Report Title

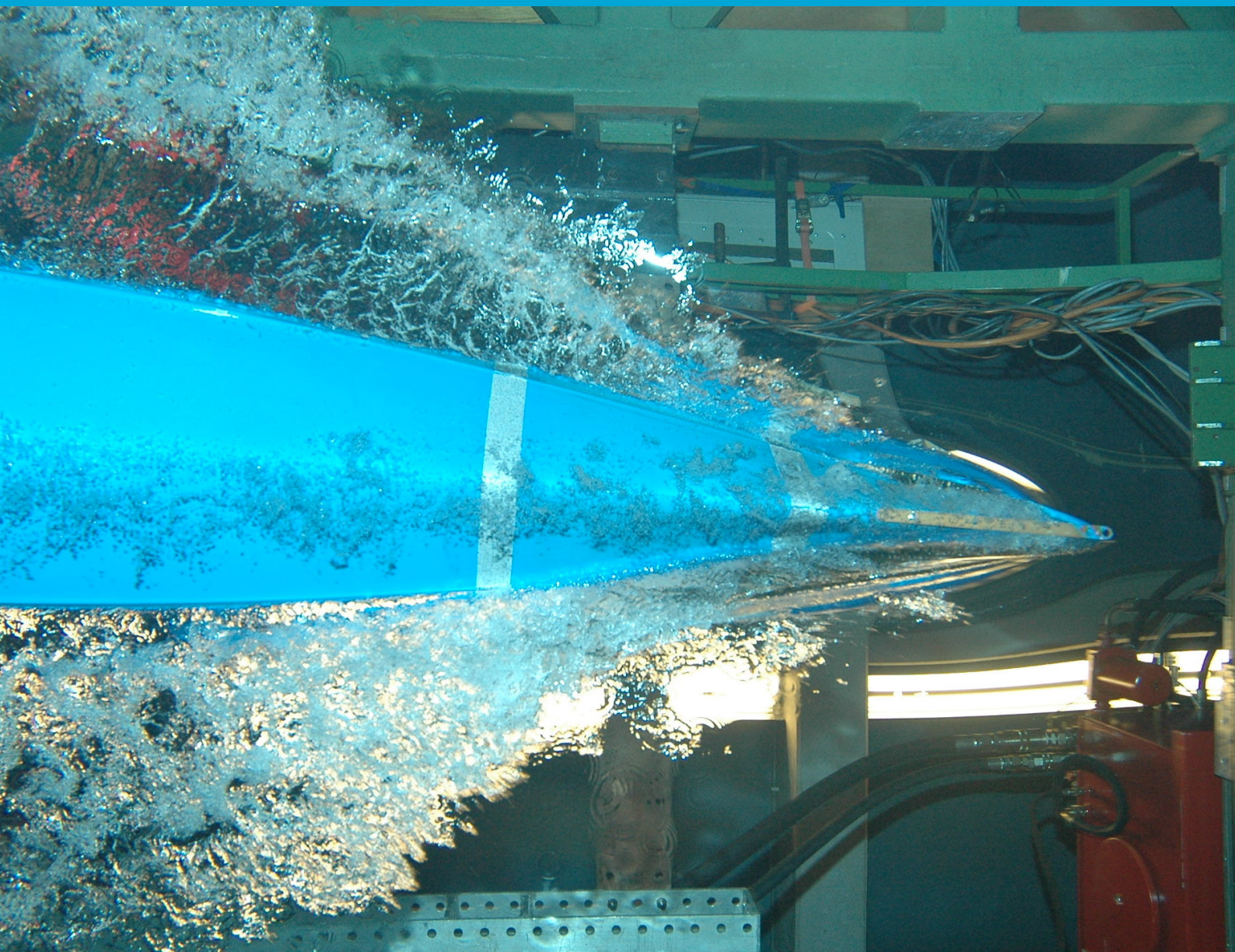
Optional Subtitle

J. Random Author

Cover text

Possibly spanning multiple lines

978-90-8593-000-0



Report Title

Optional Subtitle

by

J. Random Author

to obtain the degree of Master of Science
at the TU Delft,
to be defended publicly on Tuesday January 1, 2013 at 10:00 AM.

Student number:	1234567	
Project duration:	March 1, 2012 – January 1, 2013	
Thesis committee:	Prof. dr. ir. J. Doe,	TU Delft, supervisor
	Dr. E. L. Brown,	TU Delft
	Ir. A. Aaronson,	Acme Corporation

This thesis is confidential and cannot be made public until December 31, 2013.

An electronic version of this thesis is available at http://repository.tudelft.nl/.

TU Delft Delft University of Technology

Preface

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. $\sin^2(\alpha) + \cos^2(\beta) = 1$. If you read this text, you will get no information $E = mc^2$. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. This text should contain all letters of the alphabet and it should be written in of the original language. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. There is no need for special contents, but the length of words should match the language. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$.

J. Random Author
Delft, January 2013

Contents

Preface **iii**

1. Introduction **1**
1.1. Document Structure . . . 1
1.1.1. Bibliography . . . 2
1.2. Cover and Title Page . . . 2
1.3. Chapters . . . 3
1.4. \section{...} . . . 3
1.4.1. \subsection{...} . . . 3
1.5. Fonts and Colors . . . 3

A. Heading on level 0 (chapter) **5**
A.1. Heading on level 1 (section) . . . 5
A.1.1. Heading on level 2 (subsection) . . . 5
A.2. Lists . . . 6
A.2.1. Example for list (itemize) . . . 6
A.2.2. Example for list (enumerate) . . . 6
A.2.3. Example for list (description) . . . 7

Bibliography **9**

1 Introduction

This document is intended to be both an example of the TU Delft LaTeX template for reports which can be used for both BSc and MSc theses, as well as a short introduction to its use. It is not intended to be a general introduction to LaTeX itself,[1] and we will assume the reader to be familiar with the basics of creating and compiling documents.

Instructions on how to use this template under Windows, Linux and MacOS, and which LaTeX packages are required, can be found in `README.txt`.

1.1. Document Structure

Since a report, and especially a thesis, might be a substantial document, it is convenient to break it up into smaller pieces. In this template we therefore give every chapter its own file. The chapters (and appendices) are gathered together in `report.tex`, which is the master file describing the overall structure of the document. `report.tex` starts with the line

```
\documentclass{tudelft-report}
```

which loads the TU Delft report template. The template is based on the LaTeX `scrbook` document class and stored in `tudelft-report.cls`. The document class accepts several comma-separated options. The default language is (UK) English, but this can be changed to Dutch (*e.g.*, for bachelor theses) by specifying the `dutch` option:

```
\documentclass[dutch]{tudelft-report}
```

Furthermore, hyperlinks are shown in blue, which is convenient when reader the report on a computer, but can be expensive when printing and does not serve the purpose it has in a digital document. They can be turned black with the `print` option. This will also turn the chapter numbers grey instead of light blue.

If the document becomes large, it is easy to miss warnings about the layout in the LaTeX output. In order to locate problem areas, add the `draft` option to the `\documentclass` line. This will display a vertical bar in the margins next to the paragraphs that require attention.

This template has the option to generate a cover page by including the file `cover.tex`. See the next section for a detailed description.

The contents of the report are included between the `\begin{document}` and `\end{document}` commands, and split into four parts by

1. `\frontmatter`, which uses Roman numerals for the page numbers and is used for the title page and the table of contents;
2. `\mainmatter`, which uses Arabic numerals for the page numbers and is the style for the chapters;
3. `\appendix`, which uses letters for the chapter numbers, starting with 'A'.

[1] We recommend http://en.wikibooks.org/wiki/LaTeX as a reference and a starting point for new users.

4. `\backmatter`, which has no chapter numbers at all.

The title page is defined in a separate file, `title.tex`. Additionally, it is possible to include a preface, containing, for example, the acknowledgements. An example can be found in `preface.tex`. The table of contents is generated automatically with the `\tableofcontents` command. Chapters are included after `\mainmatter` and appendices after `\appendix`. For example, `\include{introduction}` includes `introduction.tex`.

1.1.1. Bibliography

Lists of references are handled by `biblatex`. The present document has the following preamble

```
\usepackage[style=apa]{biblatex}
\addbibresource{report.bib}
```

The first line tells us that the references will be formatted according to the APA-standards.

The second line points to a file that contains the references in a database-like format. Use one such line for every database that you want to use.

The general way this works is as follows (using the present document as an example):

```
lualatex report
biber report
lualatex report
lualatex report
```

The first line typesets the document and gathers information for the lists of references; the second line will generate lists of references for all chapters, these will be read in during execution of the third and fourth lines. The repetition of `lualatex report` is needed to get all the page numbers in links and references right. Depending on the editor that you use much of this can be done by clicking on a suitable icon or by hitting suitably defined hot keys. On Overleaf, all of this is done when you press `ctrl+r` or `ctrl+enter`.

The `biblatex` package has many options and can be tailored to almost every need; you can explore its documentation at `https://www.ctan.org/pkg/biblatex`

To get numbered references just use

```
\usepackage{biblatex}
\addbibresource{report.bib}
```

That is, remove `style=apa`.

To give some examples we cite an article: Einstein [1], a book: Engelking [2], another article: Hart [4], and a book with more than one editor: Hart, Mill and Simon [3].

1.2. Cover and Title Page

This template will automatically generate a cover page if you include the file `cover.tex`. This file defines three commands:

`\MakeCoverFront` inserts just the front cover

`\MakeCoverFull` inserts the complete cover (front, back, and spine) with some 'bleed', i.e., a slightly enlarged edge to allow for cutting of the page after printing.

`\MakeCoverBack` inserts just the back cover

`cover.tex` can be adapted according to your liking; this process is relatively free-format, with some examples given in `cover.tex`.

For a thesis it is desirable to have a title page within the document, containing information like the thesis committee members. To give you greater flexibility over the layout of this page, it is described in the file `title.tex`. Modify this file according to your needs. The example text is in English, but Dutch translations are provided in the comments. Note that for a thesis, the title page is subject to requirements which differ by faculty. Make sure to check these requirements before printing.

1.3. Chapters

Each chapter has its own file. For example, the LaTeX source of this chapter can be found in `introduction.tex`. A chapter starts with the command

```
\chapter{Chapter title}
```

This starts a new page, prints the chapter number and title and adds a link in the table of contents. If the title is very long, it may be desirable to use a shorter version in the page headers and the table of contents. This can be achieved by specifying the short title in brackets:

```
\chapter[Short title]{Very long title with many words
  which could not possibly fit on one line}
```

Chapters are subdivided into sections, subsections, subsubsections, and, optionally, paragraphs and subparagraphs. All can have a title, but only sections and subsections are numbered:

1.4. \section{...}

1.4.1. \subsection{...}

\subsubsection{...}

\paragraph{...}

1.5. Fonts and Colors

The main font in this template is Arial, with the main headers in Roboto Slab, according to the TU Delft corporate style. Alternatively, using the class option `\documentclass[fourier]`, the serif font Utopia can be used (provided by the package `fourier`). In that latter case, Helvetica will be used in the main headers.

The corporate colors of the TU Delft are **blue**, **black** and **white**, available, respectively, via `\textcolor{tud Blue}{...}`, `\textcolor{black}{...}` and `\textcolor{white}{...}`. Apart from these three, the house style defines the following basic colors, that can be used via `\textcolor{tud colorname}{...}`, where *colorname* is any of:

- **Dark blue**
- **Turquoise**
- **Royal blue**
- **Light purple**
- **Pink**
- **Burgundy**
- **Red**
- **Orange**
- **Yellow**
- **Green**
- **Forest green**
- **Dark grey**

For shading of areas, specific reduced coverages of blue and dark grey may be used, but mind contrast and readability. These reduced coverages are:

- **Blue:** 50 %, 10 %
- **Dark grey:** 60 %, 40 %, 15 %

Furthermore, there are paler versions of these colors to be used for data visualisation only:

- **Dark blue**
- **Turquoise**
- **Royal blue**
- **Light purple**
- **Pink**
- **Burgundy**
- **Red**
- **Orange**
- **Yellow**
- **Green**
- **Forest green**
- **Dark grey**

A

Heading on level 0 (chapter)

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. $\sin^2(\alpha) + \cos^2(\beta) = 1$. If you read this text, you will get no information $E = mc^2$. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. This text should contain all letters of the alphabet and it should be written in of the original language. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. There is no need for special contents, but the length of words should match the language. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$.

A.1. Heading on level 1 (section)

Hello, here is some text without a meaning. $\mathrm{d}\Omega = \sin\vartheta \mathrm{d}\vartheta \mathrm{d}\varphi$. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. $\sin^2(\alpha) + \cos^2(\beta) = 1$. This text should contain all letters of the alphabet and it should be written in of the original language $E = mc^2$. There is no need for special contents, but the length of words should match the language. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$.

A.1.1. Heading on level 2 (subsection)

Hello, here is some text without a meaning. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. This text should show what a printed text will look like at this place. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$. If you read this text, you will get no information. $\mathrm{d}\Omega = \sin\vartheta \mathrm{d}\vartheta \mathrm{d}\varphi$. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special contents, but the length of words should match the language. $\sin^2(\alpha) + \cos^2(\beta) = 1$.

Heading on level 3 (subsubsection)

Hello, here is some text without a meaning $E = mc^2$. This text should show what a printed text will look like at this place. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. If you read this text, you will get no information. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$. This text should contain all letters of the alphabet and it should be written in of the original language. $\mathrm{d}\Omega = \sin\vartheta \mathrm{d}\vartheta \mathrm{d}\varphi$. There is no need for special contents, but the length of words should match the language.

Heading on level 4 (paragraph) Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. $\sin^2(\alpha) + \cos^2(\beta) = 1$. If you read this text, you will get no information $E = mc^2$. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. This text should contain all letters of the alphabet and it should be written in of the original language. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. There is no need for special contents, but the length of words should match the language. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$.

A.2. Lists

A.2.1. Example for list (itemize)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

Example for list (4*itemize)

- First item in a list
  - First item in a list
    - First item in a list
      - First item in a list
      - Second item in a list
    - Second item in a list
  - Second item in a list
- Second item in a list

A.2.2. Example for list (enumerate)

1. First item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list
5. Fifth item in a list

Example for list (4*enumerate)

1. First item in a list
   a) First item in a list
      i. First item in a list
         A. First item in a list
         B. Second item in a list

        ii. Second item in a list
    b) Second item in a list
2. Second item in a list

A.2.3. Example for list (description)

First item in a list

Second item in a list

Third item in a list

Fourth item in a list

Fifth item in a list

Example for list (4*description)

First item in a list
    First item in a list
        First item in a list
            First item in a list
            Second item in a list
        Second item in a list
    Second item in a list

Second item in a list

Bibliography

[1] A. Einstein. 'Eine neue Bestimmung der Moleküldimensionen'. In: *Annalen der Physik* 324.2 (1906), pp. 289–306. DOI: 10.1002/andp.19063240204.

[2] Ryszard Engelking. *General topology*. Second. Vol. 6. Sigma Series in Pure Mathematics. Translated from the Polish by the author. Berlin: Heldermann Verlag, 1989. ISBN: 3-88538-006-4.

[3] K. P. Hart, J. van Mill and P. Simon, eds. *Recent progress in general topology. III*. Atlantis Press, Paris, 2014. ISBN: 978-94-6239-024-9. DOI: 10.2991/978-94-6239-024-9.

[4] Klaas Pieter Hart. 'Brouwer and cardinalities'. In: *Indag. Math. (N.S.)* 29.6 (2018), pp. 1555–1564. ISSN: 0019-3577. DOI: 10.1016/j.indag.2017.12.008.

TU Delft
Delft University of Technology