ENGG1000 S1 2018 – Project Bionic Hand

Final Report Guidelines

Note: This template is designed as guide, not a set of requirements. Any aspect, including the fonts, formatting and section headings, can be changed. Aim for a clean, uncluttered, and professional appearance.

Important: Number your section headings. On the cover page to this report, please clearly indicate your group number and the names and student numbers of each member of your group.

Please take note of all suggestions relating to structure, section ordering and numbering, and style from the Report Writing lecture in Week 4, the Rough Guide resources on Moodle, as well as the template for the Design Proposal Report; these will be assessed as well as the content. We will not reproduce that material here.

Assessment	**Final Design Report**	
Due	**5pm, Friday June 1st, 2017 (Week 13)**	
Description	Report on the results of prototype testing and recommendations for further development. Most importantly this report should feature a complete description of your final design, to the extent that an engineer who knows nothing about the project could follow this document and build your device from scratch. The report will be in the form of a Technical Report addressing the topics given below. The total length of the report should be approximately 10 to 15 pages of text, not including things like the cover page, table of contents, graphics and appendices. Please use 1.5 spacing with 11 or 12-point Arial font. Please use Harvard Referencing style	
Mark	15 or 20% (Weighting depends on report score compared to final testing results. The assessment piece with the highest score will get the highest weighting)	
Submission	By submission tool on Moodle.	
Grading Criteria	Report Outline	4
	Formatting and general appearance	4
	Quality of Discussion and Content	12
	Total	20

1 Executive Summary

In about half a page, summarise the outcome of the project and the main points of your design, including its advantages and limitations, any reasoning behind your design choices that you think is important and a brief statement of how it performed. Summarise how the design performed in competition and provide any recommendations you might have for the next revision of your prototype. Revise this section a few times and try to make it as concise and accurate as possible. An excellent executive summary will immediately impress a marker – remember, most readers are time-poor (this is especially true in industry).

The iWrite Tutorials provide useful information and examples on how to write a good Executive Summary:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/Summary.html

2 Table of Contents

This helps give your report a professional feel.

Adopt a numbering hierarchy for numbering sections and sub-sections. See the Rough Guide to Presenting Assignments for details. The iWrite tutorial is an alternative source:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/Table-of-Contents.html

3 Introduction

You should begin here by summarising the problem definition. Should talk (in general terms) about some of the key problems raised by the design brief, during the development of the design, and during testing. This is then a lead-in to discussing the proposed solutions (in the explanation section). You should explain what questions the reader can expect to find answered in the remainder of the report. You can include any other discussion concerning motivation for the project or design, or background to the project work.

Avoid repeating the Design Proposal Report here, and you can assume the reader is familiar with your previous submission. Condense common materials as necessary, however, here you can add the benefit of hindsight (as this document will appear after final testing and competition). You should refer to and reference that document as necessary to avoid needless duplication.

The corresponding iWrite tutorial is:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/Introduction.html

Aim for around 1 page for this section.

4 Final Design and Implementation

Give all the main details of your final design, both at the system and detailed subsystem design levels. Describe your design concisely, in as much technical detail as you can. Be precise about giving quantities, in their correct units, for everything. Show how different subsystems are interfaced if you have subsystems. Explain/show how each mechanical part is constructed, and for electrical designs, give circuit diagrams. Talk about how you prototyped the design. What problems did you have to overcome as part of your final design? What took the most effort and why?

Upon referring to this section, and supporting appendices, an engineering team should have all the necessary information needed to build the prototype from scratch. In this way this document takes the form of the final design document you present to the client.

Somewhere in this section, you might want to talk about whether your design changed from the initial design proposal and, if so, why.

If you have huge amounts of detailed technical material, organise it cleverly – i.e. summarise key aspects in the body and put the details into an appendix - refer to the appendix in the text. This way you can keep the flow of the report and include all the detail.

Somewhere in this section, spend some time explaining the evolution of your design, especially why you made the decisions you did. The final design and construction can be thought of as a series of decisions, each of which has a reason. The reasons are a big part of what is being marked here. If your reasons involve references, then cite them correctly as needed.

Don't write about final test results yet. You can write about any preliminary testing you did and what you discovered from this.

Give the total cost of the final design (using estimates if you need to). Also comment on the ease and cost of manufacture, thinking ahead for future – would your prototype make a viable product?

Pictures/diagrams/sketches are ideal in this section; **make sure you label them correctly and refer to them in the text**. If you can't think of a way to refer to a diagram in the text, then it probably shouldn't be there. Make sure figures are legible, labelled, and centred on the page.

Finally, take care not to repeat your design proposal. The purpose of the final report is different to a design proposal. Keep this in mind.

See:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/Design-Operating-Principles.html

for examples on how to structure this section. Allow around 3-6 pages.

5 Analysis of Final Testing Results

OK, now you can describe and discuss the final testing.

Start by stating the results and include any good/clear pictures you have from the final testing.

Discuss how every aspect of your design contributed to the final testing result. You might want to also discuss the design in terms of innovation, simplicity, ease of manufacture, and styling (also assessed at the final testing).

Explain the reasons for the group's result. Note if you did well, what do you think were the reasons for this? E.g. good planning, good teamwork, good luck etc. If your solution did poorly, do not simply blame others. Look at what you as an individual, and as a team, could have done better given the conditions. Negative external criticism will be marked down heavily.

In retrospect, were the team's design analyses (from the design proposal) correct in the final testing? e.g. if the team thought that speed should be prioritised over accuracy, was this the correct decision in the end? Scan through your proposal and compare your earlier design decisions with the outcome. What did you learn from Acceptance Testing? Did the experiments/testing you did before the final test prove helpful during the final testing?

You can also discuss limitations of your design that were not obvious in the final testing.

Around 2-3 pages

The corresponding iWrite tutorial is:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/Design-Performance.html

6 Recommendations

Based on the performance of your design in final testing, and your analysis of its performance, what recommendations would you make to the client in terms of systems to achieve their project aims? Does your prototype achieve all the required aims of the client brief? Or could your design be improved with a few minor tweaks to obtain a better system? Or do you think a different approach to the design problem would yield greater success (especially as you have seen other team's designs in action)?

This is an important section of the report, in which you can demonstrate your ability to evaluate the performance of an engineering device.

Around 1 page.

7 Conclusion

Summarise your final design (1-3 sentences).

Discuss how successfully the final design addressed the design problem, referring to key aspects or innovations in the design that you feel were significant, and referring to how your design performed in final testing (and in any preliminary testing, if you want) – 5-6 sentences.

Summarise the outcomes of the design project (1-2 sentences). These could be recommendations and individual/team learning.

Further details can be found at:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/Conclusions-and-Recommendations.html

8 References

You must cite references in the text of the report. Please use the Harvard referencing style for this report. A list of references at the end of the report without this will not attract full marks. Very few references, or references with details missing (e.g. year, publisher or place of publication (for books), or date of access (for URLs)), will also not attract full marks for referencing.

Examples of referencing can be found at:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/References.html

9 Appendices

(if any) Set out with captions and brief notes. Link to text. For examples, see:

http://iwrite.unsw.edu.au/iwrite/ENGINEERING/Reports/Design-Reports/DesignReport-Overview/Appendices.html

Final Notes

Proofread the report. You have a team of at least 6 people and can easily afford to have all parts of the report checked by a team member who did not write them. Failure to properly check the final report will be viewed unfavourably during marking.