The hgb Thesis Package

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Abstract

The hgb ("Hagenberg") package is a collection of modern LaTeX templates for university theses (bachelor, master or diploma programs) and related documents. This manual describes the main features of this package. Pre-configured document templates for English and German manuscripts and a complete tutorial are available on the package's home repository.

1 Introduction

The complete source of this package and additional materials are hosted in this repository:

https://github.com/Digital-Media/HagenbergThesis

2 Document classes

The hgb package provides the following document classes, which are based on the standard LaTeX classes book, report and article, respectively:

- **hgbthesis** (book): for Bachelor, Master and Diploma theses;
- **hgbreport** (report): for project and term reports;
- **hgbarticle** (article): for drafting journal articles.

[1] https://creativecommons.org/licenses/by/4.0/legalcode

2.1 Class options

The above document classes accept the following options:

- **hgbthesis**: master, diploma, bachelor, praktikum, internship, english, german;
- **hgbreport**: notitlepage, english, german;
- **hgbarticle**: twocolumn, english, german.

For example, to start a Master thesis in German one would simply simply place

```
\documentclass[master,german]{hgbthesis}
```

at the beginning of the document.

2.2 Thesis parameters (class hgbthesis)

hgbthesis supports several types of thesis documents. The following parameters must be specified for *all* types:

- \title{...},
- \author{...},
- \programname{...},
- \placeofstudy{...},
- \dateofsubmission{yyyy}{mm}{dd}.

A *Bachelor* thesis requires the following, additional items (not relevant for Diploma and Master theses):

- \thesisnumber{...},
- \coursetitle{...},
- \semester{...},
- \advisor{...}.

3 Style files and user commands

The hgb package comes with a set of style (*.sty) files that can be used independently of the document classes listed above: hgb.sty, hgbabbrev.sty, hgbbib.sty, hgbheadings.sty, hgblistings.sty, hgbmath.sty.

3.1 General user commands (hgb.sty)

- **\hgbDate**: Outputs the hgb package version, e.g., "2017/10/22".
- **\calibrationbox**: Inserts a test box for checking the final print size.

3.2 Text commands (hgbabbrev.sty)

Special characters:

- **\bs**: Inserts a backslash character (short for \textbackslash).
- **\obnh**: Inserts an optional break with no hyphen (e.g., PlugIn{\obnh}Filter).

German abbreviations:

- **\bzgl**: bzgl.
- **\bzw**: bzw.
- **\ca**: ca.
- **\dah**: d. h.
- **\Dah**: D. h.
- **\ds**: d. sind
- **\etc**: etc.
- **\evtl**: evtl.
- **\ia**: i. Allg.
- **\sa**: s. auch
- **\so**: s. oben
- **\su**: s. unten
- **\ua**: u. a.
- **\Ua**: U. a.
- **\uae**: u. Ä.
- **\usw**: usw.
- **\uva**: u. v. a.
- **\uvm**: u. v. m.
- **\va**: vor allem
- **\vgl**: vgl.
- **\zB**: z. B.
- **\ZB**: Zum Beispiel

English abbreviations:

- **\ie**: i.e.
- **\eg**: e.g.
- **\etc**: etc.
- **\Eg**: E.g.
- **\wrt**: w.r.t.

3.3 Bibliography commands (`hgbbib.sty`)

- **\AddBibFile**: A wrapper to `biblatex`'s `\addbibresource` macro (for backward compatibility only).
- **\MakeBibliography[*options*]**: Inserts the reference section or chapter. By default, references are automatically split into category subsections.[2] Use the option `nosplit` to produce a traditional (i.e., contiguous) list of references.

[2] Predefined reference categories are `literature`, `avmedia`, `online` and `software`.

3.4 Code environments (hgblistings.sty)

The following types of code environments are defined:

- **CCode**: for C (ANSI),
- **CppCode**: for C++ (ISO),
- **CsCode**: for C#,
- **CssCode**: for CSS,
- **GenericCode**: for generic code,
- **HtmlCode**: for HTML,
- **JavaCode**: for Java,
- **JsCode**: for JavaScript,
- **LaTeXCode**: for LaTeX,
- **ObjCCode**: for ObjectiveC,
- **PhpCode**: for PHP,
- **Swift**: for Swift,
- **XmlCode**: for XML.

hgblistings is based on the **listingsutf8** package, thus any valid **listings** option may be used; for example, the option **numbers=none** to suppress line numbers:

```
\begin{JavaCode}[numbers=none]
... // Java code comes here
\end{JavaCode}
```

3.5 Mathematical commands (hgbmath.sty)

hgbmath requires (and automatically loads) the **amsmath** package, thus all commands and symbols of **amsmath** are available by default. The following *additional* commands can only be used in math mode:

- **\Cpx**: $\mathbb{C}$ (complex numbers),
- **\N**: $\mathbb{N}$ (natural numbers),
- **\R**: $\mathbb{R}$ (real numbers),
- **\Q**: $\mathbb{Q}$ (rational numbers),
- **\Z**: $\mathbb{Z}$ (integer numbers).

4 Package dependencies

The **hgb** package builds on the following LaTeX packages:
abstract, **algorithm**, **algorithmicx**, **algpseudocode**, **amsbsy**, **amsfonts**, **amsmath**, **amssymb**, **babel**, **biblatex**, **breakurl**, **caption**, **cmap**, **csquotes**, **datetime**, **enumitem**, **epstopdf**, **eurosym**, **exscale**, **fancyhdr**, **float**, **fontenc**, **geometry**, **graphicx**, **hypcap**, **hyperref**, **ifpdf**, **ifthen**, **inputenc**, **listingsutf8**, **lmodern**, **moreverb**, **overpic**, **pdfpages**, **pict2e**, **subdepth**, **titlesec**, **titling**, **tocloft**, **ulr**, **upquote**, **verbatim**, **xcolor**, **xifthen**, **xspace**.