Laboratory Report Guidelines

Note: The following information is for a complete, formal report. Individual assignments may not require all sections or formatting requirements. If there is any question, ask the instructor!

GENERAL REPORT INFORMATION

Appropriate “Voice” and Style for Report
- Use a formal tone (no first or second person pronouns) by writing in the “no subject” (no person) passive voice. When writing in the “no subject” passive voice, the focus should be on what is being done and not who did it. So, for example: instead of writing “we set the power supply to 10 volts.” write: “the power supply was set to 10 volts.” Instead of writing: “we measured the current through R1.” write: “the current through R1 was measured.”
- Do not use contractions, e.g. don’t, can’t, etc.
- Do not end a sentence with a preposition, e.g. of, for, etc.
- Be sure to reference sources as appropriate. A good rule of thumb is: “When in doubt – reference!”

Report Format
- The abstract should be single-spaced and on a separate page.
- The narrative (remainder of the report) should be double-spaced. The exception to that is tables and program listings: they should be single spaced.
- Use 12 point Arial, Times New Roman, Tahoma, or Helvetica font with 1-inch margins throughout.
- Include page number as a header in the top right hand corner of the report. Note: Any pages preceding the Introduction (e.g., as appropriate and if included: Table of Contents, List of Figures, List of Tables and Abstract) should use Roman numerals: i, ii, iii, etc. The first page of the Introduction section should begin using Arabic Numerals: 1, 2, 3, etc.
- Reports must be stapled in the upper left corner unless they are submitted electronically.

Each Chart, Graph, Illustration, Picture, and Table in Report
- Number, title and label, including x and y axes.
- Provide legends and/or annotate completely.
- Number sequentially and consistently. For example, figures may have a simple numeric representation (Figure 1, Figure 2, etc.) or may include a section identifier (Figure 1.1, Figure 1.2, .., Figure 2.1, etc.).
• Tables should be identified at the top of the table, everything thing else (images, graphs, charts, etc) should be identified at the bottom.
• Tables and figures (Charts, Graphs, Illustrations, Pictures, Program Listings, etc.) are numbered separately (e.g., Figure 1, Figure 2,... Table 1, Table 2).
• Discuss and interpret each item included in the report narrative – do not just present it (especially results)! Items that are not specifically discussed in the report may be included in an Appendix (if referenced in the narrative) or in a separate component of the final submission that has been pre-approved (hand analysis, simulation files, etc.).

Each Section of Report
• Use bold and/or italics consistently for each section heading.
• Each section should have a sequential identifier; e.g., I, II, III... or 1, 2, 3,... Subsections (if any) must include the section identifier; i.e., 1.1, 1.2, etc.
• Write transitional statements at the beginning and at the end of each section to move the reader easily from one section to another.
• Open each section with a statement previewing the information contained in that section.

REQUIRED FORMAL LABORATORY REPORT CONTENT

Title Page
• Title of report
• Submitted by:
• Partner(s): (list all team members’ names)
• Course number and name
• Name of professor
• Date due
• You may download and use this one:
  http://coe.uncc.edu/~sjkuyath/Lab/LaboratoryTitlePage.doc

Abstract (or Summary or Executive Summary)
Format and Style
• One page maximum (usually about 500 words).
• Single-spaced narrative.
• The abstract is the “hook” that makes those that matter want to read your report, so it must represent your entire work - condensed, clear, well-written and interesting!
Content and Organization

- Write a concise summary of the entire experiment, including (as relevant) purpose of experiment, relevant theory (briefly!), requirements, constraints and/or assumptions.
- Describe the methodology used to complete the experiment.
- The abstract is the first item in a report, but the last to be written. To write the abstract, copy a sentence from each main section of the report: i.e.; the introduction, purpose (or objective), procedure, results, discussion, and conclusion. After assembling these sentences in the proper order, edit the paragraph(s) into a cohesive whole while trying to edit it to around 500 words. Of course, if there is a length requirement for your report, stick to that.

Table of Contents (optional)

- Include page numbers of all major sections of the report using the header titles in the narrative (verbatim!).
- List Appendices, with page numbers and titles at the bottom of the Table of Contents.

List of Figures (optional)

Include titles and page numbers of all figures (charts, graphs, illustrations and pictures) used in report.

List of Tables (optional)

Include titles and page numbers of all tables used in report.

Introduction

Format and Style

- Should be 1-2 pages long.
- Double-spaced narrative.
- Start numbering with Arabic numerals (i.e.; 1, 2, 3, etc.).
- Appropriately reference all information using the format required.

Content and Organization

- Provide a clear and comprehensive description of the topic under study. This section should be researched, and so references and citations are required.
- Include any requirements, constraints and assumptions. Be sure to define and quantify requirements. Explain how they will be measured and/or tested to determine success and/or validate theory.
- If an objective or purpose is not required for your report, then include a clearly articulated problem statement to describe the problem that is being solved or the theory being verified and why it is important.
Purpose (or Objective)
- Provide a clear and comprehensive description of the reason for performing this exercise.
- Use a clearly articulated problem statement to describe the problem that is being solved or the theory being verified and why it is important.

Equipment List
A tabular list of all equipment used in the performance of the experiment must be provided, along with manufacturer/model and unique identifying information, if possible (preferably the UNC Charlotte asset number). Note: individual components that are not tagged with a UNC Charlotte barcode do not have to be listed.

Procedure
Format and Style
- Should be a minimum of 4 pages (not including figures or tables).
- Double-spaced narrative.
- Appropriately reference all information

Content and Organization
- Provide a brief overview of the definitions and any assumptions used in the experiment, as well as any relevant theory being investigated.
- Describe, in detail, each step of the experimental process. Note: It is neither necessary nor advisable to include every equation used here, but it should be very clear that a valid method was used in the performance of the experiment. Note: All calculations and hand work must be included in an appendix, but should be replicated professionally in the procedure. For example, if you were designing a circuit, the hand drawn schematic developed during the experiment should be included in the appendix. But, PSpice, Multisim, Xilinx, etc. should be used to draw the schematic professionally so it may be placed in the body of the report.
- Relevant tables and/or figures should be incorporated into the narrative, but must be discussed and analyzed!
- Potential sources of errors and/or discrepancies should be introduced and discussed.

Results
Format and Style
- Should be 1-2 pages.
- Double-spaced narrative.
Content and Organization
  o Provide a complete analysis of the results.
  o If screen shots were used (from simulations), provide a detailed description of what is being shown in the image. The reader should not be expected to "figure it out."
  o Multiple screen shots or images may be required to fully analyze and discuss the results.
  o Any hand-drawn images of original data must be placed in the appendices, but, a professionally drawn image must be shown in the results. Use Microsoft Power Point, Vision, or other drawing packages for this purpose.

Conclusion
Format and Style
  • Should be 1-2 pages.
  • Double-spaced narrative.

Content and Organization
  o Provide a summary of the entire report and the experimental process (1st paragraph of the conclusion), including the degree of experimental success and possible sources of discrepancy or error. NOTE: Measurement error (or human error) cannot be a source of error – if you know you made a mistake go back and correct it.
  o The main purpose of the conclusion is to comment on the results of the lab. Were the results as expected? Why or why not?
  o Discuss whether or not the results supported your hypothesis. If they did not, discuss why not.
  o Discuss what you learned by performing the lab, not what you did.
    o Correct example: Two resistors connected in parallel will have the same voltage across them, although the amount of current through each resistor will be different (unless they have the same resistance).
    o Incorrect Example: Two resistors were connected in parallel to see if the voltage across each was the same.
  o No new material presented in the conclusion!!

References
Format and Style
  • Use the Chicago Style Author-Date system for citations and bibliography. More information may be found: http://www.chicagomanualofstyle.org/tools_citationguide.html
• Give credit for all sources cited, but do not include references that are not cited in the report!

**Appendices (if needed)**

*Format and Style*
• Page numbering continues sequentially from report.
• Label Appendices alphabetically (e.g., Appendix A, Appendix B,...) and give titles to each Appendix.
• Appropriately reference all information using the required reference format.

*Content and Organization*
• Include any detailed calculations, data, or copies of reference materials.
• Each Appendix item must be mentioned or discussed in a preceding section of the report. Do not include anything in an Appendix that has not been mentioned somewhere else in the report!