

Design Reports - Guidelines

Corso Materiali Intelligenti e Biomimetici

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Design Reports

Design reports are written to show how engineers use the **design process** to arrive at an **effective design**.

The design process can follow many strategies, but the main steps usually involve *identifying customer needs*, generating *design concepts*, **narrowing and selecting a design concept to prototype** (and then testing and redesigning a series prototypes to arrive at a final design).

- providing your reader with a **clear map** of your report;
- writing up your *analysis and outcomes* in appropriate **descriptive and summary vocabulary**;
- using well-designed **explanatory charts and clear equations**;
- The **body of the report** should be no more than *ten pages*.
- Detailed design work, drawings, diagrams, engineering analyses, should be referred to in the body of the report and then included as annex/attachments.



Design Report Structure

Title page: title of project, authors, date

Summary: the summary page sets the problem in **context**, summarises what you have done and provides the **key outcomes**.

Table of contents: this page **clearly outlines each part of the report** using section headings and page numbers.

Introduction: the introduction *introduces and situates the problem* and discusses any **previous research in the area** -> underline what it's missing and what your project aim to improve. Introduce **your solution**.

Design process (flow or gantt chart), **design overview** (schematic description of the different device parts -> neat hand sketch, CAD drawing).

Analysis section/s (often given a specific title): you need to provide a summary walkthrough of the *analysis which led to your final design choices*. Keep it **simple, use only key charts and equations**.

Conclusion: this should give a brief summary of what you have done and include your final recommendations.

Bibliography: a wider reading list of other books and resources you used but did not refer to directly in the report.

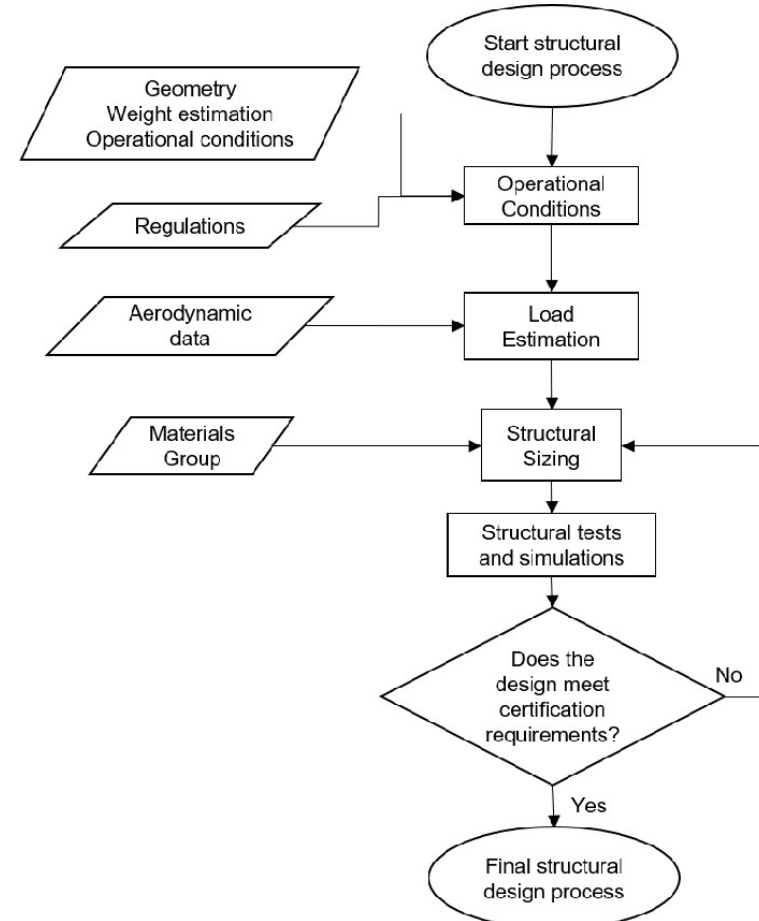
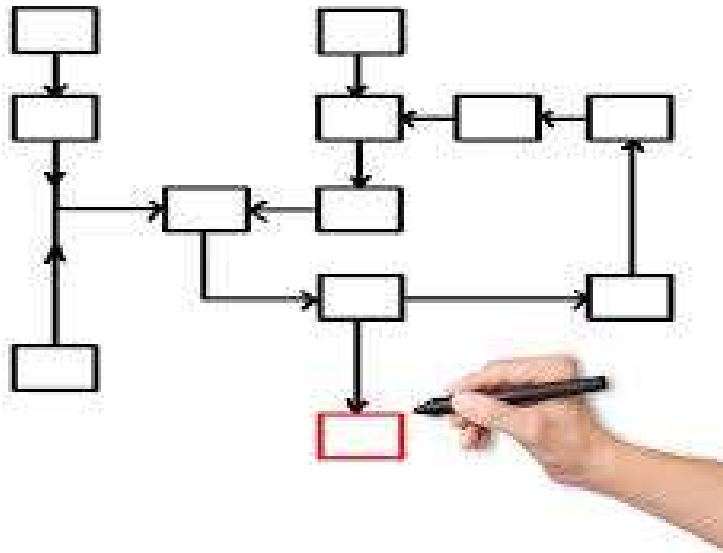
Appendices: you may have more than one appendix which will describe in detail, if necessary, the analyses you have undertaken for the brief and the data you obtained.

Gantt Charts

Task Name	Q1 2019			Q2 2019		Q3 2019
	Jan 19	Feb 19	Mar 19	Apr 19	Jun 19	Jul 19
Planning						
Research						
Design						
Implementation						
Follow up						

Work packages (eg. Sensing, actuation, ...), which may include different tasks (e.g. motor choice, motor calibration)

Design Flow Charts



Scoring Matrix

Criteria	Reference	Design 1	Design 2	Design 3	Design 4
	Score	Score	Score	Score	Score
Balance	0	-	-	+	0
Weight	0	-	-	+	-
Cost	0	0	0	+	+
Aerodynamics	0	+	0	-	+
Durability	0	+	+	+	+
Flexibility	0	+	0	0	-
Style	0	+	+	0	+
Total +	0	4	2	4	4
Total 0	7	1	3	2	1
Total -	0	2	2	1	2
Net Score	0	2	0	3	2
Continue?		Yes	No	Yes	Combine

Others: pro/cons charts, technical data comparison