Writing in Engineering
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Among engineering students, many have been lead to believe that writing skills are of trivial importance to them. As a result, writing often takes a backseat to more numerically-based skills such as computation and calculation. However, without proper writing skills, the prospective engineer has no way to communicate his/her ideas with the rest of the world. In the professional engineering field, writing skills are highly desirable to potential employers who will inevitably require you to be able to properly document your findings.

Writing in engineering is often referred to as “technical writing,” which is a style of writing where technical details are incorporated into a concise, logical, and intelligible report. The greatest struggle in engineering is conveying engineering-heavy ideas with clarity and concision—such that any audience is able to understand the engineering-heavy design.

Audience
To ensure that your writing is understood by your audience, you must first identify exactly who your audience is. For example, if you are writing a report destined for the general public, then you must carefully define and explain every technical detail that you incorporate, or you run the risk of your ideas being misunderstood. However, if you are writing a report intended for the head of an automobile company, then it is not necessary to include the general details of an automotive part, as the recipient is assuredly well informed already.

Once your audience has been identified, it is time to engage in the most exciting component of engineering: report writing (sarcasm intended).

Report Outline
Unless your professor or boss instructs you otherwise, it is advised that you follow an outline similar to the following when constructing an engineering report.

Cover Page
• Include the name of the university, the class title, the title of the report, the name of the authors and the date.

Table of Contents

Abstract
• Compare this to an introduction and conclusion from an English paper smashed together. In the abstract, you will briefly outline the entirety of the report, complete with the hypothesis and the findings.
• Be brief, but ensure that you encompass the main ideas presented in the report.

Background
• Here you must make an argument for why your research matters. To do this, you must address a problem and explain why this problem needs resolution. Further, you must
reintroduce the problem statement and give background to concepts and grounds for what you are addressing.

- You must also include the objective for the experiment and explain what you will be doing to resolve the problem presented.

**Apparatus/Literature Review**

- If performing research using solely scientific equipment, then all you need to do here is list the tools you will be utilizing.
- However, most often you will be utilizing written documents as well as scientific equipment. In this case, you must write a literature review for each source used.
  - This literature review is similar to an annotated bibliography you might create for an English class research paper. If necessary, see University Writing Center resource *Writing an Annotated Bibliography* for details.
  - However, a proper literature review goes more in depth than the annotated bibliography and offers critical examination of the source and its relation to the topic at hand.

**Experimental Procedure**

- This will often be the longest section of your research document and will include all of the procedures, in detail, that you executed in order to find your data.
- This should be written as a passive-voiced series of steps, not as one huge paragraph.
- This is the most important piece of the report because anyone should be able to pick up your report and recreate the experiment with near-identical results. Do not include technical words without explanation unless it can be safely assumed that the reader is already familiar with the terms.

**Results**

- This is where you can proudly display the data that you obtained in your experiment.
- You can display this information through whatever method seems most appropriate: a chart, a table, a graph, etc.
- Explain any limitations or errors you may have come across during the process of conducting the experiment and whether or not these drawbacks played a significant role in your findings.
- If there are relationships or discrepancies in the data that do not have an obvious explanation, explain why this occurred.

**Discussion**

- Explain the real-life application of the data, and how this can be used to help address your question.
- Address whether your question was properly answered and/or resolved through the data you analyzed.

**Conclusion**

- Discuss further information that needs to be gathered on you topic/problem.
- Most importantly, reiterate why this research is important.
- If writing about a specific field of engineering, make sure to document the importance of this study relative to that particular field.
As you may expect, writing an engineering report is different from writing an English report. In an engineering report, you are free to use headings and subheadings to organize your report. Further, you will want to incorporate page numbers and headings to make the report easier to navigate.

Although this is a brief overview, it covers all the bases to help you get started with your engineering report. Remember, technical writing is not extremely different from other academic writing, so don’t abandon all the general writing skills you have learned along the way.

References

