Introduction

It may surprise you to learn that documentation is an integral part of engineering. Logbooks, technical reports, and executive summaries are almost a daily activity for a practicing engineer. Luckily throughout your academic career at the Faculty of Engineering you will encounter many assignments and courses dedicated to teaching you these valuable skills. Examples include ENGR 020, ENGR 240, ENGR 446, and your work term reports.

ENGR 020 - Assignment #1

Your first documentation assignment begins here at the Design Engineering Challenge. While conducting your design you will be required to make notes on the project and afterwards generate a report outline based on those notes.

The goal of this assignment is NOT to generate a complete report, but rather to generate an outline that could later be expanded upon into a full report. This means that while you will have all the same heading as a full report, but you are only required to have bullet points beneath, not full paragraphs. In the future this technique of generating a report outline could be used in your work term and ENGR446 reports.

Step 1 - Project Notes

The first step of this assignment is to keep project notes throughout the design of your project. These notes can be kept here in the space provided (See Project Notes), in a separate logbook/notebook, or in a file on your computer. Use the method with which you are most comfortable. These notes are personal and each team member should keep their own set. These notes are for your own use in step 2 and you are not required to hand them in.

Step 2 - Generating the Report Outline

The second step of this assignment is to use your project notes to generate a report outline. This outline is to be brief, to contain only bulleted points, and in this case is not to exceed two pages. The final report outline is to be submitted through Blackboard.
Project Notes

Below is a list of sections and questions that should be answered before the end of your project, however keep in mind that “not applicable” is an acceptable answer.

Summary

The summary is written for the general reader who wishes to be familiar with the content of the report while avoiding details. The summary is a separate report, stating the engineering problem, the approach to the solution, the main conclusions and recommendations. It is written after the main report has been completed. Items in the main report, such as tables, figures or sections, are not referred to in the summary. The summary is normally presented centered on its own page, and is less than one page in length.

You do not have to include a summary in your project notes or report outline as it is normally written after the report is completed. The description is included here to illustrate the difference between a Summary and an Introduction.

Introduction

The introduction introduces the report to the reader by:

- Making a few background statements about the company/organization
- Introducing the subject to be discussed
- Mentioning why the subject is important
- Outlining the content of the rest of the report.
- Containing sufficient background information for the reader to understand the rest of the report.

Introductions should never be longer than the discussion. If a significant amount of background information is required, some of the material may be included as appendices. The introductory material may be presented in several sections to cover the scope of the report as well as provide the necessary background information.

Introduction Questions

- What is the name of your team/company?
- Who were your team members?
- Who worked on what components?
  - Electromagnet
Design Day 2007
Design Case Study Report Outline

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  - 
  - Programming
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    - 
    - 
    - 
  - Structure
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    - 
    - 
    - 
  - Other: __________
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- Who did you consult with on the project (names of any faculty/staff or teaching assistants you made extensive use of)?
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- Other miscellaneous comments?
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Discussion

The discussion is the foundation of a report. It presents evidence in the form of referenced facts, data, test results, and analysis upon which the conclusions are based. A well-written discussion flows logically from concept to concept to lead the reader to the appropriate conclusions. The discussion may contain several sections if several concepts are presented.

Discussion Questions

- What style of crane was selected and why?
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- What core was selected for the electromagnet and why?
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- Was timing or push buttons used and why?
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- What unexpected issues arose and how were they addressed?
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Conclusion

Conclusions are the results derived from the evidence provided in the discussion. No new material is presented in the conclusion. When presenting more than one conclusion, state the main conclusion first followed by the others in the order of decreasing importance, to ensure the maximum impact on the reader.

Conclusion Questions

- Was the design successful?
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- If not why not?
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- Other miscellaneous comments?
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Recommendations

Recommendations are an outline of what further work needs to be done based solidly on the information you previously presented in the report. They have the greatest impact when written using action verbs. Again, do not introduce new material or concepts here.

Recommendation Questions

- If you knew now back when you started the project what would you do differently?
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- If you had another day to work on the project what would you develop further?
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- Other miscellaneous comments?
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