LABORATORY DOCUMENTATION EXAMPLE

ECE 221 **Fall 2003**

Here is an example of a properly documented lab experiment for the "Mentor Tutorial" Lab. The lab handout should always be included in the lab if you refer to it in the procedure. The goal of any lab report is to have enough information documented that another person could pick up your notes and reproduce the experiment. There are more general notes on lab documentation after the sample report.

Mentor Graphics Tutorial

OBJECTIVE: The objective of this lab is to work through the process of creating and simulating a digital circuit using the Mentor Graphics CAD software.

PRELAB: This lab had no prelab.

PROCEDURE:

Refer to the lab handout where stated. It is included in the Appendix.

1. Set up the appropriate environment variables as given on page 1 of the handout.
2. Created a digital circuit using Design Architect. The detailed procedure is given on page 2 through page 5 in the handout. The final schematic can be found on page X in the Appendix.
3. Verified the circuit works correctly using Quicksim. The detailed procedure is given on pages 5-7. The input force file was given to us by the professor. The design worked correctly and the simulation results are found on page Y in the Appendix.
4. Used the design management tool, Design Manager, to move a Mentor design from one directory to another.
5. Accessed the Mentor documentation as described on pages 8 and 9 of the handout. This will be helpful in future projects that involve Mentor.

CONCLUSIONS / SUMMARY:

In this lab the Mentor tools were used to create and verify a digital circuit. The only problem that occurred involved setting up the environment variables. The wrong environment variable was copied into the .cshrc file. Once that was fixed, the design was created and verified using the Mentor tools without any problems. The final schematic and waveforms can be found at the end of this lab.

QUESTIONS:

(I'll let you answer the questions)

APPENDIX

(should contain both the schematic and the waveforms)

MORE NOTES ON LAB DOCUMENTATION

All lab pages should be numbered with an index to each of the labs at the beginning of your lab section (221, 263).

OBJECTIVES: simply state the objectives given in the handout.

PRELAB: Must be done by the beginning of class. If you work with a lab partner on the prelab, both people must have all prelab data in their lab notebook. If schematics are created put them in the Appendix and refer to them here.

PROCEDURE:

1. This lab was a special case because of the detailed procedure. In general, you will put each of the steps of the procedure given in the lab handout in your own words and copy it into your lab.
2. You should redraw all circuit diagrams and refer to them in your lab.
3. You should include the results of a step at that point in the lab (or at least refer to the results that are placed at the end of the lab).
4. Always state that the design worked (if it did). Don't simply say "We tested the circuit." Also document what test cases (input combinations) were tried to verify your design was working correctly.
5. For digital circuits make sure you draw out and label the test set-up you are using. Describe what the inputs and outputs were (switches, function generator, LEDs, seven-segment displays, etc.)

CONCLUSIONS / SUMMARY:

1. The summary should be in paragraph form. It should:
    - restate what you did (similar to the objectives)
    - summarize the results
    - summarize any problems you had