

Complement of Guidelines for the Elaboration of the Final Project Report

ICOM5047 Design Project in Computer Engineering

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1. Introduction

This document provides suggestions related to the presentation of the Final Report for the course “Design Project in Computer Engineering”. As a culminating design experience in Engineering, the project should have taken into account realistic computer engineering constraints as was established in the project proposal and thus, the final project report should consider aspects related to hardware, software and communications. Also, the report should include other important engineering constraints such as quality, manufacturability, economic, legal, environmental, social and ethical, among others.

2. Components and structure of the final report

The final report structure presented here is based on the one presented in [O’Hanlon] with some modifications based on my own experience. The report should contain the following parts:

- Title Page
- Executive Summary
- Table of Contents
- List of Figures
- List of Tables
- Introduction
- Design Criteria and Specifications
- Methods and approach to the solution
- Market overview
- Results and Discussion
- Conclusion and Future Work
- Acknowledgements
- Symbols / Glossary (Optional)
- References
- Appendix

Since you may find Professor O’Hanlon’s and, Jimenez and Santiago’s documents among the course materials, I will focus on specific issues I consider of importance according to ABET criteria and my own experience. I will not discuss here matters of style that you find in the above mentioned references. Also, I will only complement the information in those documents and since the report structure follows very closely the one proposed by O’Hanlon, I will just complement and explain only what I expect differently to [O’Hanlon]. I

also encourage you to submit your report on a CD and use as many of the facilities provided by MS Office, Adobe Acrobat or HTML formats for handling multimedia, e.g. hyperlinks.

3. The Executive Summary

An executive summary may be longer than an abstract and contains a summary of the information in the technical report that may help an executive, a manager or a customer make a decision about accepting the project, purchasing a product or service, or developing a new product. A good executive summary contains the same basic elements of a good abstract but more technical details can be included. The executive summary should also contain information about the impacts of the project in terms of economic or other types of benefits *e.g.* return of investment, financing, etc. as needed. For this course, the maximum length of the executive summary should be 2 pages and should present compelling arguments to help the reader make an informed and right decision. While a good abstract entices the readers to read a paper or essay, the executive summary is a work document to assist the decision makers opt for a decision. Remember that the person who makes a decision may not have a technical education like yours and may not fully understand all the technical details and jargon in the report. Therefore you should only provide sufficient and necessary information about the relevant technical aspects that supports the economic information to help make a sound decision and feel sure about it. The executive summary is not for the people who will maintain, update, redesign, complement or upgrade the system and so the technical details required for these tasks should not be included in the executive summary.

4. The Table of contents, the list of figures and the list of tables

My suggestion is to use the navigation tools available in MS Office, Adobe or HTML to use these tables as navigation aids. The legends in these tables can be links to the different components of the report. For example, when using MS Office, one of the options when generating the table of contents automatically is to use hyperlinks. Similar options are possible in pdf and html formats.

5. The Introduction section in the report

The structure of the Introduction is the same as the one suggested in [O'Hanlon].

6. The sections of Design Criteria and Specifications, Approach to the solution and Market overview

In these sections you should detail the design criteria and specifications including, as in the proposal, realistic engineering constraints including quality, manufacturability, economic, legal, environmental, social and ethical, etc. Some of these constraints are not mentioned in [o-Hanlon] but are required in the project report for this course.

You should also discuss your approach to the work, describing how each task was executed, how the responsibilities and functions were divided among you and how the budget was finally used in each of the tasks.

Additionally, you should present a market overview section where potential customers and users are identified. This section should also identify other similar products, competitors and what makes your product unique or competitive.

7. The Results and Discussion sections

The results and discussion section should include the aspects referred to in the Design Criteria. I repeat them here to make sure you include them in all the parts of your report. These aspects are among others, technical, quality, manufacturability, economic, legal, environmental, social and ethical. In regard to the economic aspects you should include an analysis of the budget vs. actual expenditure. This information should come from the analysis of the time sheets that you should have filled during the project. Any differences should be analyzed and explained. It is important to note that whether or not your actual costs are higher or lower than the budget will not affect your grade. The quality of your analysis and justification is what counts in this aspect of the report. You should also analyze the Project schedule as was presented in your proposal and discuss and justify the differences with the final one. Your grade in this aspect depends on your analysis of the differences between the proposal and the actual work and the explanations of your corrective measures and contingency management when needed and taken.

8. The sections Conclusion and Future Work, Acknowledgements, Symbols / Glossary (Optional) and References

The description given in [O'Hanlon] applies for your report. I just want to emphasize the importance of using bibliographic references throughout the report since they support your decisions and help justify the relevance of and the value added by your project.

9. The Appendix of the Report

For this specific project you should include in your appendix all the schematics and other technical diagrams, the source code and any executable code you have. The appendix may be delivered on a CD or DVD. Your appendix should also include detailed instructions about compilation, installation and deployment or any other instruction necessary to run and maintain the current modules of the system and for other engineers to add other modules or make changes to the ones developed by you, when necessary. The appendix can be in several separate files and you may just include the corresponding hyperlinks in the text of your report if your report is in electronic, or optic form, or directions to find the file (hyperlinks to executable files may not be advisable). Your back matter as it is referred to by [O'Hanlon] can contain several appendices, e.g. Appendix A – Case Diagrams, Appendix B – Class Diagrams, etc. An appendix such as the Diagrams mentioned above may just contain hyperlinks to the corresponding Rational Rose or MS Visio files. Other appendices with instructions may include text and hyperlinks when necessary or suitable.