ME 429 THERMAL AND MECHANICAL DESIGN
FORMAT FOR REPORTS

Your project report should be 40-50 pages in length (excluding Appendices) and consist of the following sections: "**Title Page**", "**Executive Summary**", "**Introduction**", "**Design Process**", "**Discussion**", "**Conclusion**", "**References**", and "**Appendices**".

Title Page: A title should be properly chosen to suit the content of the report. It can contain an acronym and may be different from the project title you have been given. Title page should also contain date, names of the project team members, institution name.

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.

I-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.

II-Design Process:

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

2.1 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.

2.2. Overview of possible solutions. Possible Solutions should be proposed with clear sketches and explained clearly. Decision Matrix should be provided here.

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

2.4 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.

III. Discussions: 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?

IV Conclusions: 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: The references list all the publications used for the term report. A reference mustn't be listed if it is not used in the text. In the list, references are indicated numerically. **They must be given in the text in the same order as they are listed in References section.**

Example references:

1. Doebelin, E. O., *Control System Principles and Design*, John Wiley & Sons, Inc., New York, NY, USA, 1985.
2. Schneider, J., "The Extrasolar Planets Encyclopaedia", 2010, http://exoplanet.eu/catalog.php, May 2011.
3. Aran, O., I. Ari, A. Guvensan, H. Haberdar, Z. Kurt, I. Turkmen, A. Uyar, and L. Akarun, "A Database of Non-Manual Signs in Turkish Sign Language", *Signal Processing and Communications Applications, 2007. SIU 2007. IEEE 15th*, pp. 1–4, 2007.
4. Liu, W., *Development of Finite Element Procedures for Fluid-Structure Interaction*, Ph.D. Thesis, California Institute of Technology, 1981.
5. Hoogendoorn, M., J. Treur, and P. Yolum, "A Labeled Graph Approach to Analyze Organizational Performance", *Proceedings of the 2006 IEEE/WIC/ACM International Conference on Intelligent Agent Technology*, 2006.

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.

EXTREMELY IMPORTANT:

1. Books, journals, WEB sites can be used as a reference. A minimum of 10 references will be cited, out of which a half will be of book or journal report in nature. When a WEB report is referred to, author name & affiliation must be provided as for the books or journal reports.
2. You can use the web sources such as www.webofknowledge.com or www.sciencedirect.com you can access these on-line databases through Boğaziçi University library gateway, http://www.library.boun.edu.tr/veritabanlari.php#W or directly if you use VPN service of the university https://bilgiislem.boun.edu.tr/tr/boun-vpn-hizmeti
3. Be aware that PLAGIARISM is a serious offence with serious consequences. Copying a text directly from a report without giving it in quotations (even if a reference number is given) is plagiarism. DO NOT DIRECTLY COPY (STEAL) INFORMATION. REWORD/REPHRASE IT. MAKE IT YOUR OWN.
4. The report should be submitted electronically as a "Turnitin Assignment". When you upload your report to Moodle, Turnitin will compare it to all electronic sources and then provide you a report about similarities to electronic resources, and if the similarity is more than the limit specified by the instructor, you have another chance to rewrite and upload it again, however in order to avoid several trial and errors, try to make it at first go.
5. Furthermore, Turnitin compares your report to those of your classmates, and this is only visible to the instructor. A recent control added to Turnitin can detect the AI generated content, so avoid using such tools.
6. Be clear and concise in your writing. Dumping unnecessarily long information WILL NOT

earn you any credit. Your report will be assessed according to the quality of the content, not the length.

7. Explain figures/tables and refer to them in the text appropriately to help readers understand your text better. Do not give a figure or table if not explained in the text. Tell the reader what the figure/table shows and why you are using it.
8. Tables and figures, used in Introduction, Design Process, and Discussions sections, should be numbered separately. Each table and figure must have a caption. Figure captions should be located below figures, whereas table captions should be placed above tables. (e.g.; Table 1. Hardness data for 1040 quenched steel. Figure 1. A plot of hardness versus depth.)
9. Use A4 size report with the following page margins: Left=25mm; Right=20mm; Top=25mm; Bottom=20mm. Limit number of pages to 10 (including the cover page). Use font "Times New Roman", font size of 12, and line spacing of 1. Insert page numbers at bottom right.

RUBRIC for REPORTS

TOPIC	MARKS
Executive Summary	5
Introduction: Problem statement, Literature and Patent review, critical evaluation of the state of the art of the already existing products	10
Product Design	
Descriptions/ Assumptions/ Design Criteria/ Binary Dominance Matrix	10
Design Alternatives/Decision Matrix	10
Design Analysis (Technical Drawings, Dimensions, Simulations, Thermal Calculations, Motion Analysis, Strength Calculations, etc.)	30
Cost analysis	5
Project Management (including roles, resources, tasks, Ghent Chart for two semesters)	5
Discussion/Conclusions	10
References Are proper references given to the Tables and Figures taken from other sources? Are the figures/tables/equations explained and referred in the text appropriately? Are the references cited properly? Are there minimum 10 references?	5
Neatness Is the report written according the page format specified? Are the Tables and Figures clear and easy to understand? Are the sentences and paragraphs of appropriate length? Are paragraphs separated properly? Are the contents of the pages organized properly with minimum blank? Are the Figures and Tables referred before they appear? Are the pages, sections and subsections numbered properly?	10
TOTAL	100

RUBRIC for PRESENTATIONS

A guideline can be found at: Tips on How to Make PPT for Final Year Project

More artistic touches can be found at A Non-Designer s Guide to Creating Memorable Visual Slides by Visme

TOPIC	MARKS
Brief statement of the problem	10
Brief overview of the proposed design including Product Design Specification	20
Detailed Design and Analysis Technical Drawings, Dimensions, Simulations, Thermal Calculations, Motion Analysis, Strength Calculations, etc.)	30
Cost analysis	10
Project Management including roles, resources, tasks, Ghent Chart for two semesters	10
Presentation Skills • A clear outline is used • Presentation is completed within the proposed duration? (+/1 minutes) • All team members participated equally and enthusiastically • Slide contents clear and readable, proper fonts and colors used • Slides are numbered • Ideas conveyed effectively • Less words and more infographics, sketches, drawings, simulations • Bullet points instead of long paragraphs • Minimum number of equations used, variables explained.	20
TOTAL	100