

## **Capstone Project I** **Report Specifications**

The following is a detailed explanation of the structure and format of the technical report.

### **Cover Sheet**

Institution Name – [link](#) for CADT's logo  
Title of Project  
Author(s) of Project  
Course Title  
Project Supervisor (Advisor)  
Date

### **Report Summary (about 1 page)**

The report summary is a 1-page summary of the entire report. It should contain all of the major points and the following organization is suggested:

#### ***Foreword***

- Give the problem statement including the organizational problem, (the purpose of capstone Projects, the context of your particular project) and the general technical problem (the type of project are you doing (software prototype, hardware prototype, simulation, application program for a client, etc)).
- Give a more specific assignment statement - an overview of the project goals, the technical questions, task, and perhaps the hypothesis or solution. - State the overall purpose of the report.

#### ***Summary***

- Provide the objective and background (how problem was approached, what were the results) including objective and results.
- Give overall conclusions about project including recommendations for improvements.

### **Table of contents (with page numbers)**

### **Table of figures and tables (with page numbers)**

### **Introduction (about 2 or 4 pages)**

The introduction should orient the reader to the topic of the report by including the following:

The problem - Explain the particular problem that is addressed in the report.

The objective - State the assignment (what your project needs to accomplish to solve the problem).

### **Background (3-6 pages)**

Discuss the context and history of this general topic and describe what has been done in the past.

Answer the question: What are the most important issues for this topic in terms of the goals of the project and the effects on society? Write about the following issues:

- economic: effect of this topic on the economy in the past, possible cost of project development, cost of materials, target cost if project is marketed.

- environmental: influence on the environment in the past, possible effects for future developments
- sustainability: product life cycle, future markets
- manufacturability: material availability, use of off the shelf versus custom components, special needs for hostile environments
- ethical: uses that could cause harm to society, ethical issues that someone working on this topic might encounter
- health and safety: positive or negative impacts on the health and safety of individuals or society for past or future applications in this topic.
- social: relationship of this topic to social aspects of society such as education, culture, communication, entertainment.

Previous work - Explain what already has been done on this topic. Include literature search results for the OVERALL problem and context rather than the options for component parts here.

## **Design Requirements**

Specifications and requirements for the project

## **Implementation (5-10 pages)**

Describe the project and its functions (include diagrams, code examples, and other figures in the body of the text and refer to any large engineering drawings, listings, etc. in the appendices in the body of the text). Discuss the problems that appeared during the design and implementation phases. Organize the implementation presentation by functional groups. Discuss and present the calculations used in the design of the project in the relevant subsections. Summarize repetitive calculations in tables.

## **Discussion, Conclusions, and Recommendations (2-4 pages)**

Restate the problem that gave rise to the report.

Summarize the main points and the approach that was taken. Summarize the design performance. Provide recommendations, explaining subsequent action or posing specific questions for investigations. Discuss the lessons learned.

## **References**

Give a bibliography listing all references used for background work, the specification of parts, cost comparisons, etc.

## **Appendices**

Put oversized drawings and long programs here.

## **General Report Guidelines**

### **General Guidelines**

The manuscript must be typed in Times New Roman font size 10, single column, single space, follow the margins of this document.

Number each page.

Use bulleted or enumerated lists rather than lengthy textual discussion of requirements, subsystems, etc.

## **Figures and Tables**

### ***Figure titles and numbering***

Figures should be numbered consecutively in the report.

Every figure must have a descriptive title located immediately below the figure.

### ***Table titles and numbers***

Tables should be numbered consecutively in the report.

Every table must have a descriptive title located above or below the table.

## **References**

All references should include author, title, journal or magazine title (if a journal article), publisher, page number, date. Below are sample references from a conference proceeding paper [1], book [2], journal article [3], Ph.D. Dissertation [4], technical specification [5] and web page.

- [1] P. J. Hurst and W. J. McIntyre, "Double sampling in switched-capacitor delta-sigma A/D converters," in Proc. IEEE Int. Symposium on. Circuits and Systems., 1990, pp. 902.-905.
- [2] J. C. Candy and G. C. Temes, Oversampling Delta-Sigma Data Converters: Theory, Design and Simulation. New York: IEEE Press, 1992.
- [3] L. R. Rabiner, R. W. Schafer, and C. M. Rader, "The chirp z-transform algorithm," IEEE Trans. on Audio Electroacoustics., AU-17:6 (June, 1969), pp. 86-92.
- [4] S. Bagchi, "The nonuniform discrete Fourier transform and its applications in signal processing," Ph.D. Dissertation, Electrical Engineering Department, Univ. California, Santa Barbara, 1994.
- [5] Motorola CMOS Logic Data, Series C, Motorola, INC, 1990, pp. 6-97 - 6-107.
- [6] EE Design Center - Questlink Technology, [www.questlink.com](http://www.questlink.com), 1999.