

The KITslides package^{*}

Karlsruhe Institute of Technology

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1 Introduction

The **KITslides** package assists in preparing slides for Karlsruhe Institute of Technology with $\text{\LaTeX}$. It adapts the **beamer** class to meet some requirements for slides, loads some packages, necessary for typical slides components and provides the layout.

The package consists of the following files:

- **KITslides.pdf** this documentation
- **beamerthemeKIT.sty** the $\text{\LaTeX}$ style file with the layout adaption and additional functionalities
- **slides.tex** the $\text{\LaTeX}$ master file (to be used as a template or starting point for a slides project)

^{*}This package was created by le-tex publishing services, Leipzig for Karlsruhe Institute of Technology (KIT). This file has version number v1.10, last revised 2025/03/17.

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., Fischer U. (2023) The LaTeX Companion. 3rd 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 2024 versions. But older versions should (in principle) work as well.

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

KITslides 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.

KITslides 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, KITslides expects *Arial* or *Helvetica* OTF files to be available. In case that KITslides 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 KITslides package, put the above listed files in your working directory, edit `slides.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

The `beamer` document class knows a set of options, that may in general be used together with the KITslides package. But please do not use the font size options `10pt`, `11pt` etc..

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` (opt.), `zref-abspace`, `hyperref`.

3.2 Language

Because `KITslides` 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 `KITslides` 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 `pdflatex` (what was already the case for `lualatex` and `xellatex`). An alternative input encoding can be declared in `slides.tex` by engaging the `inputenc` package with a respective option.

3.4 Fonts

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

When using one of the engines `LuaTeX` or `XeTeX`, the `fontspec` package is pre-loaded by `KITslides` 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.

The fallback font *TeX Gyre Heros* can also be selected directly via package option `heros` “`heros`”. In addition, when using OpenType fonts, one can avoid searching for `helvet` *Arial* with the package option “`helvet`”.³

For frame titles, the font *Franklin* will be used; more precisely, `pdfTeX` engages the *Libre Franklin* interpretation, whereas the OpenType-capable engines will first test for *Franklin Gothic Medium* and only otherwise will fallback to *Libre Franklin*.
`librefranklin` But using *Libre Franklin* can be forced with package option “`librefranklin`”.

Please note that no serif font is used; therefore `KITslides` does not make a difference between `\rmfamily` and `\sffamily` (or between `\textrm{...}` and `\textsf{...}`).

As typewriter font, *Courier* is selected; fallback is the similar TeX font *TeX Gyre Cursor*.
`cursor` Package option “`cursor`” forces the use of *TeX Gyre Cursor*.

Concerning mathematical formulas, `KITslides` uses *Fira Math* under `LuaTeX` or `XeTeX`, where more or less glyphs are taken from *Arial/Helvetica* or *TeX Gyre Heros*, respectively.

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 `XeTeX` on Overleaf. Please adapt file names and paths in `beamerthemeKIT.sty`, if necessary.

³These options have to be given in the optional argument of the `\usetheme` command.

Under `pdfTeX`, 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`,

3.5 Page format and design elements

Following KIT's corporate design, `KITslides` selects the page format 16:9 (160 mm × 90 mm). This corresponds to the `beamer` setting `aspectratio=169`. Other formats can in principle be chosen via the `aspectratio` option, but layout adjustments might then become necessary.

The standard slide may have a frame title (and an additional frame subtitle). The KIT logo is positioned in the lower right corner as part of the foot line. You can switch off the KIT logo, either globally with the option “`noKITlogo`” or per slide with the `{frame}` option “`noKITlogo`”.

Remember that the `beamer` class allows to align the content of a slide vertically, that is with option `c` (default), `t` and `b` of the `{frame}` environment (or even globally by the document-class options `t` und `c`).

3.6 Colour

The slides layout uses colour. There are ten design colours, all of which allow tinted or shaded modifications, and six custom colours. All these colours and there respective colour names can be found in the template document `slides.tex`. Other colours should not be used.

3.7 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 `KITslides` provides with the new environments `{KITtabular}`, `{KITtabular*}` and `{KITtabularx}`. These environments can be used as their original counterparts `{tabular}`, `{tabular*}` and `{tabularx}`, and within their content one can add a `\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. For the mark-up of row-wise head cells, see the respective examples in the template document `slides.tex`.

3.8 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.

The template document `slides.tex` shows in examples how full-width und full-slide images can be achieved.

3.9 Videos

There are different ways to integrate videos in a document.

Fist, 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 won't work; the viewers Evince and Okular work partially. FoxIt PDF Reader and Adobe Acroread DC do work; 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 `KITslides`. 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 $\text{\TeX}$ 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}
```

3.10 Blocks/Boxes

The `beamer` class provides some block- and box-like environments which now have a KIT design: `{block}`, `{alertblock}` and `{exampleblock}`. Additional blocks/boxes representing all the KIT colours are declared, too: `{darkblueblock}`, `{greenblock}`, `{iceblueblock}`, `{icegrayblock}`, `{pinegreenblock}`, `{cyanblock}`, `{blueblock}`, `{lightgreenblock}`, `{forestgreenblock}`, `{blackblock}`, `{purpleblock}`, `{orangeblock}`, `{yellowblock}`, `{redblock}`, `{brownblock}`, `{darkbluebox}`, `{greenbox}`, `{icebluebox}`, `{blackbox}` and `{redbox}`. Finally, the design of `beamer`'s theorem-like environments (`{theorem}`, `{definition}`, `{example}` and `{proof}`) is adapted accordingly. See the template document `slides.tex` for examples.

3.11 Pictograms

The layout provides some design-specific pictograms that can be accessed by `\KITarrowE`, `\KITarrowNE`, `\KITarrowN`, `\KITarrowSE`, `\KITarrowS`, `\KITarrowW`, `\KITarrowSW`, `\KITarrowNW`, `\KITcheck`, `\KITcross`, `\KITminus`, `\KITplus`, `\KITequal`, `\KITbook`, `\KITbulb`, `\KIThandshake`, `\KITmeet`, `\KITmolecule` and `\KITteacher`. The pictograms are shown in the template document `slides.tex`. All pictogram commands allow two optional arguments to change the foreground and the background colour, so e.g.

```
\KITarrowE[KITforestgreen!50!black](KITcyan)
```

results in a dark-green arrow on a light-blue background.

3.12 Special slides

The template document `slides.tex` provides examples for some special slides, first of all for title slides.

The basic title-slide variant is produced with `\frame[empty]{\titlepage}`. It outputs the information from `\author[]{}`, `\title[]{}` and optionally `\subtitle[]{}`, `\institute[]{}` as well as `\date[]{}` provided in the document preamble.

Without the `\date` command in the preamble, the current date will be used. Note that you can suppress the output of the date by using the `\date{}` command with an empty argument.

You can add a presentation-specific logo with `beamer`'s `\logo` macro.

For design variants of the title slide, see the template document `slides.tex`.

Two design variants may have an image; it can be added with `beamer`'s `\titlegraphic` macro in the document preamble. Probably, adaptations of the image size are necessary; engage the usual *keys* of `\includegraphics` optional argument (e.g., `scale`, `width`, `height`, `keepaspectratio`; `trim`, `clip`).

Other suggestions for special slides in `slides.tex` are for the table of contents, for full-width or full-page images and for final slides. Please adapt as required.

For more information concerning title page fields, structuring a presentation and so forth, cf. the documentation of the `beamer` class.

3.13 Hypertext additions

The `beamer` class already loads the `hyperref` package; it is configured by the `KITslides` package only regarding the colour of hyperlinks. With the `\hypersetup` interface, additional features can be activated or deactivated.

Happy T_EXing!

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