VTOL Aırcraft

ME 429 Mechanical and Thermal Design



Department of Mechanical Engineering

Boğaziçi University

Metin ÖZ

Harun ÜNER

# Executive Summary

Since readers look into the executive summary before they read the entire report. An executive summary should summarize the key points of the report. It should restate the purpose of the project, highlight the major progress in the project execution, and describe any results, conclusions, or recommendations from the report.

An executive summary is usually 500-1000 words in length, it is written as one page, it may include numerical information about the procedure and the results, it should not include any information that is not reported in the report, abbreviations should not be used unless they are spelled out in the summary, citations or references are not given in the summary.

# Introduction

This section of the report usually problem statement which states why that particular subject is chosen. It establishes the importance of the subject by reviewing relevant literature, including academic papers, patents, books, web sites, etc. Relevant references are discussed and a theoretical background is provided based on the literature review. Significance of the project should be clearly stated. Already existing products and designs should be benchmarked and the drawbacks should be stated. This section should be kept brief and to the point in 8-10 pages.

# Design Process

This section should be 10-20 pages long and should include the following subsections:

## Design Criteria and Product Design Specifications

The reasons why the design criteria are chosen and the relevance of the criteria to the product in particular should be explained. All assumptions should be stated. Product design specification should be brief and clear. Use the template provided. Binary Dominance Matrix should be stated here.

## Overview of Possible Solutions

Possible Solutions should be proposed with clear sketches and explained clearly. Decision Matrix should be provided here.

## Detailed Design and Analysis

Use figures, tables, free body diagrams and/or sketches (no hand sketches!) to explain your analysis. (analytical formulations, numerical results, cost analysis)

## Project Management

Work Packages (tasks and subtasks), roles of team members, resources, Ghent Chart including this term (ME 429) and next term (ME492) with clearly stated subtasks, milestones, etc.

# Discussion

This section may be 2-4 pages. In this section, statements given in Design Process are discussed and interpreted. Future work should also be stated. What further research can be done in the field you have chosen? Highlight any failures, problems or constraints that have affected progress, and describe the measures taken to respond to them. Describe key lessons learned, that are important to your project or that may be of use to others doing future work related to the project. They may relate to any of the following: successes, strategies adopted, challenges you are facing, surprise results, management processes, or technical understanding. . Explain the importance of the topic in your future professional life and society in general. Provide some self-reflection about the design and report writing process. How do you evaluate the contributions of this design process to your academic development? Do you intend to work in the future in the field in general and the topic you have chosen in particular?

# Conclusion

This section is a restatement of the information given in the report overall. No new topics are introduced or discussed. Conclusions/implications are drawn. This section may be 1-2 pages.

# References

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# Appendices

All source codes, technical drawings with dimensions, material data sheets etc. should be givens in appendices as “Appendix A: Python source code for pattern recognition” Appendix B: “Material Data Sheet for foaming Agent” etc.