Description of `thesis.cls`

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The document class `thesis.cls` uses the LaTeX document class `book` for formatting a PhD thesis in LaTeX. It is primarily intended for thesis preparation within the "International Max Planck Research School on Physical Processes in the Solar System and Beyond at the Universities of Braunschweig and Göttingen", but may also be used otherwise.

The new class formats a thesis in DIN A4 with 12pt Times fonts. The page layout is suitable for reduction to DIN A5 for final printing. Besides prescribing the page format including headers, a number of additional useful commands are provided. The first and second page is layout for a thesis submitted to the Faculties of Science of the University of Göttingen or the Technical University of Braunschweig. Optionally, other layouts for these pages can be provided by inclusion of extra files.

The code comes without warranty. Suggestions for improvement are very welcome.

Literature

As a reference on LaTeX I recommend "A Guide to LaTeX" by Helmut Kopka and Patrick W. Daly, Fourth Edition, Addison-Wesley.

Template

A template `template.tex` is supplied as a frame for your own thesis.

Loading, options and extra commands

The class file is loaded by the first command in the preample of a LaTeX file. The syntax is

```
\documentclass[options]{thesis}
```

Options are:

`goettingen`, use together with one of `submitted`, `print` or `file` (default is `submitted`)

`braunschweig`, use together with one of `submitted`, `accepted`, `print` or `file` (default is `submitted`), further `female` if applicable.

If neither `goettingen` nor `braunschweig` is set, the package expects two files `firstpage.tex` and `secondpage.tex` with manually formatted title and second page.

Further options are `german` for a thesis in German and `hyper` to enable hyperlinks.

Further commands needed:

`\title{`*title*`}`: the title of the thesis

`\author{`*name*`}`: full first and last name

`\town{`*town*`}`: town of birth, if not in Germany in the form Town / Country

`\refereea{`*name*`}`: title and name of first referee

`\refereeb{`*name*`}`: title and name of second referee

`\submitteddate{`*Tag. Monat Jahr*`}`: date of submission of thesis, in German

`\submittedyear{`*year*`}`: year of submission of thesis

`\examinationdate{`*Tag. Monat Jahr*`}`: date of examination, in German

`\publicationyear{`*year*`}`: publication year

`\isbn{`*isbn*`}`: ISBN number, available from Copernicus GmbH

LaTeX or pdfLaTeX

I recommend to use pdfLaTeX which directly generates a PDF file. PDF files are usually smaller than PS files, allow for hyperlinks using the `hyperref` package and are the medium for online presentation and digital printing of a formatted document. Use of pdfTeX version 1.0 or higher is recommended. However, PS figures can not be included into the document and must be converted to PDF files first.

If the latter is not wanted, LaTeX produces a DVI file which is converted to PS using `dvips -Ppdf`. The option ensures that Postscript Type 1 CM fonts are used. The PS file may then be converted to PDF by further means.

Chapter and section titles

Since the chapter and section titles do also appear in the page headings, long titles may cause problems, because the headings must not exceed 1 line. The cure is to allow for an optional short title, `\chapter[`*short title*`]{`*long title*`}` for chapters or `\section[`*short title*`]{`*long title*`}` for sections, which is used in the table of contents and the page head. Do not capitalize chapter or section titles.

Since unnumbered chapters have no headings, you can provide those by `\chapter*{Title\markboth{Title}{Title}}` when needed.

You can add unnumbered chapters to the table of contents with the addi-

tional command `\addcontentsline{toc}{chapter}{Title}`, as is suggested in `template.tex`

Figures

For inclusion of figures I recommend the `graphicx` package, which is automatically loaded. Usually, figures should be placed centered on the top of a page. For that, a new environment

```
\begin{cfig}
    \includegraphics[width=8cm]{filename}
    \caption{Text}
    \label{fig}
\end{cfig}
```

is supplied. Adapt the actual width. Further options, like `height`, `angle`, ... are available. Multiple figures can be included within one `cfig` environment. LaTeX allows for `.ps` and `.eps` files, pdfLaTeX for `.pdf`, `.jpg` and `.png` files. On Unix systems conversion from Postscript to PDF is conveniently done using `epstopdf`, on Windows systems Adobe Acrobat Distiller is one of many possibilities. Make sure that your figures are adequately cropped.

References

For references I recommend the author-year system of the `natbib` package by Patrick Daly. The package is automatically loaded, if available to your LaTeX distribution. Otherwise load it to your working directory. Use the `\citet` and `\citep` commands for textual and parenthetical citations, respectively. The `natbib` bibliography style is `\bibitem[Author(Year)]{ref}Reference`. The bibliography can be compiled manually or from a data base by BiBTeX. For details on the package search CTAN for `natbib` at `http://www.dante.de` or visit `http://www.mps.mpg.de/software/latex/localtex/localltx.html#natbib`. BiBTeX users may use their own `.bst` files, but I provide and recommend `thesis.bst` and `thesis-dt.bst` (for German).

Additional commands

`\vect{`*symbol*`}`: prints a vector Bold Italic, e.g. `$\vect{v}$`

`\unit{`*unit*`}`: prints a physical unit in Roman, e.g. `$v=10\;\unit{m\,s^{-1}$` or `$\eta=18\;\unit{m^2s^{-1}$`

`\chem{`*formula*`}`: prints a chemical formula in Roman, e.g. `$\chem{H_2O}$`

Reduction to DIN A5

While a thesis is submitted to the universities in DIN A4 format, the final printing is in DIN A5. A template `thesis-a5.tex` is supplied. Basically, the DIN A4 PDF file `thesis.pdf` is read in, processed using the `pdfpages` package, resulting in a DIN A5 version `thesis-a5.pdf`. If demanded, adapt or rename the input and output file names.

Cover

A template for the print cover `cover.tex` is supplied, which produces a DIN A5 (plus a small margin for cutting) PDF file. This is thought for using within the IMPRS and printing of the thesis by Copernicus GmbH. You have to adapt the text and figure, and may also choose the background and text color. Copernicus supplies calibrated color schemes. Otherwise leave the layout unchanged to ensure a uniform IMPRS thesis series.

For printing by Copernicus GmbH, which I recommend because of digital printing on demand and less than half the cost of commercial printers, you must supply two PDF files, the cover and the thesis (in DIN A5). Ask for a test print and the prize before placing your order.

List of files

`description.pdf`
`thesis.cls`, `template.tex`, `thesis-a5.tex`
`firstpage.tex`, `secondpage.tex`
`cover.tex`, `coverfigure.pdf`, `cover.pdf`
`natbib.sty`, `plainnat.bst`, `thesis.bst`, `thesis-dt.bst`
`fancyhdr.sty`, `pdfpages.sty`, `tocbibind.sty`