

Booming Bass Project

Sound, Filtering and Power:
Designing a Sound Amplifier System

EE1L1: Integrated Project 1

Supervisor: H.Bosma

Itay Givony, Alex Guo, Noah Herijgers, Niek van Vroonhoven, Gerrald van Weelden.

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by

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Style:	TU Delft Report Style, with modifications by Daan Zwaneveld

Preface

A preface...

*Supervisor: H. Bosma
Itay Givony, Alex Guo, Noah Herijgers, Niek van Vroonhoven, Gerrald van Weelden.
Delft, November 2024*

Summary

A summary...

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Nomenclature

If a nomenclature is required, a simple template can be found below for convenience. Feel free to use, adapt or completely remove.

Abbreviations

Abbreviation	Definition
ISA	International Standard Atmosphere
...	

Symbols

Symbol	Definition	Unit
V	Velocity	[m/s]
...		
ρ	Density	[kg/m ³]
...		

1

Introduction

An introduction... [2] [3] [1]

A short run test of whether the LaTeX and chkTeX even will work in this file: $f(x) = \int_{-\infty}^{\infty} \frac{\Omega(\varphi)}{\varrho}$

2

About the Template

This template aims to simplify and improve the (Xe)LaTeX report/thesis template by Delft University of Technology with the following three main design principles:

- **Simplicity First:** A class file that has been reduced by nearly 70% to simplify customization;
- **Effortless:** A careful selection of common packages to get started immediately;
- **Complete:** Ready-to-go when it comes to the document and file structure.

This template works with pdfLaTeX, XeLaTeX and LuaLaTeX. In order to adhere to the TU Delft house style, either XeLaTeX or LuaLaTeX is required, as it supports TrueType and OpenType fonts. BibLaTeX is used for the bibliography with as backend biber. Please visit <https://dzwaneveld.github.io/report/> for the full documentation.

Documentation (Abridged)

As a report/thesis is generally a substantial document, the chapters and appendices have been separated into different files and folders for convenience. The folders are based on the three parts in the document: the frontmatter, mainmatter and appendix. All files are inserted in the main file, `report.tex`, using the `\input{filename}` command. The document class, which can be found in `tudelft-report.cls`, is based on the book class.

The template will automatically generate a cover when the `\makecover` command is used. The title, subtitle and author will also be present on the title page. To give greater flexibility over the title page, the layout is specified in `title-report.tex`. A title page for theses is also available: `title-thesis.tex`. Change the corresponding `\input{...}` command in the main file to switch.

The bibliography has been set up in `report.tex` to allow for easy customization. It is included in the table of contents and renamed to 'References' using the `heading=bibintoc` and `title=References` options of the `\printbibliography` command respectively. If you would like to use a different `.bib` file, change the command `\addbibresourcereport.bib` accordingly.

→ Visit <https://dzwaneveld.github.io/report/> for the full documentation.

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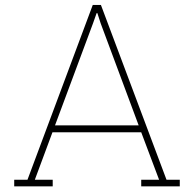
3

Conclusion

A conclusion...

References

- [1] A. Einstein. “Eine neue Bestimmung der Moleküldimensionen”. In: *Annalen der Physik* 324.2 (1906), pp. 289–306. DOI: 10.1002/andp.19063240204.
- [2] Roel Grit. *Project Management: A Practical Approach*. 4th ed. Groningen, The Netherlands: Noordhoff Uitgevers, 2015.
- [3] I. Surname, I. Surname, and I. Surname. “The Title of the Article”. In: *The Title of the Journal* 1.2 (2000), pp. 123–456.



Source Code Example

Adding source code to your report/thesis is supported with the package listings. An example can be found below. Files can be added using \lstinputlisting[language=<language>]{<filename>}.

```
1 """
2 ISA_Calculator: import the function, specify the height and it will return a
3 list in the following format: [Temperature, Density, Pressure, Speed of Sound].
4 Note that there is no check to see if the maximum altitude is reached.
5 """
6
7 import math
8 g0 = 9.80665
9 R = 287.0
10 layer1 = [0, 288.15, 101325.0]
11 alt = [0, 11000, 20000, 32000, 47000, 51000, 71000, 86000]
12 a = [-.0065, 0, .0010, .0028, 0, -.0028, -.0020]
13
14 def atmosphere(h):
15     for i in range(0, len(alt)-1):
16         if h >= alt[i]:
17             layer0 = layer1[:]
18             layer1[0] = min(h, alt[i+1])
19             if a[i] != 0:
20                 layer1[1] = layer0[1] + a[i]*(layer1[0]-layer0[0])
21                 layer1[2] = layer0[2] * (layer1[1]/layer0[1])**(-g0/(a[i]*R))
22             else:
23                 layer1[2] = layer0[2]*math.exp((-g0/(R*layer1[1]))*(layer1[0]-layer0[0]))
24     return [layer1[1], layer1[2]/(R*layer1[1]), layer1[2], math.sqrt(1.4*R*layer1[1])]
```

B

Task Division Example

If a task division is required, a simple template can be found below for convenience. Feel free to use, adapt or completely remove.

Table B.1: Distribution of the workload

Task		Student Name(s)
	Summary	
Chapter 1	Introduction	
Chapter 2		
Chapter 3		
Chapter *		
Chapter *	Conclusion	
Editors		
CAD and Figures		
Document Design and Layout		