LAB GUIDELINES

PRE-LAB

Each student will do his own pre-lab. It is intended in this course to increase the student's utilization of PC; therefore, the pre-lab write up must be typed. This same write up should be modified to be submitted as the Lab report.

Starting from Lab 3, all pre-lab must be done using LogicWorks simulation package. During the Lab, each student may be asked about the simulation results. All circuit parts with pin numbers should be included in the pre-lab so that you will be ready to start connecting the hardware in the lab. Try to investigate all possible changes on the circuit to acquire full knowledge about your design. All questions in the Lab handout should be answered based on the LogicWorks results. The pre-lab will make 35% of the total grade of the Lab experiment.

THE LAB

During the lab, the students should work as a group. The Pre-Lab results from each student in the group will compared and the circuit the produces the best results will be implemented using hardware parts. Elaborate on your conclusion about the observations about the simulated and obtained results. Punctuality of attendance to the Lab is worth 5% and the active participation on the experiment will count as 30% of the total grade.

THE LAB REPORT

Each student should have his own report. The lab reports are intended to serve two equally important purposes. First, they indicate your technical comprehension of the topics addressed in the labs, and second, they indicate your ability to present and discuss your results in a clear and concise manner. You will be graded on both aspects of your report.

The suggested format for your lab report is given below.

1. **Objectives:** State clearly what you set out to achieve in this lab. If this differs from what you finally achieved, explain it in the "Conclusions" section. Please do not copy the objectives verbatim from the lab handout. Think about it, interpret it, and explain it the best you can, in your own words.

2. **Parts:** List all the parts you used in the design.

3. **Design and Test Procedure:** For *each subsection* of the lab, explain the following:

(a) Step-by-step description of what you did. Include as many details as possible, and once again, write it in your own words.

(b) All necessary calculations as well as all pin-to-pin circuit diagrams of your design. Please make sure your figures are consistent, legible and well labeled.

(c) Your testing procedure. Explain how you went about testing your design. Did you try testing critical individual blocks first?

4. **Results and Answers to Questions:** For *each subsection* of the lab, present your results in a clear and concise manner (label graph axes, include all units of measurement). Note down all your observations, even if you were not specifically asked for them in the handout. Interpret your results and discuss the accuracy of your measurements. Additionally, answer all questions listed in the lab handout.

5. **Conclusions**: In this section you should attempt to answer the questions: What did you learn from this lab? What did you do wrong (or what went wrong)? How could you have improved upon your design and test procedures? Were your results as expected or did you find something unusual. Try not to include information that you have included in previous sections. Present the significance of your results conceptually, if applicable, (e.g. The CAD tool does not capture the glitching behavior accurately.)

The Lab Report will count as 30% of the grade and is due at the beginning of the subsequent lab experiment.