

The KITreport package^{*}

Karlsruhe Institute of Technology

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1 Introduction

The **KITreport** package assists in preparing reports for Karlsruhe Institute of Technology with L^AT_EX. It adapts L^AT_EX's standard **report** to meet some requirements for reports, loads some packages, necessary for typical report components and provides the layout.

The package consists of the following files:

- **KITreport.pdf** this documentation
- **KITreport.sty** the L^AT_EX style file with the layout adaptations and additional functionalities
- **report.tex** the L^AT_EX master file (to be used as a template or starting point for a report project)
- logo files **kitlogo_*_rgb.eps/.pdf** and visual files **KIT-Bildwelt_*RGB_breit_Vorlage.eps/.jpg**.

^{*}This package was created by le-tex publishing services, Leipzig for Karlsruhe Institute of Technology (KIT). This file has version number v0.98, last revised 2022/05/23.

This documentation is not intended to give an introduction to LaTeX. For questions concerning TeX systems/installations or the LaTeX mark-up language in general please visit www.tug.org, www.dante.de, uk.tug.org or any other TeX user group worldwide. The essential reference for LaTeX is *Mittelbach F., Goossens M. (2004) The LaTeX Companion. 2nd edn.*, but there are many other good books delivering insight into LaTeX.

2 Package strategy and general usage

We suggest to employ a recent TeX installation: the most important distributions, TeX Live, MiKTeX/proTeXt and MacTeX, all provide at least 2021 versions. But older versions should (in principle) work as well.

KITreport tries to benefit as far as possible from the widely-used L^AT_EX standard classes and standard packages.¹ To learn more about the underlying class and packages we refer to their documentations (try e.g. or `texdoc [package name]` at your shell prompt or visit <http://tug.ctan.org>).

KITreport can be used under the nowadays widely-used engines pdfTeX, LuaTeX and XeTeX. The output will be in PDF format, under pdfTeX optionally as DVI.

KITreport is designed to be used with the font *Arial*/*Helvetica* accepted by KIT's corporate design. Which font is applied also depends on the TeX engine in use. The well-established pdfTeX requires TeX-installed fonts, and under these one normally has *Helvetica* (though the `arial` package provided by MiKTeX is not taken into account). The engines LuaTeX and XeTeX usually access OpenType fonts directly, and here, KITreport expects *Arial* or *Helvetica* OTF files to be available. In case that KITreport cannot find the required fonts, it automatically falls back to *TeX Gyre Heros*, an always available standard font in TeX systems, akin to *Helvetica*. For more information, cf. Section 3.4, *Fonts*.

To use the KITreport package, put the above listed files in your working directory, edit `letter.tex` in your preferred text editor and run LaTeX as usual. (See the following section for more detailed advises.)

3 Main settings and package functionalities

3.1 Options for the document class

L^AT_EX's document class `report` knows a set of options.

The following options should *not* be used together with KITreport: `a4paper`, `a5paper`, `b5paper`, `letterpaper`, `legalpaper`, `executivepaper`, `10pt`, `11pt`, `12pt`, `titlepage`, `notitlepage`, `onecolumn` und `twocolumn`. (Relevant settings will be made by the KITreport package.)

These options however, can be used smoothly: `draft`, `final`, `openright`, `openany`, `leqno`, `fleqn` and `openbib`.

¹If you use only a light installation of your TeX distribution, please make sure that the following packages are installed: `cmap`, `ragged2e`, `footmisc`, `amsmath`, `sansmathfonts`, `mathastext`, `xcolor`, `booktabs`, `colortbl`, `pgfcore`, `media9`, `zref-abspace`, `caption`, `sidecap`, `crop`, `hyperref`.

3.2 Language

Because **KITreport** already loads the **babel** package, it is recommended to provide language option(s) together with `\documentclass`. Suitable language options are, e.g., **ngerman**, **UKenglish** or **USenglish**. (Note that **KITreport** itself passes **ngerman** as fallback language to the **babel** package anyway.)

3.3 Input encoding

Since 2018, the common TeX distributions select the nowadays wide-spread UTF-8 encoding as the standard encoding for **pdf \LaTeX** (what was already the case for **lua \LaTeX** and **x \LaTeX**). An alternative input encoding can be declared in **letter.tex** by engaging the **inputenc** package with a respective option.

3.4 Fonts

Arial or *Helvetica* is used as the main font. With **pdf \TeX** , the *Helvetica* variant is taken by default (**helvet** package).

When using one of the engines **Lua \TeX** or **Xe \TeX** , the **fontspec** package is pre-loaded by **KITreport** in order to employ OpenType fonts. With the help of the **fontspec** package, it is firstly searched for a font with name “Arial”, then for one with name “Helvetica”.²

If the **helvet** package is not found or if the respective OTF font files are not found, then the TeX font *TeX Gyre Heros* is called as fallback; *TeX Gyre Heros* is a free variant of Helvetica that is TeX-installed on every recent TeX system as well as available as OTF.

heros helvet	The fallback font <i>TeX Gyre Heros</i> can also be selected directly via package option “ heros ”. In addition, when using OpenType fonts, one can avoid searching for <i>Arial</i> with the package option “ helvet ”.
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Please note that no serif font is used; therefore **KITreport** does not make a difference between `\rmfamily` and `\sffamily` (or between `\textrm{...}` and `\textsf{...}`).

cursor	As typewriter font, <i>Courier</i> is selected; fallback is the similar TeX font <i>TeX Gyre Cursor</i> . Package option “ cursor ” forces the use of <i>TeX Gyre Cursor</i> .
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Concerning mathematical formulas, **KITreport** uses *Fira Math* under **Lua \TeX** or **Xe \TeX** , where more or less glyphs are taken from *Arial/Helvetica* or *TeX Gyre Heros*, respectively.

Under **pdf \TeX** , the commonly installed sans-serif maths fonts of the TeX system will be used; but with the help of the **mathastext** package, as many as possible glyphs will be taken from the text font (*Helvetica* or *TeX Gyre Heros*). – Due to pre-loading the **amssymb** package, more mathematical symbols are provided. Further packages, like **stmaryrd**, can be loaded in the document preamble, of course. By the way: Under the present set-up, upright Greek uppercase letters are accessible with `\upDelta`, ...

²If no fonts with name “Arial” or “Helvetica” can be found, there will be an extra search in each case to find certain, `./fonts/`-locally stored font files. This can especially be useful when employing **Xe \TeX** on Overleaf. Please adapt file names and paths in **KITreport.sty**, if necessary.

3.5 Typography

The `textcase` package is pre-loaded in order to get phrases easily formatted in uppercase or lowercase.

The `microtype` package is pre-loaded; see its documentation for possible microtypographic settings.

3.6 Page format and work mode

`KITreport` produces the report in format DIN A4.

`KITreport` knows a special output mode that can be activated with the option `work` “work”. It marks the type area so that adjustments of paragraphs and other elements on the page should be easier.

3.7 Colour

The report layout uses colour. The primary colour is a green, provided as `KITgreen`. Further main colours are `KITblue`, `KITdarkgray` and `KITgray`. Besides that, additional colours are provided as `KITyellow`, `KITorange`, `KITlightgreen`, `KITred`, `KITpurple`, `KITbrown`, `KITcyan`. The primary colour and the main colours can also be used (modestly) within the document; the additional colours are reserved for charts, graphics and special cases. Other colours should not be used.

3.8 Tables

Some standard packages for tables are already loaded: `array`, `multirow`, `bigstrut`, `tabularx`, `booktabs` and `colortbl`.

KIT’s corporate design suggests a certain layout for tables that `KITreport` provides with the new environments `{KITtabular}` and `{KITtabularx}`. These environments can be used as their original counterparts `{tabular}` and `{tabularx}`, but within their content there must be placed at least one `\midrule` command in order to determine where the table head finishes and the body begins; `\midrule` can also be placed directly after the tabular preamble what will produce a table without a head.

3.9 Graphics and images

The standard interface for graphic inclusion is the `\includegraphics` command provided by the `graphicx` package (which is pre-loaded, too).

Remember that the `\graphicspath` command allows to declare one or more folders where the `graphicx` package looks for the image files; thus providing a path with each `\includegraphics` command is not necessary.

KIT-style documents display graphics and images in a “round-angular” style, i.e. they are surrounded by a light grey frame whose lower left and upper right corner

are rounded. This is achieved by the new command `\KITincludegraphics` that has to be used as `\includegraphics` itself. But `\KITincludegraphics` provides also an additional `()`-optional argument. Example:

```
\KITincludegraphics(10 20 30 -10)[width=50mm]{testfig}
```

It is a “trim” argument that allows a value like the value of the `trim`-Option of `\includegraphics`, i.e. four space-separated numbers/lengths that determine how much less or more space the graphic/image requires, measured from left, from below, from right and from above.

3.10 Videos

There are different ways to integrate videos in a document.

First, one can just provide a link to a video file, which will open in an appropriate viewer by clicking the link in the PDF. A simple example is

```
\href{./video.avi}{\includegraphics{thumbnail}}
```

A more elaborate form of video linking is possible with the `\movie` command that belongs to the `multimedia` package which is part of `beamer` and therefore already loaded. See the `beamer` documentation for more information.

Second, videos can be embedded into the PDF. But note that many PDF viewers are not able, or at least have problems, to play embedded videos. So probably viewers like Xpdf, Evince or Okular won’t work. Chances are better with FoxIt PDF Reader and Adobe Acroread DC; for Adobe Acroread DC make sure that in the “Preferences” menu under “Security (enhanced)” the item “Enable Enhanced Security” is not checked! The video formats MP4 and AVI are supposed to work best.

Nowadays, there are essentially two ways to embed videos: with the established `media9` package or with still experimental code published on `stackexchange` and/or `overleaf`. `media9` relies on flash player technology which seems more or less deprecated. So, to view videos that are embedded in PDFs with `media9` in FoxIt, flash player has to be installed additionally. On the other hand, Adobe Acroread DC shows `media9` embedded videos without the need of further installations. Try for example,

```
\includemedia[
  width=0.5\linewidth,height=0.5\linewidth,keepaspectratio,
  addresource=video.mp4,
  flashvars={source=video.mp4}
]{\VPlayer.swf}
```

See the `media9` package documentation for further information.

The other way to embed videos, the experimental code, is stolen from `stackexchange` user Fritz, 2021-04-14 and integrated in `KITreport`. The user command is

```
\simplemedia[<options>]{<poster or text>}{<media file>}{MIME type}
```

Possible options are `autoplay` and `showGUI` which can be set `true` or `false`. The first mandatory argument determines the area in which the video is played and can be any text or graphic or a \TeX box in general. The second mandatory argument

is for the video file. The last argument should have values like `video/mp4` or `video/avi`. Example:

```
\simplemedia[showGUI=true]{\colorbox{blue}{\hbox to0.5\hsize{\hss
Video\rule[-20mm]{0mm}{50mm}\hss}}}{video.mp4}{video/mp4}
```

3.11 Main title

The following macros are provided to produce the title page:

- `\subject{...}`
- `\title{...}`
- `\author{...}`
- `\project{...}`
- `\addinfo{...}`
- `\titleimage{[image file]}` (or, more individually:
`\titleimagecommand{[LaTeX code]}`)
- `\kindlynote[...]{...}`

These macros should be given in the LaTeX preamble; to finally output the title page, the usual `\maketitle` command has to be placed right after `\begin{document}`.

The contents of the data fields `\subject{...}`, `\title{...}`, `\author{...}`, `\project{...}` and `\addinfo{...}` will be placed in this order on the title page.

`\titleimage{[image file]}` is the simple form to place an image in the lower part of the title page (without this command, a standard image from KIT's image world is used). With `\titleimage{}`, the title page remains without an image. If you need a more specific declaration for positioning the image, please use instead of `\titleimage{[image file]}` the more flexible command `\titleimagecommand{[LaTeX code]}`, whose argument might for example be: `\KITincludegraphics[width=100mm,height=200mm]{myTitleImage}`.

Finally, you can add indications at the flip side of the title page by using `\kindlynote[...]{...}`. Without optional argument, your indications will be introduced by "Kindly note: "; with optional argument, this phrase can be overwritten, where esp. an empty optional argument suppresses the (bold) introduction phrase.

3.12 Hypertext additions

The `hyperref` package is loaded, too. Besides the already made settings in `KITreport`, one can activate or deactivate further features by using the `\hypersetup` interface in the document preamble.

Happy T_EXing!

le-tex, publishing services, Leipzig
 [Questions and comments to: giovanni at le-tex.de]