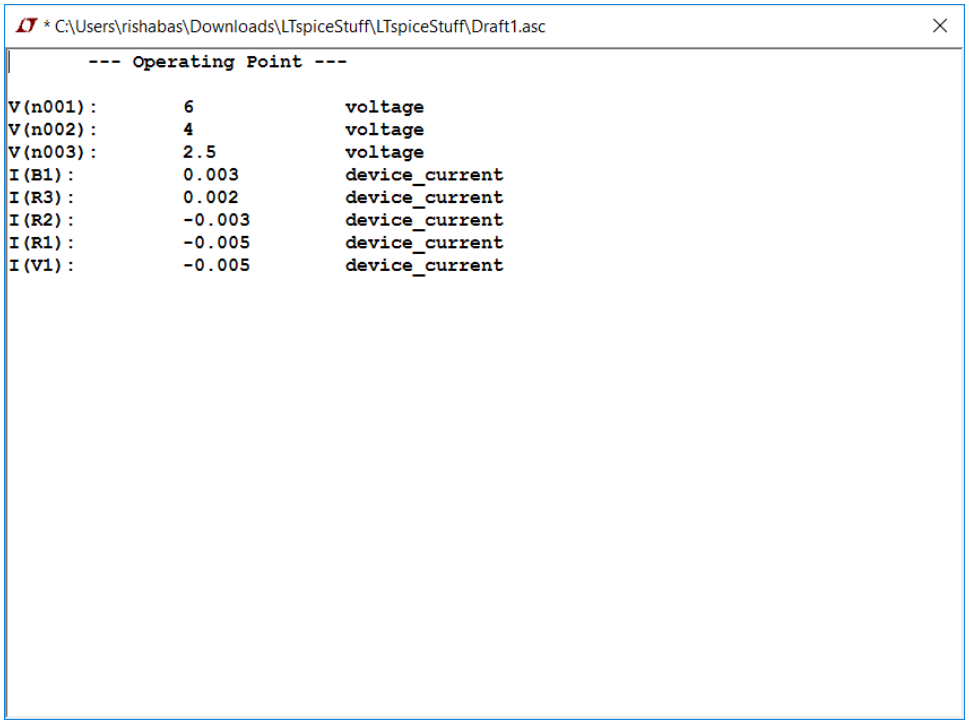

Figure 5: Element and node voltages for dependent source circuit.

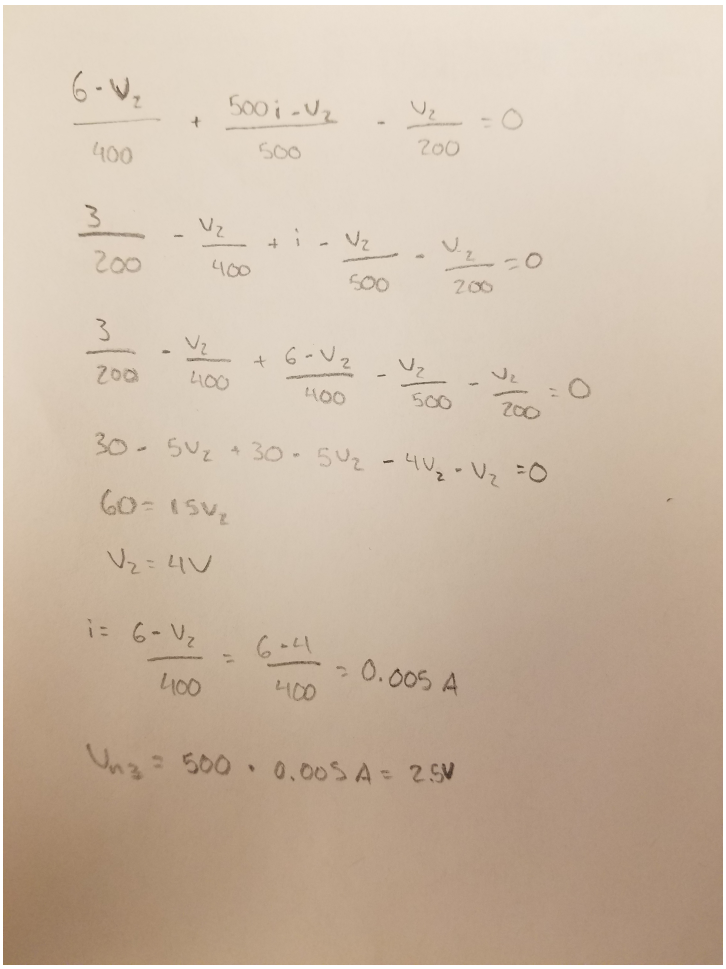

Figure 6: Nodal analysis by hand for the dependent source circuit.

Lamp Circuit

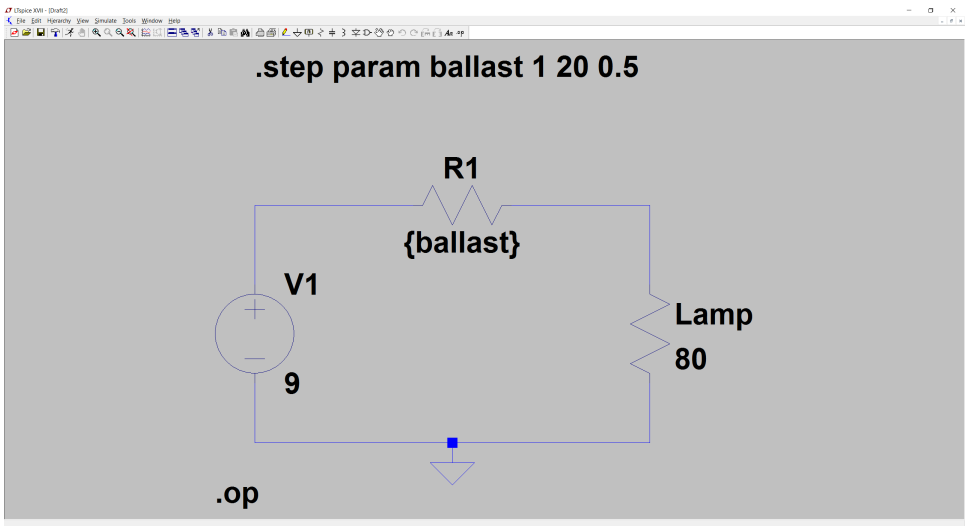

Figure 7: Lamp circuit with ballast schematic.

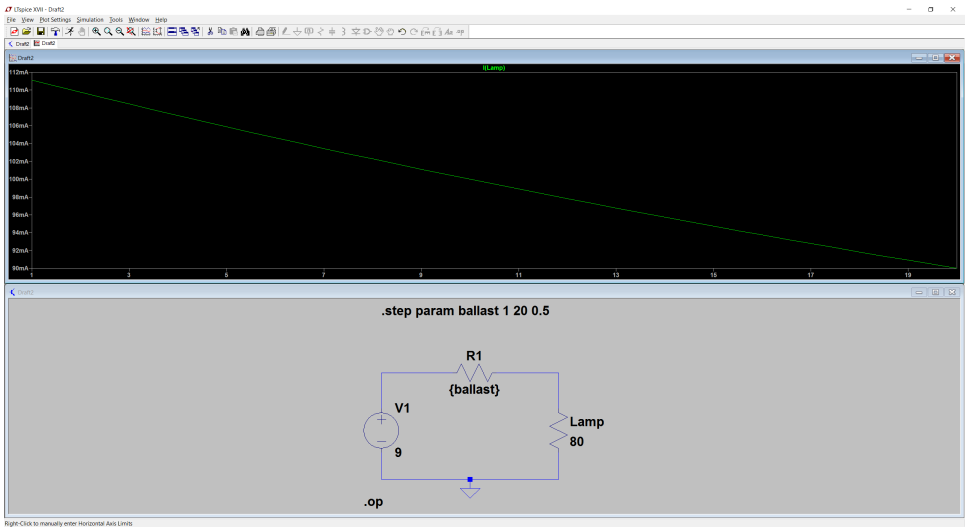

Figure 8: Lamp circuit graph of current vs. resistance.

LED Circuit

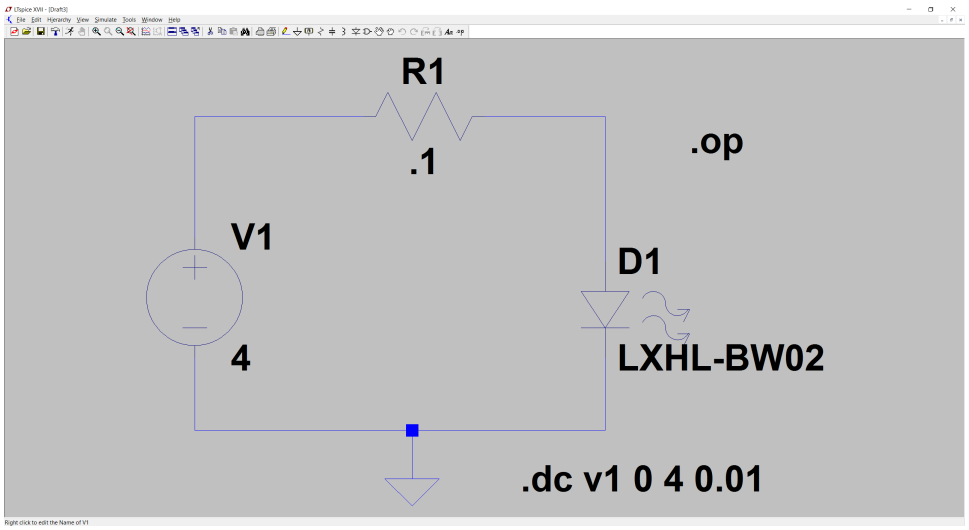

Figure 9: LED circuit schematic.

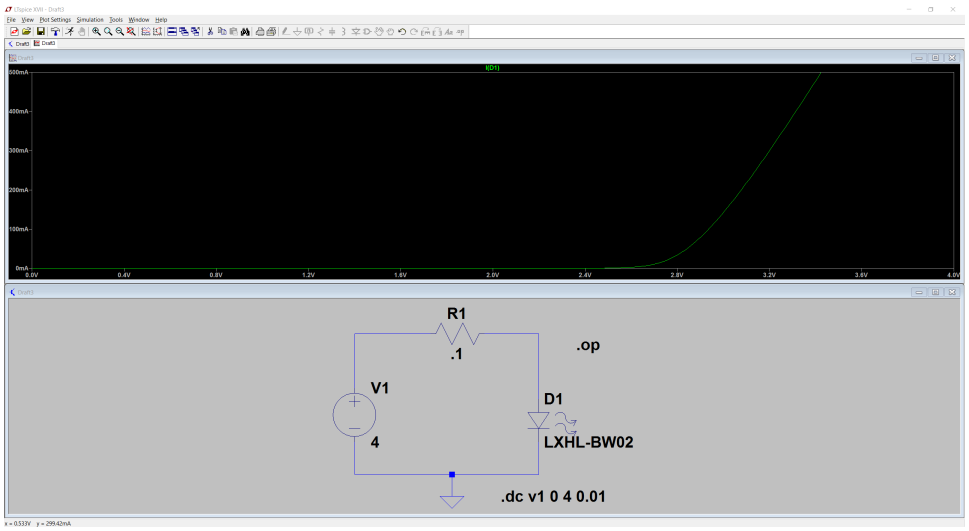

Figure 10: LED circuit graph of current vs. voltage.

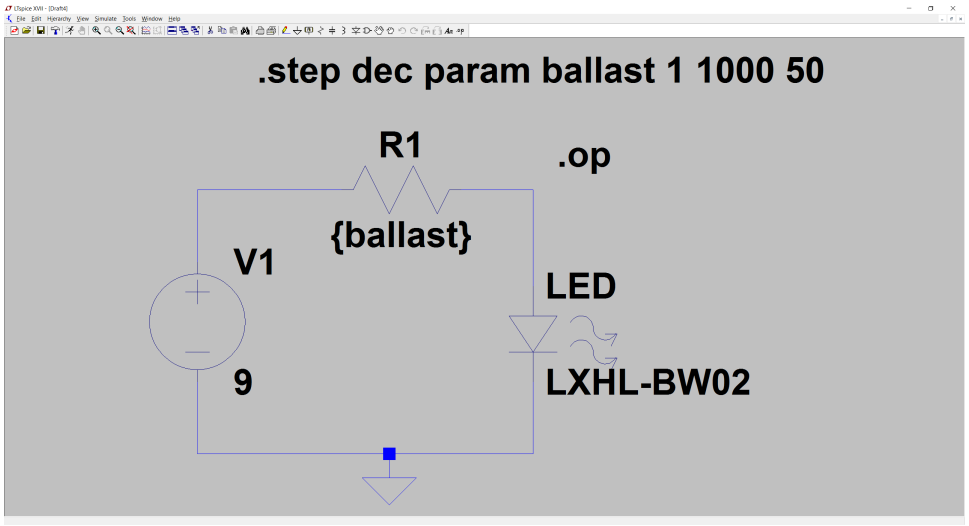

Figure 11: LED circuit with ballast schematic.

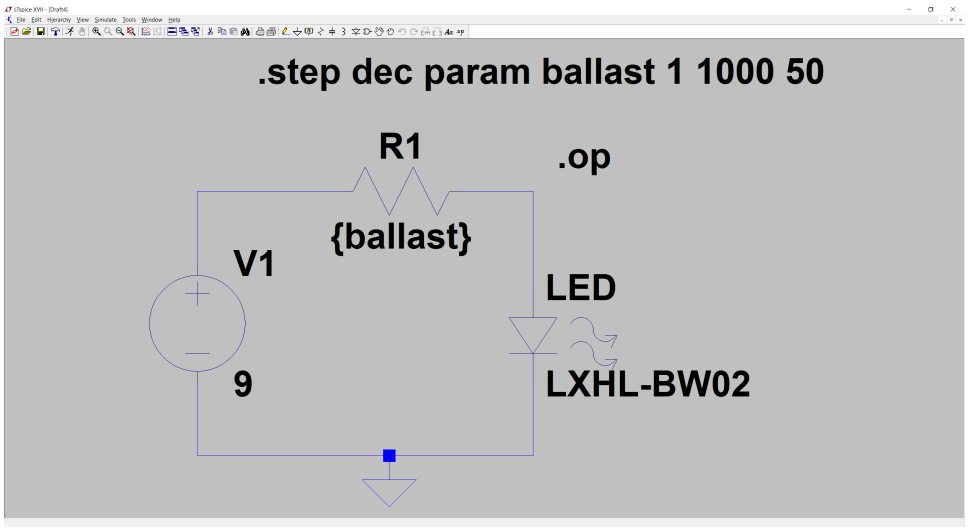

Figure 12: Graph of power consumption/absortion vs. resistance.