**Outline of Contents for the Final Project Report**

**(your report MUST use Times New Roman, 12pt font)**

**Note: For each section/sub-section, report must include the name of the team member responsible for writing that sub-section.**

Title Page

Summary or Abstract

Table of Contents

List of Figures

List of Tables

I. INTRODUCTION

1. Background
2. Statement of the Problem

II. SCOPE OF WORK

1. Overview
2. Literature Review
3. Alternative Solutions
4. Evaluation
5. Decision

III. IMPLEMENTATION DETAILS (for final report)

1. System Specifications and Functionalities
2. Overall System Design with Block Diagram(s)
3. Circuit diagrams, Flowcharts and/or Use Case Diagrams
4. Technology and Technical Standards used
5. Testing and Performance Evaluation
6. Discussions on Lessons Learned

IV. CONCLUSION

V. REFERENCES

VII. PERSONNEL/ORGANIZATION CHART

Appendices

1. Detailed Component-wise Schematics with Pin Connections
2. Detailed PCB Board Designs
3. Detailed use cases

**Explanation of Each Section of the Proposal/Final Report**

This section explains the purpose and contents of each section of the proposal.

**Title Page**

The title page for your proposal should contain the title of proposed project, followed by ‘A Proposal Submitted by’, your group number, names and affiliations, and date, all of which should be centered in the page.

Include the Problem Sponsor name and organization.

**Summary or Abstract**

A summary or abstract typically accompanies proposals that are reviewed at several levels in the sponsor organization. A busy executive may not have time to read the total proposal. A summary, therefore, is a brief condensation of the proposal identifying the project problem, describing the proposed solution, and indicating that the design approach meets all specifications and criteria.

**Table of Contents, List of Figures, List of Tables**

Any proposal of more than five pages should have a Table of Contents. The Table of Contents should include all the main headings in the proposal, showing page numbers. Teams should make sure that headings in the Table of Contents are worded exactly as they are worded in the proposal itself. Following the Table of Contents is a List of Figures and a List of Tables (the figures and tables themselves are embedded in the text). Include only necessary figures and tables that contribute to the reader’s rapid comprehension of material. Several figures common to most proposals would be an organization chart and a project schedule. Proposals that evaluate various alternative solutions would include a decision matrix.

**INTRODUCTION**

The Introduction is the first section in the main body of the paper. As such, it is headed with a First Level Heading (e.g., I. INTRODUCTION). At the very start of the Introduction, provide an overview of the whole proposal in one or two sentences. It is suggested to use the following boilerplate:

This proposal responds to an RFP from [sponsoring company] [include date, if known, or title of RFP]. The [sponsoring company] seeks a solution to the [describe the problem to be addressed]. The [sponsoring company] requests [describe the main deliverables the sponsor expects.]

The Introduction includes a Statement of the Problem along with necessary background information. Describing the problem to be solved is important in both solicited and unsolicited proposals, even though the writer knows that the recipients understand their own problem. In solicited proposals, the problem statement shows that the writer, too, understands the problem and has the readers’ concerns in mind when setting forth a solution. In unsolicited proposals the writer often needs to convince the reader that the problem exists. In some proposals the background information and statement of the problem have their own subheads. In other proposals, the background information is woven smoothly into the statement of the problem.

**Background**

To provide a context for the reader, the writer often needs to supply background information about the company and the history of the problem to be solved. Organizationally this section is headed with a Second Level Heading, e.g., A. Background (Continue to follow these style guidelines for the remainder of your proposal.)

In the background section the conditions leading up to the problem are described, indicating why the problem is now being considered and why it is important to the company. If previous attempts at solution have been made, they are described along with their results and shortcomings. A brief review of the literature is sometimes given at this point. Often a better place to put literature review is in the Scope of Work section as an introduction to Alternative Solutions. What the writer needs to show is an understanding of the total context of the problem and an awareness of previous work in the area.

**Statement of the Problem**

The team spends a paragraph to several pages defining the problem, its significance, its ramifications, and its relation to larger problems or issues. In this section the team must also identify the specifications, criteria, and constraints described by the sponsor in the RFP. By the end of the introduction the reader knows what the problem is, why it is important to the sponsor, why it is problematic technically, and what specifications and criteria a suitable solution must meet.

**SCOPE OF WORK**

This section summarizes what the project team actually proposes to do. Usually the Scope of Work involves several stages with different goals for each stage and ends in some kind of final product. This section differs from the Plan of Implementation in that the Plan of Implementation section focuses more on the “how we will do it” rather than “what will we do.”

**Overview**

The Overview section of the Scope of Work should summarize what the team will do for the project and specify deliverables. Often work will be divided into several stages such as a research stage, a design stage, a construction stage, and a final testing/calibration stage. These stages should be specified and described briefly in the Overview section to provide a clear statement of all the work to be done. You will need to work cooperatively with your faculty project advisor and sponsor liaison, who must approve your design plan.

**Literature Review**

To keep from re-inventing the wheel and to be professionally aware of the state-of-the-art on any design question, effective engineers and computer scientists search and review the available literature before tackling a design problem. What has been published in the professional literature that has bearing on your design problem? In this section, briefly review the relevant literature by summarizing findings that may advance your project. An alternative approach is to work references to the literature into the body of your proposal where they are most relevant.

**Alternative Solutions**

In this section, you explain different approaches your team considered toward solving the client’s problem. Devote one subsection of “Alternative Solutions” to each possible design approach. First describe the approach. Then analyze its strengths and weaknesses in terms of technical and economic feasibility.

In some cases, depending on the nature of the project and the needs and specifications of the sponsor, a detailed section on alternative solutions is not necessary. Of course, all designs require some consideration of alternative solutions, such as selection of types of materials.

You will also need to leave yourself open to modifying your design if subsequent work reveals new problems or better solutions.

This section presents numerous organizational difficulties that the writers need to solve. Typically your team would describe two or more alternative solutions and to compare and contrast their respective strengths and weaknesses. Good transitions, topic sentences, and mapping statements are crucial. Often the strengths and weaknesses of each approach are displayed in bulleted lists. Good technical writing demands that all listed items are grammatically parallel.

**Evaluation**

In this section you describe the criteria you used to evaluate the design approaches and justify the weights you give to each. Discuss external constraints including economic, environmental, sustainability (e.g., long term availability of parts, equipment, or staff to continue the processes), manufacturability, ethical, health and safety, social, and political constraints. Often this section will refer to a decision-matrix figure that displays each of your criteria, assigns relative weights to them, and scores each alternative against each criterion in turn. This section talks your reader through the decision matrix.

**Decision**

In this section you show how the evaluation process identifies the strongest alternative solution. Your team’s decision governs the rest of your project because it determines the design approach you will pursue from here on out. Convincing your client that this approach is superior to alternatives is crucial to your proposal argument.

**IMPLEMENTATION DETAILS**

This section explains how the work was accomplished. It is crucial for “selling” your project to a prospective client. The reader wants to know that the methods were used, the levels of performance, and whether the product meets the promised results (requirements). Because a project is often a single and non-repetitive enterprise, its achievement must be based on careful planning within a time limit and a cost budget.

**Describe the implementation details with functional blocks, circuit diagrams, interface figures, flow charts etc. You need to show your testing and performance evaluation results with charts, figures and diagrams. You also need to write what works and what does not. At the end, you need to make some concluding remarks so readers will learn from your experience if then follow your steps.**

**CONCLUSIONS (for report only)**

Here you summarize what you have achieved over the course of the entire design. You may also add your thoughts on how the project could be improved if you had chance to do it again.

**PERSONNEL/ORGANIZATION CHART**

The people who will be doing the work, or at least the major discipline leaders, are shown in the Personnel section. A diagram is used in most cases to show the major groupings of tasks and the group leader for each group of tasks. The diagram shows both the organizational structure of the team and the relationship of the team to the sponsor organization, the sponsor liaison or project manager, and the faculty advisor. It is typical in this section to make brief comments about the special capabilities of each group leader and to amplify these comments in the appendix with a fully developed one or two-page resume of all persons shown in the organization chart.

**REFERENCES**

This section cites any material which was utilized in providing information for the proposal. It could include technical journals, texts, newspaper articles, or other such sources of material.

**Appendices**

As in all written documents, Appendices should contain supplemental material that cannot easily and concisely be placed in the body of the document. In the case of proposals, Appendices would include the original statement of work, sometimes called the request for proposal (RFP), resumes, and information on the team and previous work that the team or company has done in areas similar to those covered by the proposal.

In the case of reports, you need to append circuit diagrams, interface diagrams, programs etc. that are crucial to your implementation.