

# The hgb Thesis Package

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2017/10/27

## 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>

This package is made available under the terms of the *Creative Commons Attribution 4.0 International Public License*.<sup>1</sup>

## 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.

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<sup>1</sup><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 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., “2017/10/27”.
- **\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.<sup>2</sup> Use the option `nosplit` to produce a traditional (i.e., contiguous) list of references.

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<sup>2</sup>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`, `url`, `upquote`, `verbatim`, `xcolor`, `xifthen`, `xspace`.