Pre-Lab – The pre-lab is a separate grade from your lab grade. The pre-lab must be written in your lab book. Before coming to lab you must photocopy the pre-lab pages and turn in the pages before you enter the lab.

It is your responsibility to read through the lab and identify what must be done before coming to the lab. The pre-labs will be graded on neatness and completeness. A general guideline for laboratory write up is that your notebook should contain enough information and procedure so that some one else with your level of knowledge could repeat your pre-lab calculations.

By doing the pre-lab, you should know what every circuit is supposed to do before you enter the lab. This is important so you can answer my question, “Well, what do you think it is supposed to?”

Pre-lab includes the following:
- Hand calculations- Place all hand calculation results in a table so I can easily see all calculations. If you have 10 pages of calculations, a table at the end of the calculations section will make it very easy to see your work.
- Hand drawn graphs.
- Explanatory notes.
- PSpice simulations.
- PSpice results (numerical results and graphs).
- PSpice documentation should include enough information so that someone else could repeat your simulations.
- Tables comparing hand calculations to PSpice results.
- Printouts from MathCAD or Maple.
- Anything else that may be important for any particular lab.

Laboratory Results

Enough procedural information so that so that some one else with your level of knowledge could repeat your lab measurements.

Laboratory results must include:
- Scope traces (hand drawn or printout):
  - All scope settings.
  - Measured from what circuit (show circuit diagram).
  - Where measured in the circuit.
  - Channel 1 is what? Channel 2 is what?
  - Why measured?
  - Numerical values.
- Give circuit diagrams for all circuits used in the lab.
- Give all figures numbers and refer to those numbers in your book.
- Paste all relevant data sheets in your notebook.

NOTEBOOK Guidelines
• Enough procedural information so that so that some one else with your level of knowledge could repeat your pre-lab and lab measurements. You can paste and cut to save time.
• Always use a pen when writing in your lab notebook. Pencil writing can be erased. If I see any pencil writing, I will erase it and assume that you did not do that part of the lab. \textit{(Each pencil mark I find will reduce your grade by 1 point.)}
• Never use white-out. \textit{(Each use of white-out I find will reduce your grade by 1 point.)}
• Explanatory notes - could someone reproduce your results with the information in your notebook?
• Explanation of procedure.
• Initial and date each completed page in your notebook.
• Tables comparing measured, calculated, and PSpice results.
• Presentation of results (graphs, scope traces, PSpice, Etc.)
• Your notebook should have a summary section for each lab. The summary should be neat and very readable. You should have tables that summarize calculated, measured, and PSpice results. I should be able to easily find any measurement and see how it compares to measured, PSpice, and calculated numbers. If it takes me more than a few seconds to find a result in the summary, I will assume that you did not make the measurement. Your notebook may be disorganized, but the summary should have all the important information presented in a report like fashion.

\textbf{Things you must do:}
• While making lab measurements you must compare measurements to expected results (hand calculations and PSpice). If all results do not agree, do not continue. Find out why things do not work and fix it.
• If your pre-lab calculations included calculating a minimum and maximum value of a quantity, measure that quantity in the lab and make sure that the measured value falls within the minimum and maximum limits. If it does not, find out why and fix it.
• At the very end of you lab, you need to construct a table that compares all hand calculations, PSpice results, and measured results to one another. These tables should show that measured results agree with hand and PSpice calculations. You will need to construct this table whether or not I ask for it in the lab instructions.

\textbf{Bad thinks to ask:}
• “Is this right?” This indicates that (1) you have no idea what the circuit is supposed. A valid question is, “My pre-lab calculations do not agree with my measured results and I do now know why.”
• “Do I have to do this?” You are going to be an engineer. If you don’t like building, testing, and figuring out how things work, watch out.

\textbf{Note: I will not grade more than one lab during the last week of class. I will not grade any labs during finals week. Labs must be graded by the week following the lab or you will receive a zero for the lab.}