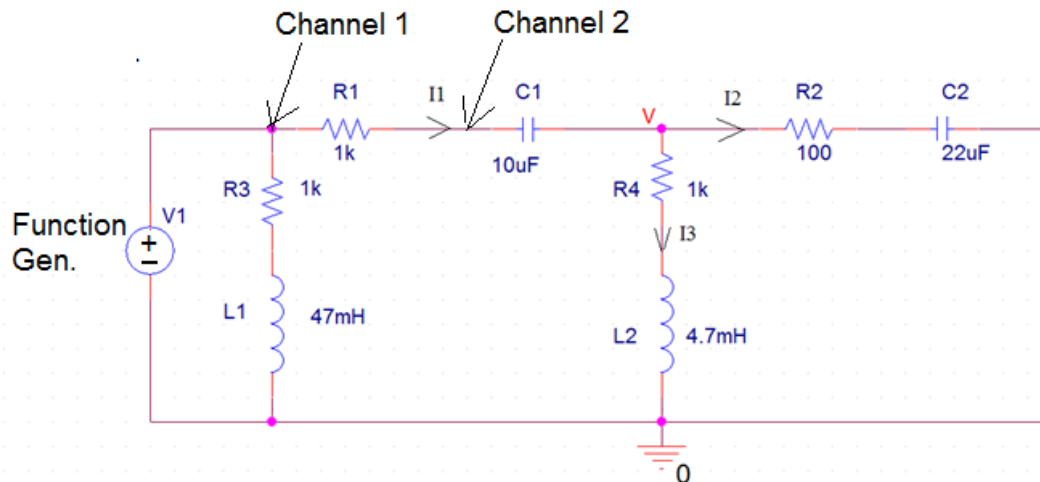


## ENEE207 Lab Report Guideline

Writing useful reports is a very essential part of becoming an engineer. In both academic and industrial environments, reports are the primary means of communication between engineers. In general, the lab reports for this class should follow the following guidelines and format:

1. Reports should completely document the laboratory activity so that the reader can reconstruct the work completed without any knowledge of the laboratory handout. **Do not copy the requirements or procedures from the laboratory handout.** Instead, you should write down what you have done in the lab in your words. The report should include sufficient detail in order for the reader to adequately follow the steps. Be clear and concise.
2. **Typed Reports are required.** Free hand writings and drawings will not be accepted. Each page should be numbered.
3. **Label and annotate all included tables, drawings, and attached figures.** Graphs and tables should be clear and logical. They should be freestanding and carefully labeled, so that the reader can understand them without referring to the text. Hence, you will have to choose figure captions and table titles carefully. In your report, please number all the tables and figures clearly with a title (such as Table 1, 2..., and Figure 1, 2 ...).
4. **Explain your results along with necessary discussions.** Attach necessary figures to show how you get the results. When recording measurement data, sketch the connections. For example:



Printouts are not your final results. Please state clearly what you want to measure, how you measured, what results you have. You need to explain and comment on the results and make a conclusion whether you have met the requirements or not.

5. **Each student must submit an individual report based on an individual effort.** Results should not be shared among the students. You may not give any paper or electronic copies of any parts of your work to other students to look at. Academic dishonesty will not be tolerated.

## **Lab Report General Format:**

**1. TITLE PAGE:** The title page or a title block should always include the lab experiment number and the title, the date it was submitted or due, and your name.

**2. OBJECTIVE:** The objective of your experiment should be brief and clear. It should state the objectives of the experiment, but in your words. Do not simply “copy” the objectives from the lab manual.

**3. DESIGN:** This is the part that you include your manual calculations of the circuit. Include the circuit diagram that is either given or designed by you. Your pre-lab cannot be used as your design. Make sure that you include necessary explanations to help the reader understand your analysis or design.

**4. HARDWARE:** Include equipment (brand and type) and components (quantity and nominal value) that was used in your experiment. Do not include common knowledge hardware such as the IC tester, jumper wires, computer etc. A simple bullet list or table is recommended.

**5. EXPERIMENT:** This section describes the experimental process (both simulation and breadboard circuit) and corresponding results in the order they actually happened. Using subsections and a clear paragraph structure as needed. **DO NOT COPY AND PASTE DIRECTLY FROM THE LAB MANUAL.** Where appropriate, you should describe each step and show your results, with a schematic, graph, data, calculations, or perhaps a brief statement. All the figures and tables should be labeled and explained in the report. Typically, there are two parts in this section:

### **(1) Simulation**

- Purpose of the simulation, i.e., what you try to analyze
- Type of simulation and specific parameters used
- How the simulation was performed (circuit diagrams and probes used for simulation)
- Show and discuss the simulation results obtained, annotate the waveforms to demonstrate that you analyzed the simulation response and it meets the design specifications.
- Repeat the above process for each simulation

### **(2) Breadboard**

- What you want to measure
- How you measure the circuit and obtain the result
- Show and discuss the results obtained (by DMM, oscilloscope, etc). For each oscilloscope printout, describe what each waveform represents, annotate the traces as needed. Clearly specify your results with explanations in addition to the oscilloscope printouts.
- Repeat the above process for each measurement

**6. ANALYSIS:** This is a very important part of your report. You should show, in this section, that you understand the experiment beyond the simple level of completing it. Two parts should be discussed in this section:

(1) First, you should analyze your results of the experiment; compare expected results with those obtained; analyze experimental errors; relate results to your experimental objectives; and respond to all questions outlined in the experiment if any. Use tables or plots to show all the results and comparisons. Comment on the errors and indicate your analysis of the reasons for the deviations.

(2) Discuss problems encountered during the experiment and how they were solved or why they were ignored.

**7. CONCLUSIONS:** This section should present overall conclusions relating to the original purpose of the experiment. Comment on the outcome of what you did. Typically, the conclusion section of a lab report demonstrates what was learned from the experiment.

**8. APPENDIX:** This section should include any results that are too large or long to fit into the body of the report.