Laboratory Reports and Laboratory Procedures
EE 330
Fall 2014

Lab Milestones

A small number of laboratory milestones will be established by your TA. All milestones must be demonstrated to and recorded by the TA prior to turning in the laboratory report. Grades for laboratory reports will not be recorded if any of the recorded milestones are missing.

Laboratory Procedures

Laboratory experiments and measurements are used to experimentally verify key concepts. As such, the desired or theoretical outcomes of any design or any measurements should be known prior to conducting an experiment. Before any measurement is made, determine what the expected output is and then use the experimental measurements to verify the desired or theoretical outcomes. If any discrepancies arise when taking measurements, realistically determine whether they are due to analytical errors or measurement errors and resolve the discrepancies by either correcting analytical errors or the measurement procedure. Small differences between analytical formulations and measurement results can be expected but it is important to realistically assess how big of differences can be expected.

In making measurements with test equipment, monitor all waveforms with an oscilloscope. Though digital multimeters (DMM) can provide very accurate measurement results for some specific inputs when the type of input signal is well-known and when the inputs are within the specified input range for an instrument, they often provide little or no useful information when the type of input signal is not known or differs from that for which the instrument is designed to operate with. As such, the DMM is probably the least useful instrument in the laboratory for this course and should be used with caution in all experiments.

When using the oscilloscope, there is a tendency of many students to use the “Auto Find” button to configure the time-scale and the voltage amplitude scale when making

measurements. Though this is convenient, it seldom saves time in the laboratory. If the desired output waveform is known, the horizontal time resolution and the voltage amplitude should be set to observe the desired signal.

Over the semesters, there invariably will be one or more students working in the laboratory that make a statement such as “I am just gathering data today, I will figure out how the circuit works or decide what the expected results are when I prepare the laboratory report”. This approach will seldom make the laboratory a learning experience.

Lab Reports

Lab reports are due at the start of the next lab session unless otherwise noted by the TA. Both a hard copy and a pdf file should be submitted. The file name on the pdf file should be of the following format:

EE330Lab1JonesP.pdf

where the fields shown in green (lab number, your last name, and your first initial) should be replaced as appropriate.

Students may choose the format used for the laboratory report but the laboratory reports should be stand-alone documents. The laboratory experiments handout should be viewed as a guide for what is to be done in the laboratory with specific milestones but the reader of the report should not need to reference the experiment handout to completely understand the laboratory report. Any and all appropriate graphs, circuit schematics, etc. should be included in the lab report. They must be clear, readable, and properly labeled. All components, functions, and important nodes should be clearly labeled and referenced in the lab report. A comparison between expected and measured results is expected in the report. Any discrepancies between anticipated and measured results should be resolved in the lab, not in the lab report.

Intellectual Property

All students are expected to prepare their own reports. There may be some experiments where students must work together due to limited equipment availability in the laboratory. If

you have a laboratory partner on an experiment, the partner's name should be included on the cover page of the report. If working with a laboratory partner, it is still expected that students write their own lab report. In these cases the circuit schematic and the measurement results in the reports of the two lab partners may be the same. In no cases, however, should measurement results obtained from someone other than a laboratory partner be included in a report. And, in no cases, should any text be copied from anyone else, even a laboratory partner.

Damaged Equipment

If equipment in the lab appears to be damaged, check the set-up. Most often when there appears to be an equipment problem, the circuit is not correctly wired, the settings are not correct on the equipment (because auto-find did not select the right settings), or a fuse in the equipment has been blown. If an issue that appears to be associated with defective test equipment persists, let the TA know immediately. The TA will put a note on the defective equipment so that others do not have the same problem and will let CSG know of the problem which will hopefully be resolved in a very short time. It is the goal of our department to have ALL equipment in the educational laboratories operating correctly ALL of the time.