

The source of the `kulemt` class*

Luc Van Eycken
KU Leuven

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Abstract

The `kulemt` class provides a general L^AT_EX class to typeset a KU Leuven master's thesis. The defaults are based on the requirements of the Faculty of Engineering Science, but the class can be configured and extended to suit other requirements.

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1 Using the kulemt class

This document describes the source of the `kulemt` class and its default configuration file. The user manual of the class is available in a separate document `kulemt.pdf`, which serves as an example of the class at the same time. Using these names for the files, guarantees that

```
> texdoc kulemt
```

will find the user manual first.

The `kulemt` class is derived from the `memoir` class. This class has the advantage that it includes the functionality of the most useful \LaTeX packages. Therefore it requires that the `memoir` class as well as some required packages (`babel`, `helvet`, `hyperref`, `keyval`, `mathpazo`, `mathptmx`, `graphicx`, and `color`) are installed on the system. Besides the required packages, some additional image files are used, which are distributed with this class: the KU Leuven logo (`logokul`) and the combined logo of the Faculty of Engineering Science and the KU Leuven (`logokuleng`). All image files are available as `.eps` (for PostScript printing) and as `.pdf` (for PDF generation).

`\setup` Options for the `kulemt` class are given using the “ $\langle key \rangle = \langle value \rangle$ ” format from the `keyval` package. But some key-value pairs can't be used as options to `kulemt` because options can't contain spaces, braces, or expandable commands. So we provide the `\setup{\langle options \rangle}` command to handle values without these restrictions. Of course it can be used for other keys too. In addition we allow multiple usage of `\setup`, but only in the document preamble.

`preface` (*env.*) The `preface` environment typesets the preface page. The environment has one optional argument: the preface author. It defaults to the value of the `author` option. The argument can be used to remove the preface author or add a date to it.

`abstract` (*env.*) The `abstract` environment typesets an abstract page in the default language.

`abstract*` (*env.*) The `abstract*` environment does the same, but it uses the optional argument, defaulting to the official master's programme language.

`\listoffiguresandtables` Normally all “List of ...” overviews are printed on a separate page. However, for shorter texts like a master's thesis these list may be smaller than half a page. Therefore an additional command `\listoffiguresandtables` is provided, which combines the list of figures and tables without a page break. The command `\listfiguresandtablesname` holds the title of that document section.

2 Configuring and extending the class

The `kulemt` class is designed to automatically handle the typesetting of any KU Leuven engineering master's thesis. But some master's programmes have additional requirements besides the common requirements from the Faculty. Furthermore this class could also be used to typeset a master's thesis of other faculties or of inter-faculty master's programmes.

The configuration file `kulemt.cfg` holds all information which is faculty and/or master's programme dependent. The class itself provides most of the defaults for the Faculty of Engineering Science, except for the definition of the master's programme data. The default configuration file for the Faculty of Engineering Science is found in section 4. Additionally the configuration file can be used to provide different defaults for the options. It can also be used to redefine commands to print data, such as the commands which provides faculty defaults (see page 18).

If a master's programme wants more control over the typesetting, it can define its own configuration file, which is loaded after the general configuration file. The default name of this configuration file is '`kulemt-⟨id⟩.cfg`'. The `⟨id⟩` is the abbreviated master's programme name as defined in the main configuration file, e.g., '`arc`' for the 'Master in de ingenieurswetenschappen: architectuur'. A typical use of this master's programme specific configuration file is redefining the `\kulemt@fac@logo` command to add master's programme specific logos.

A master's programme can also define its own class based on the `kulemt` class. The new class can decide if a configuration file is used or not, and its name (see page 19). It can undefine existing options and define new ones. The command `\setup` can be used in the document preamble to set or modify the existing options as well as the new options.

3 Implementation of the `kulemt` class

The namespace `kulemt` is claimed, so all commands are prefixed with `kulemt@` to avoid name clashes. In case you notice that other packages use this prefix too, please contact the author of this class!

3.1 Shorthand commands

We start by defining some shorthand commands to save \TeX memory tokens.

```
\kulemt@cls \kulemt@cls → name of this class
1 \def\kulemt@cls{kulemt}

\kulemt@error \kulemt@error{⟨msg⟩} signals a fatal error with message ⟨msg⟩.
2 \def\kulemt@error#1{%
3   \ClassError\kulemt@cls{#1}{Exit, correct this error and rerun.}}

\kulemt@opt@missingpkg \kulemt@opt@missingpkg{⟨opt⟩}{⟨pkg⟩} signals a fatal error indicating that op-
tion ⟨opt⟩ can only be used if package ⟨pkg⟩ is installed.
4 \def\kulemt@opt@missingpkg#1#2{\kulemt@error{%
5   The option '⟨#1⟩' is ignored because\MessageBreak
6   it requires the installation of the package '⟨#2⟩'}}
```

`\kulemt@ifdutch` `\kulemt@ifdutch{⟨D⟩}{⟨E⟩} ≡ \iflanguage{dutch}{⟨D⟩}{⟨E⟩}`

Note: This command is robust.

```
7 \def\kulemt@ifdutch{\protect\iflanguage{dutch}}
```

This class only works if the languages `dutch` and `english` are available. Since `english` is the default in a TeX installation, it is always present. For `dutch` we depend on `babel` to raise errors. It can take into account the on-demand loading of hyphenation patterns by `luatex`.

`\kulemt@ifand` The command `\kulemt@ifand{⟨cs⟩}{⟨true⟩}{⟨false⟩}` checks for the presence of `\and` in `⟨cs⟩`. If `\and` is found, `⟨true⟩` is executed, else `⟨false⟩` is executed. To make this command fully expandable, we assume that `\and` is never followed by a `=`.

```
8 \def\kulemt@ifand#1{\expandafter\kulemt@ifand@ #1\and\@nil}
9 \def\kulemt@ifand@#1\and #2\@nil{%
10   \if=\noexpand#2=\expandafter\@secondoftwo\else
11     \expandafter\@firstoftwo\fi}
```

3.2 Options

3.2.1 Option handling commands

Option handling is based on the standard `keyval` package with ideas coming from the `kvoptions` package.

```
12 \RequirePackage{keyval}
```

`\setup` Keys can be used as options or in the argument `⟨arg⟩` of `\setup{⟨arg⟩}`. Some keys only make sense as an option because they are used when loading the `kulemt` class. On the other hand some key-value pairs can't be used as options because the value contains expandable commands. Finally, some keys can only be defined once without problems. The command `\kulemt@do@once@opts` guarantees this.

The `\setup` command first calls `\kulemt@catcode@setup` to set the correct catcodes before parsing its argument.

```
13 \newcommand*\setup{%
14   \kulemt@catcode@setup
15   \kulemt@setup}
16 \@onlypreamble\setup
```

`\kulemt@setup` The command `\kulemt@setup` does the actual handling of the argument of `\setup`. After using the argument it restores the original catcodes via `\kulemt@uncatcode@setup`.

```
17 \def\kulemt@setup#1{%
18   \setkeys{kulemt}{#1}%
19   \kulemt@uncatcode@setup
20   \kulemt@do@once@opts}
```

`\kulemt@catcode@setup` The command `\kulemt@catcode@setup` can be used to change the catcodes before handling the `\setup` parameters. By default it defines the language shorthands, such as `"` in Dutch. But unfortunately the `babel` package doesn't make the shorthand characters active in the preamble, so we have to do it ourselves.

```
21 \def\kulemt@catcode@setup{%
22   \csname extras\language\endcsname
23   \kulemt@ifdutch{\catcode'\active}{}}
```

`\kulemt@uncatcode@setup` The command `\kulemt@uncatcode@setup` reverses the catcode changes introduced by `\kulemt@catcode@setup`. By default it undefines the language shorthands and turns the active characters into normal ones.

```
24 \def\kulemt@uncatcode@setup{%
25   \csname noextras\language\endcsname
26   \@makeother\}
```

`\kulemt@invalidate@key` The `\kulemt@invalidate@key{<key>}{<how-used>}` command invalidates the key `<key>` by (re)defining it as a class warning. The parameter `<how-used>` tells how the key could be used. Typical examples of `<how-used>` are ‘once’ or ‘as ...’.

```
27 \def\kulemt@invalidate@key#1#2{%
28   \define@key{kulemt}{#1}{\ClassWarning\kulemt@cls{%
29     The key ‘#1’ can only be used #2.\MessageBreak
30     It is ignored}}}
```

`\kulemt@keynovalue` The `\kulemt@keynovalue{<key>}{<definition>}` command defines the `<key>` option without value. If a value is given anyway, it is simply ignored.

```
31 \def\kulemt@keynovalue#1#2{%
32   \define@key{kulemt}{#1}[]{%
33     \def\@tempa{##1}\ifx\@tempa\empty\else
34       \PackageWarningNoLine\kulemt@cls{Value of option ‘#1’ ignored}\fi
35     #2}}
```

`\kulemt@clskey` The command `\kulemt@clskey` is used to define a key, which can only be used as a class option. A list of these keys is kept in the command sequence `\kulemt@clskeys`. This can be used to invalidate them at the appropriate moment.

```
36 \def\kulemt@clskeys{}
```

The `\kulemt@clskey{<key>}[<def-value>]{<definition>}` command defines the key `<key>` to call the `<definition>`. If the optional parameter is used, the key can be used without value and gets the `<def-value>` value then. See the `keyval` package for more information.

```
37 \def\kulemt@clskey#1{%
38   \edef\kulemt@clskeys{\kulemt@clskeys,#1}%
39   \define@key{kulemt}{#1}}
```

`\kulemt@clsopt` The `\kulemt@clsopt{<key>}{<definition>}` command defines the class option `<key>` without value. If a value is given anyway, it is simply ignored.

```
40 \def\kulemt@clsopt#1{%
41   \edef\kulemt@clskeys{\kulemt@clskeys,#1}%
42   \kulemt@keynovalue{#1}}
```

`\kulemt@process@options` The command `\kulemt@process@options` is used to handle all options which were defined as options. Its definition is heavily inspired by the command `\ProcessKeyvalOptions` of the `kvoptions` package. A simplified version is included here to remove a dependency on a package which is not guaranteed to be present.

```
43 \def\kulemt@process@options{%
44   \@ifundefined{opt@\currname.\currentx}{}%
45   {\begingroup
46     \toks@\expandafter\expandafter\expandafter{%
47       \csname opt@\currname.\currentx\endcsname}%
48     \process@options\@currname.\currentx\@currentx}
```

```

48 \edef\CurrentOption{\the\toks@}%
49 \toks@{}%
50 \@for\CurrentOption:=\CurrentOption\do{%
51 \ifundefined{%
52 KV@kulemt@expandafter\kulemt@getkey\CurrentOption=\@nil}%

```

Options with unknown keys are put in the unused option list.

```

53 {\ifx\@unusedoptionlist\@empty
54 \global\let\@unusedoptionlist\CurrentOption
55 \else
56 \expandafter\expandafter\expandafter\gdef
57 \expandafter\expandafter\expandafter\@unusedoptionlist
58 \expandafter\expandafter\expandafter{%
59 \expandafter\@unusedoptionlist
60 \expandafter,\CurrentOption}%
61 \fi}%

```

Options with known keys are temporarily stored in \toks@. The problems with braces around a value are reduced with \kulemt@update@classoptions.

```

62 {\toks@\expandafter{%
63 \the\expandafter\toks@\expandafter,\CurrentOption}%
64 \expandafter\kulemt@update@classoptions\CurrentOption=aa=\@nil
65 }}%
66 \edef\@tempa{\endgroup
67 \noexpand\setkeys{kulemt}{\the\toks@}}%
68 \@tempa
69 \let\CurrentOption\@empty}%

```

After processing the class options, invalidate all class options so they can't be used in subsequent \setup commands.

```

70 \@for\@tempa:=\kulemt@clskeys\do{%
71 \expandafter\kulemt@invalidate@key\expandafter{\@tempa}{%
72 as a class option}}

```

\kulemt@getkey The \kulemt@getkey command is a copy of \KV@getkey of the kvoptions package. It is used inside \kulemt@process@options to get the key from a key-value pair.

```

73 \def\kulemt@getkey#1=#2\@nil{#1}

```

\kulemt@update@classoptions The \kulemt@update@classoptions command removes the first key-value pair with a value of exactly one token from \@classoptionslist. We assume we don't have single letter values so we can use it to remove pairs with a value surrounded by braces. We also assume that these key-value options are only used in the class itself and don't have to be kept as global options for other packages. As you see, we make a lot of assumptions here!

```

74 \def\kulemt@update@classoptions#1=#2#3=#4\@nil{%
75 \def\@tempa{#3}\ifx\@tempa\@empty
76 \def\@tempa##1,#1=##2,##3\@nil{##1,##3\@nil}%
77 \def\@tempb,##1,\@nil{##1}%
78 \xdef\@classoptionslist{\expandafter\expandafter\expandafter\@tempb
79 \expandafter\@tempa\expandafter,\@classoptionslist,\@nil}%
80 \fi}

```

3.2.2 Keys which can only be used as class options

The following keys can only be used as class options because they are either used directly in this class file or they must be passed as class options to `memoir`. These options are defined with `\kulemt@clskey`.

Selecting the master's programme

master Option “`master=<id>`”. (required option)
The `<id>` defines the master's programme. The set of allowed `<id>`s is defined later in the configuration file.

```
81 \kulemt@clskey{master}{\lowercase{\edef\kulemt@opt@master{#1}}}
```

`\kulemt@opt@master` The `<id>` is lowercased and saved in `\kulemt@opt@master`.

```
82 \def\kulemt@opt@master{}
```

Type size

10pt Option “10pt” or “11pt”. (default is 11pt)

11pt These two options are mutually exclusive.

```
83 \kulemt@clsopt{10pt}{\def\kulemt@ptsize{0}}
```

```
84 \kulemt@clsopt{11pt}{\def\kulemt@ptsize{1}}
```

`\kulemt@ptsize` The last digit of the type size is stored in the command `\kulemt@ptsize`. It is initialised with the default value (11pt). It will be passed to `memoir` but will also be used to determine the page layout.

```
85 \def\kulemt@ptsize{1}
```

Printing options

openright Option “openright” or “openleft” or “openany”. (default is openright)

openleft These three options are mutually exclusive. They determine on which page a chapter starts: recto, verso or any page. These options are passed directly to the `memoir` class.

openany

```
86 \kulemt@clsopt{openright}{\PassOptionsToClass{open}{memoir}}
```

```
87 \kulemt@clsopt{openany}{\PassOptionsToClass{openany}{memoir}}
```

```
88 \kulemt@clsopt{openleft}{\PassOptionsToClass{openleft}{memoir}}
```

oneside Option “oneside” or “twoside”. (default is twoside)

twoside These two options are mutually exclusive. They indicate whether the document will be printed on one or both sides of the paper. When you prepare electronic documents, it makes sense to choose the `oneside` option.

```
89 \kulemt@clsopt{oneside}{\PassOptionsToClass{oneside}{memoir}}
```

```
90 \kulemt@clsopt{twoside}{\PassOptionsToClass{twoside}{memoir}}
```

bind Option “bind=<dimen>”. (default 0pt)

This option specifies the loss `<dimen>` of visible paper due to binding the book.

```
91 \kulemt@clskey{bind}{\setlength\kulemt@bind{#1}}
```

`\kulemt@bind` The `<dimen>` is saved in the register `\kulemt@bind`. It is initialised with the default value 0pt.

```
92 \newdimen\kulemt@bind
```

```
93 \kulemt@bind\z@
```

draft Option “draft”.

The **draft** option is passed directly to the memoir class. The effect is to mark overfull lines and to not show graphics content.

```
94 \kulemt@clsopt{draft}{\PassOptionsToClass{draft}{memoir}}
```

Language options

These options pass information to the babel package, which is included by default.

\kulemt@babel@opt The options of the babel package are collected in the **\kulemt@babel@opt** command. At least the languages English and Dutch are initialised since they may be used on the title or copyright page.

```
95 \def\kulemt@babel@opt{english,dutch}
```

dutch Option “dutch” or “english”.

english These options allow you to select the main text language. Since you can have only one main text language, the two options are mutually exclusive.

```
96 \kulemt@clskey{dutch}{\def\kulemt@language{dutch}}
```

```
97 \kulemt@clskey{english}{\def\kulemt@language{english}}
```

\kulemt@language The text language is stored in the command **\kulemt@language**. It is initialised with the master’s programme language, which will be stored in **\kulemt@master@language**.

```
98 \def\kulemt@language{\kulemt@master@language}
```

extralanguage Option “extralanguage=*lang*”.

This option adds *lang* to the babel options, but only if it wasn’t included yet.

```
99 \kulemt@clskey{extralanguage}{%
```

```
100 \edef\@tempa{,{#1,},{\kulemt@babel@opt,}}\expandafter\in@\@tempa
```

```
101 \ifin\else \edef\kulemt@babel@opt{#1,\kulemt@babel@opt}\fi}
```

Options to disable package loading

Some of the packages loaded below may be absent in a specific installation or they may conflict with other packages used in the document. Therefore we provide options to disable them in case of emergency.

nomicrotype Option “nomicrotype”.

This option disables the microtype package.

```
102 \kulemt@clskey{nomicrotype}{\kulemt@microtypefalse}
```

\ifkulemt@microtype The switch **kulemt@microtype** indicates whether the microtype must be loaded or not. By default it is loaded.

```
103 \newif\ifkulemt@microtype \kulemt@microtypetrue
```

Other options

fleqn Option “fleqn”.

The **fleqn** option is passed directly to the memoir class. The effect is to flush equations left.

```
104 \kulemt@clskey{fleqn}{\PassOptionsToClass{fleqn}{memoir}}
```


`oldfontcommands` Option “oldfontcommands”.

The `oldfontcommands` option is passed directly to the `memoir` class. It makes the old, deprecated LaTeX version 2.09 font commands available.

```
105 \kulemt@clsopt{oldfontcommands}{%
106   \PassOptionsToClass{oldfontcommands}{memoir}}
```

3.2.3 Keys which can only be used once

The following keys can only be used once in the preamble, either as an option or once in `\setup`.

`\kulemt@do@once@opts` The `\kulemt@do@once@opts` command holds the commands to execute once, either after option processing later on or at the end of `\setup`.

```
107 \gdef\kulemt@do@once@opts{}
```

`\kulemt@add@once@opts` The `\kulemt@add@once@opts{<key>}{<cs>}{<coms>}` command appends `<coms>` to `\kulemt@do@once@opts`, surrounded by a test. The commands `<coms>` are only executed if the command `<cs>` is not empty. When the commands `<coms>` executed, the key `<key>` is invalidated.

```
108 \def\kulemt@add@once@opts#1#2#3{\g@addto@macro\kulemt@do@once@opts{%
109   \ifx #2\@empty\else
110     \kulemt@invalidate@key{#1}{once}%
111     \def\@tempa{#3\let#2\@empty}%
112     \expandafter\@tempa
113   \fi}}
```

Setting the master’s programme option

`masteroption` Option “masteroption=`<mo>`”. (default is no option)

The `<mo>` defines the master’s programme option or major topic (in Dutch “optie” or “afstudeerrichting”). The `<mo>` is a text starting with “option ...” (or “optie ...” or “afstudeerrichting ...”). If the master’s programme defines options (see `\kulemt@def@master` for details) you can use the option abbreviation here.

The `<mo>` can be a comma separated list of options in case students of different master’s programme options work on one common master’s thesis. If a comma is used inside a master’s programme option declaration, it must be hidden inside braces.

```
114 \define@key{kulemt}{masteroption}{\def\kulemt@opt@masteroption{#1}}
```

`\kulemt@opt@masteroption` The `<mo>` is saved in `\kulemt@opt@masteroption`.

```
115 \def\kulemt@opt@masteroption{}
```

`\kulemt@master@option` At the end of `\setup` the command `\kulemt@master@option` is set. It holds a comma separated list of the expanded master’s programme option texts.

```
116 \def\kulemt@master@option{}
```

If the lowercased `\kulemt@opt@masteroption` is an abbreviation of an option specified in `\kulemt@master@options`, `\kulemt@master@option` is set to the full master’s programme option. Otherwise `\kulemt@master@option` is set to the original content of `\kulemt@opt@masteroption`.

If `\kulemt@opt@masteroption` is a comma separated list, each item in the list is

handled in the way described above.

If a master’s programme does not want options to be printed, raise an error if the option “masteroption” is used.

```

117 \kulemt@add@once@opts{masteroption}\kulemt@opt@masteroption{%
118   \global\let\kulemt@master@option\@empty
119   \ifx\kulemt@master@options@v1\relax
120     \ifx\kulemt@opt@masteroption\@empty\else
121       \kulemt@error{%
122         The option ‘masteroption’ is ignored because\MessageBreak
123         your programme disallows a master’s programme option on front pages}%
124       \fi
125     \else
126       \@for\@tempa:=\kulemt@opt@masteroption\do{%
127         \let\@tempc\@tempa
128         \expandafter\kulemt@handle@mo\expandafter\kulemt@master@options
129         \expandafter{%
130           \expandafter\kulemt@add@mo@tempc\expandafter{\@tempa}}%
131         \expandafter\g@addto@macro\expandafter\kulemt@master@option
132         \expandafter{\@tempc,}%
133       \fi}

```

`\kulemt@add@mo@tempc` The command `\kulemt@add@mo@tempc{<smo>}{<abbrev>}{<full>}` adds to `\@tempc` `<full>` if the lowercased `<smo>` (a single master’s programme option) equals `<abbrev>`.

```

134 \def\kulemt@add@mo@tempc#1#2#3{%
135   \lowercase{\def\@tempa{#1}\def\@tempb{#2}\ifx\@tempa\@tempb
136     \def\@tempc{#3}\fi}

```

`\kulemt@handle@mo` The command `\kulemt@handle@mo{<molist>}{<func>}` processes each element from the token list `<molist>`, such as `\kulemt@master@options`, with `<func>`.

```

137 \def\kulemt@handle@mo#1#2{%
138   \expandafter\@tfor\expandafter\@tempd\expandafter:\expandafter=#1\do{%
139     \expandafter\kulemt@handle@mo@\@tempd\@nil{#2}}

```

`\kulemt@handle@mo@` Helper command which calls `<func>{<abbrev>}{<full>}`.

```

140 \def\kulemt@handle@mo@ #1:#2\@nil #3{#3{#1}{#2}}

```

Input file encoding

`inputenc` Option “inputenc=`<enc>`”.

This option specifies the character encoding `<enc>` of the document. The `<enc>` must be a valid option of the `inputenc` package, e.g., `latin1` or `utf8`. If this option is not used, the document is supposed to use the ASCII character encoding. To detect another encoding, we set the input encoding initially to `ascii`.

```

141 \RequirePackage[ascii]{inputenc}
142 \define@key{kulemt}{inputenc}{\def\kulemt@opt@inputenc{#1}}

```

`\kulemt@opt@inputenc` The `<enc>` is saved in `\kulemt@opt@inputenc`.

```

143 \def\kulemt@opt@inputenc{}

```

At the end of `\setup` the input encoding is changed.

```

144 \kulemt@add@once@opts{inputenc}\kulemt@opt@inputenc{%
145   \inputencoding\kulemt@opt@inputenc}

```

Fonts

font Option “font=⟨*fnt*⟩” or “font=⟨*fnt*⟩:⟨*fntopt*⟩”. (default is **cm**)

The key **font** lets you specify the font family ⟨*fnt*⟩ to use. A font family consists of a serif font, a sans-serif font, a typewriter font and a math font. In our implementation we also set the font encoding. The comma separated list ⟨*fntopt*⟩ holds the options to pass to the font definition package. This implies that the possibilities and their meaning depends on the ⟨*fnt*⟩.

```
146 \define@key{kulemt}{font}{%
147   \edef\@tempa{\zap@space#1 \@empty}%
148   \expandafter\kulemt@set@font\@tempa::\@empty}
```

\kulemt@set@font The **\kulemt@set@font** command parses “⟨*fnt*⟩:⟨*fntopt*⟩” and calls the handler **\kulemt@set@font@⟨*fnt*⟩{⟨*fntopt*⟩}**. If the handler is not defined, an error is signalled.

```
149 \def\kulemt@set@font#1:#2:#3\@empty{%
150   \expandafter\let\expandafter\@tempa
151     \csname kulemt@set@font@#1\endcsname
152   \ifx\@tempa\relax
153     \kulemt@error{Font ‘#1’ is ignored because it is an unknown font}%
154   \else \@tempa{#2}\fi}
```

\kulemt@loadfont@ Every handler must define **\kulemt@loadfont@** to hold the commands to define the different fonts.

```
155 \let\kulemt@loadfont@\@empty
```

At the end of **\setup** the fonts are loaded, followed by the **microtype** package.

```
156 \kulemt@add@once@opts{font}\kulemt@loadfont@{%
157   \kulemt@loadfont@ \kulemt@loadmt}
```

The font options described below show the implemented font families.

font=cm Option “font=cm”.

Use the Computer Modern family: **cmr** (serif), **cmss** (sans-serif), **cmtt** (typewriter), and Computer Modern math. OT1 is used as character encoding.

\kulemt@set@font@cm Since these are the default L^AT_EX fonts, nothing special has to be done.

```
158 \def\kulemt@set@font@cm#1{\let\kulemt@loadfont@\relax}
```

font=lm Option “font=lm”.

Use the Latin Modern family: **lmr** (serif), **lmss** (sans-serif), **lmtt** (typewriter), and Latin Modern math. T1 is used as character encoding.

\kulemt@set@font@lm On older systems, Latin Modern is not installed by default, so we have to check for it.

```
159 \def\kulemt@set@font@lm#1{%
160   \IfFileExists{lmodern.sty}%
161   {\def\kulemt@loadfont@{%
162     \RequirePackage[T1]{fontenc}%
163     \RequirePackage{lmodern}}}%
164   {\kulemt@opt@missingpkg{font=lm}{lm}}}
```

font=palatino Option “font=palatino” or “font=palatino:⟨*mpopts*⟩”.

Use Palatino as serif font, Helvetica as sans-serif, **lmtt** (if available) as typewriter,

and Pazo math. T1 is used as character encoding. For possible $\langle mpopts \rangle$ options to the `mathpazo` package, see its documentation.

Note: if the FPL fonts are installed use `sc` as part of $\langle mpopts \rangle$ to get real small caps.

`\kulemt@set@font@palatino` Helvetica is scaled down to fit the x-height of Palatino.

```
165 \def\kulemt@set@font@palatino#1{%
166   \def\kulemt@loadfont@{%
167     \RequirePackage[T1]{fontenc}%
168     \RequirePackage[#1]{mathpazo}%
169     \RequirePackage[scaled=.9]{helvet}}%
170   \IfFileExists{lmodern.sty}{%
171     \g@addto@macro\kulemt@loadfont@{%
172       \renewcommand{\ttdefault}{lmtt}}}{}}
```

`font=times` Option “`font=times`” or “`font=times: $\langle mtopts \rangle$ ”.`

Use Times as serif font, Helvetica as sans-serif, `lmtt` (if available) as typewriter, and the virtual ‘`mathptmx`’ fonts as math font. T1 is used as character encoding. For possible $\langle mtopts \rangle$ options to the `mathptmx` package, see its documentation. Note: This implementation has no boldmath version!

`\kulemt@set@font@times` Helvetica is scaled down to fit the x-height of Times.

```
173 \def\kulemt@set@font@times#1{%
174   \def\kulemt@loadfont@{%
175     \RequirePackage[T1]{fontenc}%
176     \RequirePackage[#1]{mathptmx}%
177     \RequirePackage[scaled=.9]{helvet}}%
178   \IfFileExists{lmodern.sty}{%
179     \g@addto@macro\kulemt@loadfont@{%
180       \renewcommand{\ttdefault}{lmtt}}}{}}
```

`font=utopia` Option “`font=utopia`” or “`font=utopia: $\langle muopts \rangle$ ”.`

Use Utopia as serif font, Helvetica as sans-serif, `lmtt` (if available) as typewriter, and the Fourier math font. T1 is used as character encoding. For possible $\langle muopts \rangle$ options to the `fourier` package, see its documentation.

`\kulemt@set@font@utopia` This option requires the `fourier` package for the math fonts. Helvetica is scaled down to fit the x-height of Utopia.

```
181 \def\kulemt@set@font@utopia#1{%
182   \IfFileExists{fourier.sty}%
183   {\def\kulemt@loadfont@{%
184     \RequirePackage[T1]{fontenc}%
185     \RequirePackage[#1]{fourier}%
186     \RequirePackage[scaled=.9]{helvet}}%
187   \IfFileExists{lmodern.sty}{%
188     \g@addto@macro\kulemt@loadfont@{%
189       \renewcommand{\ttdefault}{lmtt}}}{}}%
190   {\kulemt@opt@missingpkg{font=utopia}{fourier}}}
```

3.2.4 Keys which can be used multiple times

The following keys can be used multiple times in the preamble, as an option and in every `\setup`.

Information for the title page

- title** Option “`title=<title>`”. (required option)
 This option sets the title using the standard L^AT_EX command `\title`, which stores `<title>` in `\@title`. Using `\title` and `\@title` also ensures that the `hyperref` package picks up the title.
 Since this is a required option, `\@title` is initialised with an error message.
- ```
191 \define@key{kulemt}{title}{\title{#1}}
192 \def\@title{\kulemt@error{No title given}}
```
- subtitle** Option “`subtitle=<stitle>`”.  
 This option specifies the subtitle `<stitle>`.
- ```
193 \define@key{kulemt}{subtitle}{\def\kulemt@subtitle{#1}}
```
- \kulemt@subtitle** The `<stitle>` is saved in `\kulemt@subtitle`.
- ```
194 \def\kulemt@subtitle{}
```
- author** Option “`author=<authors>`”. (required option)  
 This option sets the authors using the standard L<sup>A</sup>T<sub>E</sub>X command `\author`, which stores `<authors>` in `\@author`. Using `\author` and `\@author` also ensures that the `hyperref` package picks up the authors. If multiple authors are given, they should be separated by `\and`.  
 Since this option is a required option, `\@author` is initialised with an error message.
- ```
195 \define@key{kulemt}{author}{\author{#1}}
196 \def\@author{\kulemt@error{No author given}}
```
- promotor** Option “`promotor=<promoters>`” or “`promoter=<promoters>`”. (required)
promoter This option lists the promoter(s). If multiple promoters are given, they should be separated by `\and`. No empty value is allowed since a promoter must be printed on the front pages.
- ```
197 \define@key{kulemt}{promotor}{%
198 \def\@tempa{#1}\ifx\@tempa\empty\else \def\kulemt@promotor{#1}\fi}
```
- The option `promoter` is an alias to option `promotor`, so the correct English terminology can also be used.
- ```
199 \let\KV@kulemt@promoter\KV@kulemt@promotor
```
- \kulemt@promotor** The `<promoters>` is saved in `\kulemt@promotor`. Since the `promotor` option is a required option, the command is initialised with an error message.
- ```
200 \def\kulemt@promotor{\kulemt@error{No promoter given}}
```
- assessor** Option “`assessor=<assessors>`”. (required option)  
 This option lists the assessors, separated by `\and`.
- ```
201 \define@key{kulemt}{assessor}{\def\kulemt@assessor{#1}}
```
- \kulemt@assessor** The `<assessors>` is saved in `\kulemt@assessor`. Since the `assessor` option is a required option, the command is initialised with an error message.
- ```
202 \def\kulemt@assessor{\kulemt@error{No assessor given}}
```
- assistant** Option “`assistant=<assistants>`”. (required option)  
 This option lists the assistant(s). If multiple assistants are given, they should be separated by `\and`.
- ```
203 \define@key{kulemt}{assistant}{\def\kulemt@assistant{#1}}
```

`\kulemt@assistant` The $\langle assistants \rangle$ is saved in `\kulemt@assistant`. Since the `assistant` option is a required option, the command is initialised with an error message.

```
204 \def\kulemt@assistant{\kulemt@error{No assistant given}}
```

`acyear` Option “`acyear= $\langle acyear \rangle$ ”`. (default the current academic year)
This option sets the academic year of the thesis. The $\langle acyear \rangle$ should have a format like “`{2009 -- 2010}`”. This option should probably not be used because the default works quite well.

```
205 \define@key{kulemt}{acyear}{\def\kulemt@acyear{#1}}
```

`\kulemt@acyear` The $\langle acyear \rangle$ is saved in `\kulemt@acyear`. If the value is empty, the current academic year must be used.

```
206 \def\kulemt@acyear{}
```

`\kulemt@acyear@t` The command `\kulemt@acyear@t` typesets the academic year. If `\kulemt@acyear` hasn’t been set yet, its value is computed and stored in that command. To allow for the thesis to be printed in September, we start the academic year on October 1.

```
207 \def\kulemt@acyear@t{%
208   \ifx\kulemt@acyear\@empty
209     \@tempcnta\year \ifnum\month<10 \advance\@tempcnta@m@ne \fi
210     \@tempcntb\@tempcnta \advance\@tempcntb\@ne
211     \xdef\kulemt@acyear{\the\@tempcnta\space -- \the\@tempcntb}%
212   \fi
213   \kulemt@acyear}
```

Additional information for the filing card

Since not every master’s programme requires the use of a filing card, the options below are only required when the filing card is used.

`translatedtitle` Option “`translatedtitle= $\langle title2 \rangle$ ”`. (required option)

This option specifies the title in the language other than the text language.

```
214 \define@key{kulemt}{translatedtitle}{\def\kulemt@translatedtitle{#1}}
```

`\kulemt@translatedtitle` The $\langle title2 \rangle$ is saved in `\kulemt@translatedtitle`. Since the option is a required option if the filing card is used, the command is initialised with an error message.

```
215 \def\kulemt@translatedtitle{%
216   \kulemt@error{No translated title available}}
```

`shortabstract` Option “`shortabstract= $\langle short abstract \rangle$ ”`.

This option specifies the short abstract for the filing card.

```
217 \define@key{kulemt}{shortabstract}{\def\kulemt@shortabstract{#1}}
```

`\kulemt@shortabstract` The $\langle short abstract \rangle$ is saved in `\kulemt@shortabstract`. Since the option is a required option if the filing card is used, the command is initialised with an error message.

```
218 \def\kulemt@shortabstract{%
219   \kulemt@error{No short abstract available}}
```

`udc` Option “`udc= $\langle UDC nr \rangle$ ”`.

This option specifies the UDC number. No UDC number formatting is checked.

```
220 \define@key{kulemt}{udc}{\def\kulemt@udc{#1}}
```

`\kulemt@udc` The $\langle UDC\ nr \rangle$ is saved in `\kulemt@udc`. Since the option is a required option if the filing card is used, the command is initialised with an error message.

```
221 \def\kulemt@udc{%
222   \kulemt@error{UDC number missing}}
```

`keywords` Option “`keywords= $\langle keywordlist \rangle$ ”.`

This option specifies the list of keywords.

```
223 \define@key{kulemt}{keywords}{\def\kulemt@keywords{#1}}
```

`\kulemt@keywords` The $\langle keywordlist \rangle$ is saved in `\kulemt@keywords`.

```
224 \def\kulemt@keywords{}
```

`articletitle` Option “`articletitle= $\langle arttitle \rangle$ ”.`

This option specifies the title of the thesis article, which is required by some master’s programmes, to be put on the filing card.

```
225 \define@key{kulemt}{articletitle}{\def\kulemt@article@title{#1}}
```

`\kulemt@article@title` The $\langle arttitle \rangle$ is saved in `\kulemt@article@title`.

```
226 \def\kulemt@article@title{}
```

Conditionally generating pages

`coverpageonly` Option “`coverpageonly`”.

When this option is used, only the cover page is generated. If it is not used, no cover page is generated.

```
227 \kulemt@keynovalue{coverpageonly}{\kulemt@coverpagetrue}
```

`\ifkulemt@coverpage` The switch `kulemt@coverpage` remembers whether the cover page should be generated or not.

```
228 \newif\ifkulemt@coverpage
```

`frontpagesonly` Option “`frontpagesonly`”.

When this option is used, only the front pages (title page, copyright page and filing card) are generated. If it is not used, the complete document is generated.

```
229 \kulemt@keynovalue{frontpagesonly}{\kulemt@frontpagetrue}
```

`\ifkulemt@frontpages` The switch `kulemt@frontpages` remembers whether only the front pages should be generated or not.

```
230 \newif\ifkulemt@frontpages
```

`filingcard` Option “`filingcard`”.

When this option is used, the filing card is printed, even if the master’s programme doesn’t require it. When the master’s programme requires a filing card, it will be printed anyway regardless of the use of this option.

```
231 \kulemt@keynovalue{filingcard}{\kulemt@filingcardtrue}
```

`\ifkulemt@filingcard` The switch `kulemt@filingcard` tells us whether a filing card should be printed or not. Its default is set by `\kulemt@set@master`. The option `filingcard` makes it true.

```
232 \newif\ifkulemt@filingcard
```

Other options

`bindcover` Option “`bindcover=<dimen>`”. (default 0pt)

This option specifies the loss $\langle dimen \rangle$ of visible paper due on the cover page only due to the binding tape. Because of the new cover page layout, it became obsolete in version 1.7.

```
233 \define@key{kulemt}{bindcover}{\ClassWarningNoLine{kulemt}{cls{%
234     Option ‘bindcover’ is no longer supported}}}
```

3.2.5 Commands for the configuration file

Auxiliary commands

`\kulemt@def@master` The `\kulemt@def@master{<id>}{<deflist>}` command defines the data specific to the master’s programme with abbreviation $\langle id \rangle$. The $\langle deflist \rangle$ contains an unseparated list of groups (or single letters) with the following meaning:

1. N (Dutch) or E (English): the master’s programme language (the official language of the master’s programme)
2. Number for faculty identification (use braces if more than one digit). See `\kulemt@facnum` for more information.
3. F or N: always print a filing card (F) or not (N)
4. Master’s programme colours, using the format “ $\{\langle background \rangle : \langle text \rangle\}$ ” or “ $\{\langle background \rangle\}$ ”. The default $\langle background \rangle$ colour is white and the default $\langle text \rangle$ colour is black. When specified, each colour is given as a comma separated list of C,M,Y,K fractions.
5. Master’s thesis title (between braces)
6. Optional copyright contact info $\{\langle address \rangle : \langle phone \rangle : \langle email \rangle\}$. If this element isn’t present, the Faculty information is used.
7. Optional unseparated list of master’s programme options. Each option is surrounded by braces and consists of an abbreviation, followed by `:` and the title of the option.
8. Optional unseparated list of obsolete master’s programme options. Each option is surrounded by braces and consists of an abbreviation, followed by `:` and the title of the option. You have to make sure that the abbreviation doesn’t conflict with an abbreviation of a master’s programme option.

As soon as an optional element isn’t used, any of the following elements can’t be used either.

```
235 \def\kulemt@def@master#1{\@namedef{kulemt@m@#1}}
```

`\kulemt@obsolete@master` The `\kulemt@obsolete@master[<spec>]{<id>}{<deflist>}` command defines the master’s programme specific data in the same way as `\kulemt@def@master`, but for an obsolete master’s programme with abbreviation $\langle id \rangle$. The optional argument $\langle spec \rangle$ lets you specify the version of the obsolete master’s programme. Using the year the master’s programme became obsolete, may be a good $\langle spec \rangle$.

```
236 \newcommand*\kulemt@obsolete@master[2][{}]{%
237     \@namedef{kulemt@m@#2}{if &#1&\else .#1\fi}}
```


This way a user can still generate a thesis for an obsolete master's programme by using a master id “ $\langle id \rangle.\langle spec \rangle$ ” or “ $\langle id \rangle$ ” if $\langle spec \rangle$ is empty or missing.

`\kulemt@set@master` The command `\kulemt@set@master` isn't a command for the configuration file, but it is defined here because it is related to the previous command.
`\kulemt@master@language` It sets the commands `\kulemt@master@language` (the master's programme language), `\kulemt@facnum` (the faculty number of the master's programme),
`\kulemt@master@title` `\kulemt@master@colors` (the master's programme colours formatted as “ $\langle bg \rangle:\langle fg \rangle$ ” or “ $\langle bg \rangle$ ”), `\kulemt@master@title` (the name of the master's programme),
`\kulemt@copyright@contact` `\kulemt@copyright@contact` (the contact information for the copyright), and
`\kulemt@master@options` `\kulemt@master@options` (a list of master's programme options).

```

238 \def\kulemt@set@master#1#2#3#4#5#6#7#8#9\@nil{%
239   \edef\kulemt@master@language{%
240     \if N\@car#1\@nil dutch\else english\fi}%
241   \kulemt@facnum=#2\relax
242   \if F\@car#3\@nil \kulemt@filingcardtrue \fi
243   \def\kulemt@master@colors{#4}%
244   \def\kulemt@master@title{#5}%
245   \def\kulemt@copyright@contact{#6}%
246   \ifx\kulemt@copyright@contact\@empty
247     \protected@edef\kulemt@copyright@contact{\kulemt@fac@copyright}%
248   \fi
249   \@ifnextchar[\kulemt@set@mo{\kulemt@set@mo[]}{#7\@nil{#8}}
```

`\kulemt@set@mo` The command `\kulemt@set@mo[\langle list \rangle]\langle valid \rangle\@nil{\langle obsolete \rangle}` stores the information on the master's programme options.

`\kulemt@master@options@v` The valid master's programme options $\langle valid \rangle$ can be found in `\kulemt@master@options@v`,
`\kulemt@master@options@o` while the obsolete options $\langle obsolete \rangle$ are stored in `\kulemt@master@options@o`.

`\kulemt@master@options@v1` If setting the option is required by the master's programme, `\kulemt@master@options@v1` contains $\langle list \rangle$, a list of abbreviated options to choose from. If the $\langle list \rangle$ is “-”, the command is undefined and the option variables are emptied.

```

250 \def\kulemt@set@mo[#1]#2\@nil#3{%
251   \def\kulemt@master@options@v1{#1}%
252   \def\kulemt@master@options@v{-}%
253   \ifx\kulemt@master@options@v1\kulemt@master@options@v
254     \let\kulemt@master@options@v1\relax
255     \let\kulemt@master@options@v\@empty
256     \let\kulemt@master@options@o\@empty
257     \let\kulemt@master@options\@empty
258   \else
259     \def\kulemt@master@options@v{#2}%
260     \def\kulemt@master@options@o{#3}%
261     \def\kulemt@master@options{#2#3}%
262   \fi}
```

`\kulemt@getcolors` The command `\kulemt@getcolors` splits the master's programme colour specification, as specified for `\kulemt@master@colors`, into the background and the text colour. The are stored respectively in `\kulemt@color@bg` and `\kulemt@color@fg`.

```

263 \def\kulemt@getcolors#1:#2:#3\@nil{%
264   \edef\kulemt@color@bg{\if !#1!\white\else [cmyk]{#1}\fi}%
265   \edef\kulemt@color@fg{\if !#2!\black\else [cmyk]{#2}\fi}}
```

`\kulemt@div@master` When typesetting the contents of the configuration file, it's nice to divide up the long list of master's programmes. Therefore the command `\kulemt@div@master{<head>}` is introduced. It normally simply gobbles its argument `<head>`. But the user can redefine it before inputting `kulemt.cfg` to have different actions on different sections.

```
266 \let\kulemt@div@master\@gobble
```

`\kulemt@end@master@def` The command `\kulemt@end@master@def` indicates the end of the master's programme information in the configuration file. The only commands allowed before it in the configuration file are `\ProvidesFile`, `\kulemt@div@master`, and `\kulemt@def@master`. All other configuration commands in the main configuration file `kulemt.cfg` must be placed after this command.

```
267 \let\kulemt@end@master@def\relax
```

Commands providing defaults

These commands store the default data if no configuration file is used. If you define them in the configuration file, you must use `\renewcommand` (or `\def`).

`\kulemt@facnum` The `\kulemt@facnum` count register stores information about which faculties are involved. It is used in commands to select faculty dependent data. The default value 1 corresponds to the Faculty of Engineering Science. The value 0 is used when multiple faculties are involved. Values larger than 1 are currently not used so they are available for other faculties or combinations.

```
268 \newcount\kulemt@facnum
269 \kulemt@facnum\@ne
```

`\kulemt@fac@name` The `\kulemt@fac@name` command is used to typeset the faculty name. This default implementation only typesets something for `\kulemt@facnum` equal to one.

```
270 \def\kulemt@fac@name{%
271   \ifcase\kulemt@facnum \or
272     Facult\kulemt@ifdutch{eit Ingenieurswetenschappen}%
273                               {y of Engineering}%
274   \fi}
```

`\kulemt@kul@fac@logo` The `\kulemt@kul@fac@logo{<igopts>}` command is used to typeset the KU Leuven logo, eventually combined with a faculty logo. The `<igopts>` options are passed to a `\includegraphics` command. This default implementation only typesets the KU Leuven logo `logokul` (`.eps` or `.pdf`). If `\kulemt@facnum` equals to one, it typesets the combined logo `logokuleng` (`.eps` or `.pdf`).

```
275 \def\kulemt@kul@fac@logo#1{%
276   \edef\@tempa{[#1]{logokul\ifnum\kulemt@facnum=\@ne eng\fi}}%
277   \expandafter\includegraphics\@tempa}
```

`\kulemt@fac@logo` The `\kulemt@fac@logo{<igopts>}` command is used to typeset the faculty logo. The `<igopts>` options are passed to an `\includegraphics` command. The default implementation is a no-op.

```
278 \def\kulemt@fac@logo#1{}
```

`\kulemt@fac@copyright` The `\kulemt@fac@copyright` command is used to generate the default copyright contact information¹. It must *always* generate contact information! This default

¹See `\kulemt@contact@scan` for the format used.

implementation uses the Faculty of Engineering Science data, also if the master's programme belongs to multiple faculties. Other cases (`\kulemt@facnum > 1`) simply refer to the promoter.

```

279 \def\kulemt@fac@copyright{%
280   \ifnum\kulemt@facnum >\@ne
281     \kulemt@ifdutch d{th}e \MakeLowercase{\noexpand\kulemt@paa@0}::%
282   \else
283     Faculteit Ingenieurswetenschappen, Kasteelpark Arenberg 1 bus 2200,
284     B-3001 Leuven:+32-16-321350:%
285   \fi}

```

Note that this command is used in a moving argument, so only robust commands are allowed inside its definition! However we use `\noexpand` instead of `\protect` before `\kulemt@paa@` to guard only against the first expansion in `\kulemt@set@master`. Otherwise `\MakeLowercase` won't work.

`\kulemt@paa@` The command `\kulemt@paa@{<num>}` generates the labels for promoters (if `<num>` is 0), assessors (if `<num>` is 1), or assistants (if `<num>` is 2).

```

286 \def\kulemt@paa@#1{%
287   \ifcase #1%
288     Promot\kulemt@ifand\kulemt@promotor{\kulemt@ifdutch{oren}{ers}}{}}%
289   \or
290     Assessor\kulemt@ifand\kulemt@assessor{\kulemt@ifdutch{en}{s}}{}}%
291   \or
292     \kulemt@ifdutch{Begeleider}{Assistant}}%
293     \kulemt@ifand\kulemt@assistant{s}}{}}%
294   \fi}

```

3.2.6 Input the configuration file

`\kulemt@cfgfile` Provide the name of the configuration if the calling class hasn't set it yet.

```

295 \providecommand*\kulemt@cfgfile{kulemt.cfg}

```

Input the file if it exists.

```

296 \ifx\kulemt@cfgfile\@empty\else
297   \InputIfFileExists\kulemt@cfgfile{}\kulemt@error{%
298     Configuration file '\kulemt@cfgfile' is not installed}}
299 \fi

```

3.2.7 Process the class options

```

300 \kulemt@process@ptions

```

Then we process the required `master` option, which must exist and must be defined in the configuration file.

```

301 \ifx\kulemt@opt@master\@empty
302   \kulemt@error{Required option 'master' missing}\fi
303 \expandafter\let\expandafter\@tempa
304   \csname kulemt@m@\kulemt@opt@master \endcsname
305 \ifx\@tempa\relax
306   \kulemt@error{%
307     Unsupported value '\kulemt@opt@master' for option 'master'}\fi
308 \expandafter\kulemt@set@master\@tempa{}\{}\@nil

```

`\kulemt@cfgfile@m` Provide the name of the master’s programme specific configuration file if the calling class hasn’t set it yet.

```
309 \ifundefined{kulemt@cfgfile@m}{%
310   \edef\kulemt@cfgfile@m{kulemt-\kulemt@opt@master.cfg}}{}
```

Input the file if it exists.

```
311 \ifx\kulemt@cfgfile@m\@empty\else
312   \InputIfFileExists\kulemt@cfgfile@m{}{}
313 \fi
```

`\kulemt@check@masteroption` Once we know the master’s programme, we can check the option and eventually expand the abbreviation. Since the option can be set with `\setup`, we have to check this at the end of the document preamble, but only if the master’s programme defines options. An error is raised if the master’s programme defines a valid option list and no master’s programme option is given.

```
314 \ifx\kulemt@master@options@v1\@empty\else
315   \ifx\kulemt@master@options@v1\relax\else
316     \def\kulemt@check@masteroption{%
317       \ifx\kulemt@master@option\@empty
318         \kulemt@error{%
319           When using option ‘master=\kulemt@opt@master’, \MessageBreak
320           you should specify at least one master’s programme
321           option. \MessageBreak
322           Allowed options are: \kulemt@master@options@v1}%
323       \fi}
324   \AtBeginDocument{\kulemt@check@masteroption}
325 \fi
326 \fi
```

3.3 Loading the required class and packages

3.3.1 The memoir class

This class is based on memoir using A4 paper. Most of its parameters are set later on in the document layout section on page 23.

```
327 \LoadClass[a4paper,1\kulemt@ptsize pt]{memoir}[2004/04/05]
```

`\and` For the hyperref option pdfusetitle to work correctly, we redefine `\and` as a newline.

```
328 \def\and{\}
```

`\andnext` At the same time the memoir command `\andnext` gets the same definition.

```
329 \let\andnext\and
```

3.3.2 The babel package

We use the babel options stored in `\kulemt@babel@opt`.

```
330 \RequirePackage[\kulemt@babel@opt]{babel}
```

English and Dutch translations of additional memoir commands are also provided.

```
331 \addto\captionenglish{%
332   \def\appendixtocname{Appendices}%
333   \def\appendixpagename{Appendices}%
```

```

334 \def\figurerefname{Figure}%
335 \def\tablerefname{Table}%
336 \def\pagerefname{page}%
337 \def\partrefname{Part~}%
338 \def\chapterrefname{Chapter~}%
339 \def\listfiguresandtablesname{List of Figures and Tables}}
340 \begingroup
341 \catcode'\active
342 \@firstofone\endgroup
343 \addto\captionsdutch{%
344     \def\appendixtocname{B"ylagen}%
345     \def\appendixpagenam{B"ylagen}%
346     \def\figurerefname{figuur}%
347     \def\tablerefname{tabel}%
348     \def\pagerefname{pagina}%
349     \def\partrefname{Deel~}%
350     \def\chapterrefname{hoofdstuk~}%
351     \def\listfiguresandtablesname{L"yst van figuren en tabellen}}

```

`\latinencoding` The T1 font encoding is always defined for the front page (cf. page 23). This confuses `babel`. So we redefine `\latinencoding` to look only at the current font encoding and ignore the fact that the T1 encoding is loaded. This resolves a microtype error when using the default Computer Modern fonts.

```

352 \AtBeginDocument{\gdef\latinencoding{T1}}%
353 \ifx\cf@encoding\latinencoding\else \xdef\latinencoding{OT1}\fi}

```

Finally the main language is set to the text language. Since `\main@language` must be fully expanded, `\kulemt@language` is expanded first. This guarantees that `\kulemt@language` can be used later on directly as a `babel` language.

Note: active characters are only activated after `\begin{document}`.

```

354 \edef\kulemt@language{\kulemt@language}
355 \expandafter\main@language\expandafter{\kulemt@language}

```

`\kulemt@selectmasterlanguage` The shorthand command `\kulemt@selectmasterlanguage` switches to the official master's programme language.

```

356 \def\kulemt@selectmasterlanguage{%
357     \expandafter\selectlanguage\expandafter{\kulemt@master@language}}

```

`\kulemt@selecttextlanguage` The shorthand command `\kulemt@selecttextlanguage` switches to the main text language.

```

358 \def\kulemt@selecttextlanguage{%
359     \expandafter\selectlanguage\expandafter{\kulemt@language}}

```

3.3.3 The `graphicx` and `color` package

The package `graphicx` is needed for including images on the cover and the title page.

```

360 \RequirePackage{graphicx}

```

The package `color` is needed for the cover page, but it is also used to color the hyperlinks.

```

361 \RequirePackage{color}

```

3.3.4 The microtype package

Using the `microtype` package results in much nicer output: less overfull hboxes and less hyphenation. The user can always setup or disable `microtype` with `\microtypesetup`.

`\kulemt@loadmt` Older versions must be loaded after font definitions, so we postpone requiring the package with `\kulemt@loadmt`. The best place to load it is after the font declaration, so the user can put a `\microtypesetup` after it. Therefore it will be loaded after the `\setup` which declares the fonts (see p. 11). If the user doesn't use the `font` option, it must be loaded at the end of the preamble. This implies that `\kulemt@loadmt` can be called twice. We also have to take into account that the user herself may have required the package already in the preamble, e.g., with options.

```
362 \def\kulemt@loadmt{%
363   \ifpackageloaded{microtype}{\RequirePackage{microtype}}{}
364   \AtBeginDocument{\kulemt@loadmt}
```

The package `microtype` is not available in older installation, so it's only used when available and wanted by the user (option `nomicrotype`) and pdfTeX is used in PDF mode. When the package is not used, a message is put in the log file. In the following code, `\@tempa` temporarily stores the reason why the package wasn't loaded.

```
365 \ifkulemt@microtype
366   \ifpdf
367     \IfFileExists{microtype.sty}{\%
368       \def\@tempa{the package is not installed}%
369       \kulemt@microtypefalse}
370   \else
371     \def\@tempa{you're not using pdflatex in pdf mode}
372     \kulemt@microtypefalse
373   \fi
374 \else
375   \def\@tempa{option 'nomicrotype' was used}
376 \fi
377 \ifkulemt@microtype\else
378   \let\kulemt@loadmt\relax
379   \ClassWarningNoLine\kulemt@cls{%
380     Package 'microtype' not used because\MessageBreak
381     \@tempa}%
382 \fi
```

3.3.5 The hyperref package

The package `hyperref` is wanted to create useful PDF files. Because it interacts with many other packages, it is not loaded by default.

`\kulemt@check@hyperref` If `hyperref` has been been loaded, some additional actions are needed, which are stored in `\kulemt@check@hyperref`.

```
383 \def\kulemt@check@hyperref{%
384   \ifpackageloaded{hyperref}{%
```

`\HyPsd@babel@dutch` It seems that some `babel` ligatures are not translated to an equivalent character sequence for the bookmarks. I guess it should be reported as a feature request, but for the time being and for older versions, we provide them ourselves.

```

385 \ifundefined{HyPsd@babel@dutch}{-}{%
386 \addto\HyPsd@babel@dutch{%
387 \declare@shorthand{dutch}{"}{ij}%
388 \declare@shorthand{dutch}{"}{IJ}}}%

```

The package `memhfixc` provides `hyperref` related fixes and extensions for `memoir`. Newer versions of `hyperref` load this automatically, but we require it for older versions.

```

389 \ifpackageloaded{memhfixc}{-}{%
390 \RequirePackage{memhfixc}}%

```

`\theHsubfigure` To avoid name conflicts, subfloats should be numbered within the parent float.

`\theHsubtable` The defaults are provided for the most common cases of subfigures and subtables.

```

391 \providecommand*\theHsubfigure{\theHfigure.\arabic{subfigure}}%
392 \providecommand*\theHsubtable{\theHtable.\arabic{subtable}}%
393 }{}

```

The actions from `\kulemt@check@hyperref` are executed after all packages are loaded.

```

394 \AtBeginDocument{\kulemt@check@hyperref}

```

End of option handling

Now is the time to check the one time options for the first time. They will be checked again after each `\setup`.

But before loading fonts, we make sure the T1 encoding is defined for the front page font (cf. §3.5.1) and the default L^AT_EX font encoding OT1 is selected again.

```

395 \RequirePackage[T1,OT1]{fontenc}
396 \kulemt@do@once@opts

```

3.4 Document layout

3.4.1 Page layout

The default `\headheight` and `\headsep` from `memoir` are left as is, but the text body dimensions are redefined depending on the text point size (10pt and 11pt respectively).

```

397 \ifcase\kulemt@ptsize\relax
398 \textwidth=13cm
399 \textheight=20cm
400 \or
401 \textwidth=14cm
402 \textheight=215mm
403 \fi

```

The inner (`\spinemargin`) and outer (`\foremargin`) margins are computed as follows:

$$\begin{aligned}\foremargin &= 0.6(\text{paperwidth} - \text{textwidth} - \text{binding}) \\ \spinemargin &= 0.4(\text{paperwidth} - \text{textwidth} - \text{binding}) + \text{binding}\end{aligned}$$

For one side layout, the visible parts of both margins are made equal (use a factor 0.5 instead of 0.4 and 0.6).

```
404 \spinemargin\paperwidth
405 \advance\spinemargin -\textwidth
406 \foremargin\spinemargin
407 \advance\foremargin -\kulemt@bind\relax
408 \foremargin .\if@twoside 6\else 5\fi\foremargin
409 \advance\spinemargin -\foremargin
```

Margin notes get a fixed width independent of one side or two side printing. This makes sure that printing that the PDF distribution (one side) and the printed version (two side) have the same text on each page. The separation between notes is kept as small as possible, as well as the distance from the text block.

```
410 \marginparwidth=56pt
411 \marginparsep=1.2\onelineskip
412 \marginparpush=\onelineskip
```

The lower margin is 1.2 times the upper margin. The header parameters are set to the default values.

```
413 \setulmargins{*}{*}{1.2}
414 \setheaderspaces{*}{\headsep}{*}
```

Finish up the layout definitions. Redo this at the end of the document preamble in case the user redefines some parameters (which she shouldn't of course).

```
415 \checkthelayout\fixthelayout
416 \AtBeginDocument{\checkandfixthelayout}
```

`\clearforchapter` The `open...` options only control the main matter chapters. Chapters in the front and back matter are always `openany`. If you don't like this, you can use the `\openleft` or `\openright` command in the document.

```
417 \renewcommand*\clearforchapter{%
418   \if@mainmatter
419     \if@openleft
420       \cleartoverso
421     \else
422       \if@openright
423         \cleartorecto
424       \else
425         \clearpage
426       \fi
427     \fi
428   \else
429     \clearpage
430   \fi}
```

3.4.2 Page styles

`ruled` By default the pagestyle `ruled` is used. However for front matter (actually for non-main matter) the header on odd pages is the same as on even pages, because typically front matter chapters have no sections.

```
431 \makeoddhead{ruled}{-}{-}{-}%
432 \if@mainmatter \rightmark \else \scshape\leftmark \fi}
433 \pagestyle{ruled}
```


nohead The nohead pagestyle puts the page number in the footer at the outer margin.

```
434 \makepagestyle{nohead}
435 \makeevenfoot{nohead}{\thepage}{}{}
436 \makeoddfoot{nohead}{}{}{\thepage}
```

nohead The chapter pagestyle is aliased to this new pagestyle.

```
437 \aliaspagestyle{chapter}{nohead}
```

3.4.3 Section numbering

Sections are numbered up to the subsection level.

```
438 \maxsecnumdepth{subsection}
```

But numbering in the table of contents ends at the section level.

```
439 \maxtocdepth{section}
```

3.4.4 Content lists

In memoir, content lists don't start a new page. By default it is done here. But in case only a few figures and tables are used, the new `\listoffiguresandtables` can be used.

```
440 \def\toheadstart{\clearforchapter\chapterheadstart}
441 \def\lofheadstart{\clearforchapter\chapterheadstart}
442 \def\lotheadstart{\clearforchapter\chapterheadstart}
```

`\listoffiguresandtables` The command `\listoffiguresandtables` list first the figures and then the tables on the same page.

```
443 \newcommand*\listoffiguresandtables{%
444   \chapter\listfiguresandtablesname
445   \def\@lofmaketitle{\section*\listfigurename}%
446   \listoffigures*%
447   \let\listoffigures\relax
448   \def\@lotmaketitle{\section*\listtablename}%
449   \listoftables*%
450   \let\listoftables\relax}
```

`\listfiguresandtablesname` The command `\listfiguresandtablesname` generates the title for a page combining the list of figures and of tables.

```
451 \newcommand*\listfiguresandtablesname{List of Figures and Tables}
```

The content lists are typeset ragged right without hyphenation.

```
452 \setrmarg{2.55em plus1fil}
```

For these lists the space before chapter items is halved.

```
453 \setlength{\cftbeforechapterskip}{1ex \@plus\p@}
```

3.4.5 Tables and figures

The captions of tables and figures have the last line centred. The caption name is printed in small caps. Because of bugs in some versions of memoir the font settings for the caption name must be undone for the caption title.

```
454 \captionnamefont{\scshape}
455 \captiontitlefont{\upshape}
456 \captionstyle[\centering]{\centerlastline}
```

3.5 Front material

The front material consists of the cover page, the title page, the copyright page, and the filing card. Since either the cover page or the title page are printed, we call both the front page.

3.5.1 Front page font

For the cover page and the title page the Helvetica font must be used. To avoid collisions with scaled Helvetica body fonts, a specific front page font is defined based on unscaled Helvetica. It seems that we need a T1 encoding to print accented characters when `babel` is used for Dutch.

Note: Since the font shapes are defined outside of an `.fd` file, spaces are *not* ignored in the definitions. So remove all spaces!

```
457 \DeclareFontFamily{T1}{kulemtfpf}{}
458 \DeclareFontShape{T1}{kulemtfpf}{m}{n}{<->phvr8t}{}
459 \DeclareFontShape{T1}{kulemtfpf}{m}{sc}{<->phvrc8t}{}
460 \DeclareFontShape{T1}{kulemtfpf}{m}{sl}{<->phvro8t}{}
461 \DeclareFontShape{T1}{kulemtfpf}{m}{it}{<->ssub*kulemtfpf/m/sl}{}
462 \DeclareFontShape{T1}{kulemtfpf}{bx}{n}{<->phvb8t}{}
463 \DeclareFontShape{T1}{kulemtfpf}{bx}{sc}{<->phvbc8t}{}
464 \DeclareFontShape{T1}{kulemtfpf}{bx}{sl}{<->phvbo8t}{}
465 \DeclareFontShape{T1}{kulemtfpf}{bx}{it}{<->ssub*kulemtfpf/bx/it}{}
466 \DeclareFontShape{T1}{kulemtfpf}{b}{n}{<->ssub*kulemtfpf/bx/n}{}
467 \DeclareFontShape{T1}{kulemtfpf}{b}{sc}{<->ssub*kulemtfpf/bx/sc}{}
468 \DeclareFontShape{T1}{kulemtfpf}{b}{sl}{<->ssub*kulemtfpf/bx/sl}{}
469 \DeclareFontShape{T1}{kulemtfpf}{b}{it}{<->ssub*kulemtfpf/bx/sl}{}

```

`\kulemt@fpf@title` This command selects the font used for the title (24.88 pt Helvetica).

```
470 \def\kulemt@fpf@title{\fontsize\@xxvpt{30}\selectfont}
```

`\kulemt@fpf@subtitle` This command selects the font used for the subtitle (17.28 pt Helvetica).

```
471 \def\kulemt@fpf@subtitle{\fontsize\@xvipt{22}\selectfont}
```

`\kulemt@fpf@author` This command selects the font used for the author (14.4 pt Helvetica).

```
472 \def\kulemt@fpf@author{\fontsize\@xivpt{18}\selectfont}
```

`\kulemt@fpf@txthead` This command selects the font used for the text heading (12 pt Helvetica bold).

```
473 \def\kulemt@fpf@txthead{\fontsize\@xipt{14.5}%
474 \fontseries\bfdefault\selectfont}
```

`\kulemt@fpf@text` This command selects the font used for the ordinary text (12 pt Helvetica).

```
475 \def\kulemt@fpf@text{\fontsize\@xipt{14}\selectfont}
```

`\kulemt@fpf@banner` This command selects the font used for the banner at the bottom of the page (14.4 pt Helvetica bold). The academic year text above the banner is printed in the non-bold version of this font.

```
476 \def\kulemt@fpf@banner{\fontsize\@xivpt{18}%
477 \fontseries\bfdefault\selectfont}
```

3.5.2 Utility commands

`\kulemt@master@text` The command `\kulemt@master@text` prints the full master's degree text including the option or major topic. Multiple options are separated by “and” (or “en” in Dutch).

```

478 \def\kulemt@master@text{Thesis
479   \kulemt@ifdutch
480     {voorgedragen tot het behalen van de graad van}%
481     {submitted for the degree of}
482   \kulemt@master@title
483   \ifx\kulemt@master@option\@empty\else
484     \def\@tempb{, }%
485     \@for\@tempa:=\kulemt@master@option\do{%
486       \ifx\@tempa\@empty\else
487         \@tempb \def\@tempb{ \kulemt@ifdutch{en}{and} }%
488         \@tempa
489       \fi}%
490   \fi}
```

`\kulemt@paa@fp` The command `\kulemt@paa@fp{<num>}` typesets the promoters, assessors, or assistants in front page format. The possible values of `<num>` are the same as the argument `<num>` of `\kulemt@paa@`.

```

491 \def\kulemt@paa@fp#1{%
492   \begingroup
493     \ifcase #1\relax
494       \let\@tempa\kulemt@promotor
495     \or
496       \let\@tempa\kulemt@assessor
497     \or
498       \let\@tempa\kulemt@assistant
499     \else
500       \let\@tempa\@empty
501     \fi
502     \ifx\@tempa\@empty\else
503       \medskip \begingroup
504         \kulemt@fpf@txthead \kulemt@paa@{#1}:\vskip 2\p@
505       \endgroup \@tempa \par
506     \fi
507   \endgroup}
```

3.5.3 Typesetting the front page

The front page is either the cover page or the title page. The distinction between them is made by the switch `kulemt@coverpage`: when true, the cover page is generated, otherwise the title page.

`\kulemt@frontpage` The front page contains no header or footer. It start in the front matter as page -1. Since it is followed by the copyright page (page 0), the first real page can start at 1.

```

508 \def\kulemt@frontpage{\clearpage
509   \setcounter{page}\m@ne
510   \thispagestyle{empty}%
```

The text on the front page starts on 1 cm below the upper page edge.

```
511 \@tempdima\uppermargin \advance\@tempdima\topskip
512 \advance\@tempdima\baselineskip \advance\@tempdima -1cm%
513 \null \vskip -\@tempdima
```

The typeset area on the first page is different from the rest of the text. It is always centred horizontally, also with two side printing. The binding offset is ignored as well. The margins are 16 mm, resulting in a text width of 178 mm on A4 paper. The margins are 2 cm, resulting in a text width of 17 cm on A4 paper.

```
514 \hbox to\hsize{%
515   \@tempdima 2cm\advance\@tempdima -\spinemargin \hskip\@tempdima
516   \vbox to\z@{\hsize 17cm\relax
```

All elements on the front page are positioned, so avoid inserting automatic glue.

```
517   \lineskip\z@skip \parskip\z@skip
```

The cover page may be generated by a server at a different location. To make sure that the typesetting of the front pages doesn't depend on the presence of the microtype package. Therefore micro-typography is disabled in a front page.

```
518   \@ifundefined{microtypesetup}{\microtypesetup{activate=false}}%
```

The front page text is typeset ragged right in Helvetica using the master's programme language.

```
519   \fontencoding{T1}\fontfamily{kulemtfpf}\kulemt@fpf@text
520   \raggedright \kulemt@selectmasterlanguage
```

The first line contains the KU Leuven logo on the left, eventually combined with a faculty logo, and a separate faculty logo on the right. The height of this logo line is 3 cm, which corresponds to the height of the combined KU Leuven-faculty logo. The KU Leuven logo (without attached faculty logo) has fixed dimensions (56 mm, 2 cm). The combined logo image is used at its natural dimensions, so it is up to the provider of the combined logo to make sure the KU Leuven rules are obeyed. The left margin of the KU Leuven logo is 1 cm. The optional faculty logo on the right has the same height as the KU Leuven logo.

```
521   \noindent \hskip-1cm%
522   \vbox to3cm{\hbox{\kulemt@kulfac@logo{}}\vss}\hfill
523   \vbox to3cm{\hbox{\kulemt@fac@logo{height=2cm}}\vss}%
524   \hskip-1cm\hskip\z@skip
```

The last `\hskip\z@skip` is needed because the last skip is always removed by the paragraph builder.

The minimal space before the title is 40 pt but it stretches twice as fast as the space below the author.

The title and the subtitle are printed in the main text language.

```
525   \vskip 40\p@ \@plus 2fill\relax
526   \begingroup \kulemt@selecttextlanguage
527   \kulemt@fpf@title \@title \par
```

If a subtitle is given, it is typeset at the appropriate size and at a fixed distance below the title.

```
528   \ifx\kulemt@subtitle\@empty\else
529   \vskip 1em\relax
530   \kulemt@fpf@subtitle \kulemt@subtitle \par
531   \fi
532 \endgroup
```

The minimal space before the authors is again 40 pt but with a very limited stretching. The space after it is 30 pt with the standard stretching.

```
533      \vskip 40\p@ \@plus .3fill%
534      \begingroup \kulemt@fpf@author \@author
535      \vskip 30\p@ \@plus 1fill\endgroup
```

The rest is ordinary text which is typeset ragged left, occupying at most half of the text body. First comes the degree, followed by the promoter(s). On the title page, the assessors and the assistants are also listed. The space below this text is 20 pt with the same stretching as above the title.

```
536      \noindent \hfill \vbox{\hsize .5\textwidth \raggedleft
537      \kulemt@master@text \par
538      \kulemt@paa@fp0%
539      \ifkulemt@coverpage\else
540      \kulemt@paa@fp1%
541      \kulemt@paa@fp2%
542      \fi}%
543      \vskip 20\p@ \@plus 2fill\relax
```

The academic year is printed below the text and centred on the page, with a space of 15 pt below it.

```
544      \centering \kulemt@fpf@banner
545      \textmd{Academi\kulemt@ifdutch{ejaar}{c year} \kulemt@acyear@t}%
546      \vskip 15\p@
```

A 19 cm wide and 15 mm high colour banner with the master's degree name is printed on the cover page only, placed 30 pt below the academic year. The banner is only printed if the colours \kulemt@master@colors are defined.

```
547      \ifkulemt@coverpage
548      \ifx\kulemt@master@colors\@empty\else
549      \vskip 15\p@
550      \centerline{\fboxsep\z@
551      \expandafter\kulemt@getcolors\kulemt@master@colors::\@nil
552      \expandafter\colorbox\kulemt@color@bg{%
553      \vbox to 15mm{\hsize 19cm\vss
554      \expandafter\textcolor\kulemt@color@fg{%
555      \kulemt@master@title}\vss}}}%
556      \fi
557      \fi
```

A bottom margin of 1 cm results on A4 paper in a body height of 27.7 cm.

```
558      \vskip -277mm}%
559      \hss}%
560      \clearpage}
```

`\maketitle` Because the previous command prints the title information, the command `\maketitle` is undefined to avoid problems.

```
561 \let\maketitle\relax
```

3.5.4 Typesetting the copyright page

`\kulemt@contact@print` The command `\kulemt@contact@print` prints the copyright contact information stored in `\kulemt@copyright@contact`. The format of the contact information is “`\langle address \rangle : \langle tel \rangle : \langle email \rangle`”. The `\langle address \rangle` must be written to follow “addressed to”

in English and to follow “wend u tot” in Dutch. The $\langle address \rangle$ must be present, the telephone number $\langle tel \rangle$ and the $\langle email \rangle$ may be missing.

```

562 \def\kulemt@contact@print{%
563   \expandafter\kulemt@contact@scan\kulemt@copyright@contact::\@nil}
564 \def\kulemt@contact@scan#1:#2:#3:#4\@nil{#1%
565   \def\@tempa{#2}\def\@tempb{#3}%
566   \ifx\@tempa\@empty
567     \ifx\@tempb\@empty\else , \texttt{#3}\fi
568   \else
569     , #2%
570     \ifx\@tempb\@empty\else
571       \space o\kulemt@ifdutch{f via e-}{r by e}mail \texttt{#3}%
572     \fi
573   \fi}

```

A command $\backslash\text{kulemt@copyright@}\langle lang \rangle$ must be defined for every existing master’s programme language and text language $\langle lang \rangle$. It contains the copyright text in the language $\langle lang \rangle$.

$\backslash\text{kulemt@copyright@english}$ The command $\backslash\text{kulemt@copyright@english}$ contains the copyright text in English.

```

574 \def\kulemt@copyright@english{\selectlanguage{english}}%
575 Without written permission of the \MakeLowercase{\kulemt@paa@0} and
576 the author\kulemt@ifand\@author{s}{ } it is forbidden to reproduce
577 or adapt in any form or by any means any part of this publication.
578 Requests for obtaining the right to reproduce or utilize parts of
579 this publication should be addressed to \kulemt@contact@print.\par
580 A written permission of the \MakeLowercase{\kulemt@paa@0} is also
581 required to use the methods, products, schematics and programmes
582 described in this work for industrial or commercial use, and for
583 submitting this publication in scientific contests.\par}

```

$\backslash\text{kulemt@copyright@dutch}$ The command $\backslash\text{kulemt@copyright@dutch}$ contains the copyright text in Dutch.

```

584 \def\kulemt@copyright@dutch{\selectlanguage{dutch}}%
585 Zonder voorafgaande schriftelijke toestemming van zowel de
586 \MakeLowercase{\kulemt@paa@0} als de auteur\kulemt@ifand\@author{s}{ }
587 is overnemen, kopi\ "eren, gebruiken of realiseren van deze uitgave
588 of gedeelten ervan verboden. Voor aanvragen tot of informatie
589 i.v.m.\ het overnemen en/of gebruik en/of realisatie van gedeelten
590 uit deze publicatie, wend u tot \kulemt@contact@print.\par
591 Voorafgaande schriftelijke toestemming van de
592 \MakeLowercase{\kulemt@paa@0} is eveneens vereist voor het
593 aanwenden van de in deze masterproef beschreven (originele)
594 methoden, producten, schakelingen en programma’s voor industrieel
595 of commercieel nut en voor de inzending van deze publicatie ter
596 deelname aan wetenschappelijke prijzen of wedstrijden.\par}

```

$\backslash\text{kulemt@copyrightpage}$ The copyright page contains no header or footer, with the copyright notice at the bottom of the page. Paragraphs in the copyright notice are typeset without indentation and half a line of spacing between them. To avoid hyphenation as much as possible, $\backslash\text{sloppy par}$ is used.

```

597 \def\kulemt@copyrightpage{\clearpage
598   \thispagestyle{empty}}%

```

```

599 \null \vfill
600 \begingroup
601 \parindent\z@ \parskip .5\baselineskip \sloppypar
602 \copyright\space Copyright KU~Leuven\vskip\baselineskip

```

If the text and the master's programme language are the same, a copyright notice is printed in that language. If they differ, the English version comes first.

Note: Because of catcode differences we can't compare the master's programme language `\kulemt@master@language` and the text language `\kulemt@language` directly.

```

603 \expandafter\let\expandafter\@tempa
604 \csname kulemt@copyright@\kulemt@master@language\endcsname
605 \expandafter\let\expandafter\@tempb
606 \csname kulemt@copyright@\kulemt@language\endcsname
607 \ifx\@tempa\@tempb \@tempa \else
608 \ifx\@tempb\kulemt@copyright@english
609 \let\@tempb\@tempa \let\@tempa\kulemt@copyright@english \fi
610 \def\@tempc{\@tempa \vskip\baselineskip}%
611 \expandafter\@tempc\@tempb
612 \fi
613 \endgroup
614 \clearpage}

```

3.5.5 Typesetting the filing card

`filingcard` The filing card uses its own page style `filingcard`, typeset in the master's programme language. Its ruled header contains the faculty name and the academic year. No footer is used.

```

615 \makepagestyle{filingcard}
616 \makeheadrule{filingcard}{\textwidth}{\normalrulethickness}
617 \makeevenhead{filingcard}{\kulemt@selectmasterlanguage
618 KU~Leuven \kulemt@fac@name}{\kulemt@acyear@t}
619 \makeoddhead{filingcard}{\kulemt@selectmasterlanguage
620 KU~Leuven \kulemt@fac@name}{\kulemt@acyear@t}

```

`\kulemt@filingcard` The filing card is put on a separate page with its own page style, using the master's programme language.

```

621 \def\kulemt@filingcard{\clearforchapter
622 \thispagestyle{filingcard}%
623 \begingroup
624 \kulemt@selectmasterlanguage

```

First a centred title is printed.

```

625 \begingroup
626 \centering \Large
627 \kulemt@ifdutch{Fiche masterproef}{Master's thesis filing card}%
628 \vskip 1em
629 \endgroup

```

First the title, translated title, keywords, and article title are typeset with a medium space between them. The title and translated title are typeset in the main text language.

```

630 \begingroup
631 \parskip\medskipamount

```

```

632 \hangfrom{\textit{%
633     Student\kulemt@ifand\@author{\kulemt@ifdutch{en}s}}{}}: }%
634 \author\par
635 \hangfrom{\textit{Tit\kulemt@ifdutch{el}{le}}: }%
636 {\kulemt@selecttextlanguage \@title}\par
637 \ifx\kulemt@translatedtitle\@empty\else
638 \hangfrom{\textit{%
639     \kulemt@ifdutch
640     {\kulemt@selecttextlanguage
641     \kulemt@ifdutch{Engel}{Nederland}se titel}%
642     {\kulemt@selecttextlanguage
643     \kulemt@ifdutch{English}{Dutch} title}}: }%
644 \kulemt@translatedtitle\par
645 \fi
646 \noindent \textit{UDC}: \kulemt@udc\par
647 \ifx\kulemt@keywords\@empty\else
648 \hangfrom{\textit{Keywords}: }\kulemt@keywords\par
649 \fi
650 \ifx\kulemt@article@title\@empty\else
651 \hangfrom{\textit{%
652     \kulemt@ifdutch{Titel van het artikel}{Article title}}: }%
653 \kulemt@article@title\par
654 \fi
655 \vskip\medskipamount
656 \endgroup

```

Then comes the short abstract in the main text language.

```

657 \noindent \textit{\kulemt@ifdutch{Korte inhoud}{Abstract}}:}%
658 \vskip 2\p@
659 \begingroup \kulemt@selecttextlanguage
660 \noindent\ignorespaces \kulemt@shortabstract
661 \endgroup

```

The rest comes at the bottom of the page: master's degree, promoter(s), assessors, and assistant(s). Between these items we put a small space. The `\raggedright` command must be used inside a group because it is incompatible with `\hangfrom`.

```

662 \vfill \parskip\smallskipamount
663 \begingroup \raggedright
664 \noindent \kulemt@master@text \par
665 \endgroup
666 \hangfrom{\textit{\kulemt@paa@0}: }\kulemt@promotor\par
667 \hangfrom{\textit{\kulemt@paa@1}: }\kulemt@assessor\par
668 \hangfrom{\textit{\kulemt@paa@2}: }\kulemt@assistant\par
669 \endgroup
670 \clearpage}

```

3.5.6 Printing the required pages

At the beginning of the document, the front matter starts with the front page (either the cover page or the title page). Next the copyright page is printed unless the first page was a cover page. If only the cover page or the front pages are printed, the document ends here.

The `hyperref` package requires a unique printed page number. Since non-positive page numbers have no roman representation, the `\frontmatter` is only switched

on after the copyright page.

We can't use `\AtBeginDocument` here, because some packages assume that no text is generated before the commands they add to this hook. An example is the externalization library of the package `tikz`. To avoid such problems, we simply append the commands to the definition of `\document`.

```

671 \g@addto@macro\document{\kulemt@frontpage
672 \ifkulemt@coverpage
673   \def\@tempa{\end{document}}}%
674 \else
675   \kulemt@copyrightpage
676   \ifkulemt@frontpages
677     \def\@tempa{\end{document}}}%
678   \else
679     \let\@tempa\frontmatter
680   \fi
681 \fi
682 \@tempa}

```

`\kulemt@error@mm` The user must switch to the main matter herself and we make sure that she doesn't forget it. The command `\kulemt@error@mm` will be called at the end of the document. Since `\mainmatter` tests for a trailing star, we can't add commands at the end of it.

```

683 \def\kulemt@error@mm{\kulemt@error{%
684   You forgot to use \string\mainmatter}}
685 \expandafter\def\expandafter\mainmatter\expandafter{%
686   \expandafter\let\expandafter\kulemt@error@mm\expandafter\relax
687   \mainmatter}

```

At the end of the document, we first check if `\mainmatter` was used, unless only cover or front pages are printed. If a filing card is wanted, it is printed as back matter.

```

688 \AtEndDocument{%
689   \ifkulemt@coverpage\else
690     \ifkulemt@frontpages\else \kulemt@error@mm \fi
691     \ifkulemt@filingcard
692       \if@mainmatter \backmatter \fi
693     \kulemt@filingcard
694   \fi
695 \fi}

```

3.6 Front matter environments

preface (*env.*) The **preface** environment holds the preface text. It has one optional argument, which holds the preface author. The default preface author is the value of the **author** option. The preface is printed as a single page chapter.

`\kulemt@preface@` The command `\kulemt@preface@` remembers the argument of the **preface** environment until the end of the environment.

```

696 \newenvironment{preface}[1][\@author]%
697 {\chapter\prefacename
698 \def\kulemt@preface@{#1}}%
699 {\par

```

```

700 \ifx\kulemt@preface@\@empty\else
701 \bigskip \raggedleft \itshape \kulemt@preface@
702 \fi
703 \vfill \clearpage}

```

abstract (*env.*) The **abstract** environment is redefined as an ordinary chapter.

```

704 \renewenvironment{abstract}%
705 {\chapter\abstractname}%
706 {\clearpage}

```

abstract* (*env.*) The **abstract*** environment works like the **abstract** environment, but it uses the language from its optional argument. By default this is the master's programme language.

```

707 \newenvironment{abstract*}[1][\kulemt@master@language]%
708 {\expandafter\selectlanguage\expandafter{#1}%
709 \abstract}%
710 {\endabstract}

```

4 The Faculty of Engineering Science configuration file

4.1 Definition of the master's programmes

Note: To reuse this information in the manual, it must be the first section in the configuration file.

```

711 %% This kulemt.cfg file holds all master's programme dependent information for
712 %% the KU Leuven engineering master's thesis class.
713 %% Author: Luc Van Eycken, KU Leuven
714 %% If you modify this file:
715 %% * provide feedback to the original author
716 %% * please adjust the date [YYYY/MM/DD]
717 \ProvidesFile{kulemt.cfg}[2021/03/11]
718 %% Define known master's programmes and their options
719 %% The definition of the master's programme contains the following elements:
720 %% 1. "N" or "E" : the language of the master's programme
721 %% "N" for dutch, "E" for English
722 %% 2. Number for faculty identification (use braces if > 1 digit)
723 %% 0 = multiple faculties
724 %% 1 = Faculty of Engineering Science
725 %% 3. "F" or "N" : if "F", a filing card is always required
726 %% 4. Master's programme colours "{bg:fg}" or "{bg}", with each colour
727 %% a comma separated list of C,M,Y,K fractions.
728 %% 5. Master's thesis title between braces
729 %% 6. Optional copyright contact info {<address>:<phone>:<email>}
730 %% Use faculty information if empty
731 %% 7. Optional list of master's programme option abbreviations
732 %% Each option is surrounded by braces and consists of an
733 %% abbreviation, followed by ":" and the title of the option.
734 %% Optionally the list can start with a list of abbreviations
735 %% between square brackets. If this list is not empty, an error
736 %% is raised when no option is specified by the student.
737 %% If the list equals "-", no options are allowed.

```

```

738 %%      8. Optional list of obsolete master's programme option abbreviations.
739 %%      The list has the same format as the list of master's programme options.
740 %%      You have to make sure that the abbreviations don't conflict
741 %%      with those of the master's programme options. The convention is to
742 %%      append a dot and the last year it was valid.
743 %%
744 \kulemt@div@master{Dutch initial master's programmes}
745 \kulemt@def@master{arc}{N1N{0.93,0.52,0.35,0.11:0,0,0,0}%
746 {Master of Science in de ingenieurswetenschappen: architectuur}{[-]}}
747 \kulemt@def@master{bin}{NON{}}%
748 {Master of Science in de bio-informatica}}
749 \kulemt@def@master{bmt}{N1N{0.6,0,0.3,0}%
750 {Master of Science in de ingenieurswetenschappen:
751 biomedische~technologie}}
752 \kulemt@def@master{bwk}{N1N{0.2,0.7,1,0:0,0,0,0}%
753 {Master of Science in de ingenieurswetenschappen: bouwkunde}{}%
754 {{gt:optie Gebouwentechneik}}%
755 {si:optie Structurele Ingenieurskunde}}%
756 {wb:optie Waterbouwkunde}}%
757 {{ct.2021:optie Civiele techniek}}%
758 {vk.2016:optie Verkeerskunde}}}}
759 \kulemt@def@master{cit}{N1N{0.9,0.26,1,0.13:0,0,0,0}%
760 {Master of Science in de ingenieurswetenschappen:
761 chemische~technologie}}}%
762 {{cbpe:optie Chemische en biochemische proces engineering}}%
763 {me:optie Milieu engineering}}%
764 {pe:optie Product engineering}}}}
765 \kulemt@def@master{cws}{N1N{0,0,1,0}%
766 {Master of Science in de ingenieurswetenschappen:
767 computerwetenschappen}}%
768 {\kulemt@ifdutch{het}{the} Departement Computerwetenschappen,
769 Celestijnenlaan 200A bus 2402, B-3001 Leuven:%
770 +32-16-327700:info@cs.kuleuven.be}%
771 {{ai:hoofdoptie Artificiali~ele intelligentie}}%
772 {ci:hoofdoptie Computationale informatica}}%
773 {gs:hoofdoptie Gedistribueerde systemen}}%
774 {mmc:hoofdoptie Mens-machinecommunicatie}}%
775 {se:hoofdoptie Software engineering}}%
776 {vs:hoofdoptie Veilige software}}}}
777 \kulemt@def@master{elt}{N1N{0,0.2,0.7,0}%
778 {Master of Science in de ingenieurswetenschappen: elektrotechniek}}%
779 {ESAT, Kasteelpark Arenberg 10 postbus 2440,
780 B-3001 Leuven:+32-16-321130:info@esat.kuleuven.be}%
781 {[bn,ea,ec,is]}%
782 {bn:optie ICT-beveiliging en netwerken}}%
783 {ea:optie Energiesystemen en automatisatie}}%
784 {ec:optie Elektronica en chipontwerp}}%
785 {is:optie Informatiesystemen en signaalverwerking}}%
786 {{eg.2020:optie Elektronica en ge~{\i}ntegreerde schakelingen}}%
787 {im.2020:optie Ingebedde systemen en multimedia}}}}
788 \kulemt@def@master{ene}{N1N{0.5,0,1,0}%
789 {Master of Science in de ingenieurswetenschappen: energie}{[-]}}
790 \kulemt@obsolete@master{gmk}{N1N{0.8,0.6,0,0:0,0,0,0}%
791 {Master of Science in de ingenieurswetenschappen:

```

```

792 geotechniek en mijnbouwkunde}}
793 \kulemt@def@master{msc}{N1N{0,0,0.33,0}}%
794 {Master of Science in de ingenieurswetenschappen: mobiliteit~en~supply~chain}%
795 {Centre for Industrial Management, Celestijnenlaan 300A Bus 2422,
796 B-3001 Leuven:+32-16-322567}}
797 \kulemt@obsolete@master{mlt.2017}{N1N{0,0,0.33,0}}%
798 {Master of Science in de ingenieurswetenschappen:
799 verkeer, logistiek en intelligente transportsystemen}%
800 {Centre for Industrial Management, Celestijnenlaan 300A Bus 2422,
801 B-3001 Leuven:+32-16-322567}}%
802 {}%
803 {{lt.2016:optie Logistiek en transport}}%
804 {vi.2016:optie Verkeer en Infrastructuur}}
805 \kulemt@obsolete@master{mlt}{N1N{0,0,0.33,0}}%
806 {Master of Science in de ingenieurswetenschappen: logistiek en verkeer}%
807 {Centre for Industrial Management, Celestijnenlaan 300A Bus 2422,
808 B-3001 Leuven:+32-16-322567}}
809 \kulemt@def@master{mtk}{N1N{0.3,0,0.3,0}}%
810 {Master of Science in de ingenieurswetenschappen: materiaalkunde}%
811 {Dept.\ MTM - KU~Leuven, Kasteelpark Arenberg 44 bus 2450, B-3001 Leuven}%
812 {{bm:optie Biomaterialen}%
813 {mk:optie Metalen en keramieken}%
814 {nm:optie Nanomaterialen}%
815 {pc:optie Polymeren en composieten}}%
816 {{mb.2015:optie Materialen in de biomedische sector}%
817 {mn.2015:optie Materialen voor nanotechnologie}%
818 {pp.2015:optie Productie en processen}}
819 \kulemt@obsolete@master{mtw}{NON{}}%
820 {Master in de milieutechnologie en de milieuwetenschappen}}
821 \kulemt@obsolete@master{nan.2015}{N1N{0,0.8,0.7,0:0,0,0,0}}%
822 {Master of Science in de nanowetenschappen en de nanotechnologie}}%
823 {{nm:optie Nanomaterialen en nanochemie}%
824 {ne:optie Nano-elektronicaontwerp}%
825 {nc:optie Nanocomponenten en nanofysica}%
826 {nb:optie Nanobiotechnologie}}%
827 {{bi.2014:afstudeerrichting bio-ingenieur}%
828 {ir.2014:afstudeerrichting burgerlijk ingenieur}%
829 {nw.2014:afstudeerrichting natuurwetenschappen}}
830 \kulemt@def@master{nan}{N1N{0,0.8,0.7,0:0,0,0,0}}%
831 {Master of Science in de nanowetenschappen, nanotechnologie en
832 nano-engineering}}%
833 {{cc:optie Nanocomponenten en circuits}%
834 {nb:optie Nanobiotechnologie}%
835 {nc:optie Nanocomponenten en nanofysica}%
836 {ne:optie Nano-elektronicaontwerp}%
837 {nf:optie Nanofysica engineering}%
838 {nm:optie Nanomaterialen en nanochemie}%
839 {qe:optie Quantum engineering, materialen en technologie}}
840 \kulemt@def@master{sta}{NON{}}%
841 {Master of Science in de Statistiek}}%
842 {{asm:profiel Algemene statistische methodologie}%
843 {bm:profiel Biometrie}%
844 {bs:profiel Business statistiek}%
845 {is:profiel Industri~ele statistiek}%

```

```

846   {sgp:profiel Statistiek in de sociale, gedrags- en
847     pedagogische wetenschappen}}%
848   {{so.2021:specialisatie Statistiek en onderwijs}}}
849 \kulemt@def@master{wit}{N1N{0.9,0.94,0.02,0.07:0,0,0,0}%
850   {Master of Science in de ingenieurswetenschappen:
851     wiskundige~ingenieurstechnieken}%
852   {\kulemt@ifdutch{het}{the} Departement Computerwetenschappen,
853     Celestijnenlaan 200A bus 2402, B-3001 Leuven:%
854     +32-16-327700:info@cs.kuleuven.be}}
855 \kulemt@def@master{wtk}{N1N{0.6,0.3,0,0:0,0,0,0}%
856   {Master of Science in de ingenieurswetenschappen: werktuigkunde}{[-]}}
857 %
858 \kulemt@div@master{English initial master's programmes}
859 \kulemt@def@master{ebmt}{E1N{0.6,0,0.3,0}%
860   {Master of Science in Biomedical~Engineering}}%
861   {{bd:option Biomedical Data Analytics}%
862     {be:option Bio-Electronics}%
863     {bi:option Bio-Informatics and AI}%
864     {bm:option Biomechanics}%
865     {mp:option Medical Physics}%
866     {te:option Tissue Engineering}}}}
867 \kulemt@def@master{ebin}{EON{}}%
868   {Master of Science in Bioinformatics}}
869 \kulemt@def@master{ebwk}{E1N{0.2,0.7,1,0:0,0,0,0}%
870   {Master of Science in Civil~Engineering}}%
871   {{he:option Hydraulic Engineering}%
872     {se:option Structural Engineering}}}}
873 \kulemt@def@master{ecit}{E1N{0.9,0.26,1,0.13:0,0,0,0}%
874   {Master of Science in Chemical~Engineering}}%
875   {{cbpe:option Chemical and Biochemical Process Engineering}%
876     {me:option Environmental Engineering}%
877     {pe:option Product Engineering}}}}
878 \kulemt@obsolete@master{ect}{E1N{0.9,0.26,1,0.13:0,0,0,0}%
879   {Master of Science in Chemical Engineering (Engineering Rheology)}}
880 \kulemt@def@master{ecws}{E1N{0,0,1,0}%
881   {Master of Science in Engineering: Computer Science}%
882   {\kulemt@ifdutch{het}{the} Departement Computerwetenschappen,
883     Celestijnenlaan 200A bus 2402, B-3001 Leuven:%
884     +32-16-327700:info@cs.kuleuven.be}%
885   {{ai:option Artificial Intelligence}%
886     {ss:option Secure Software}}}}
887 \kulemt@def@master{eelt}{E1N{0,0.2,0.7,0}%
888   {Master of Science in Electrical~Engineering}%
889   {Departement Elektrotechniek, Kasteelpark Arenberg 10 postbus 2440,
890     B-3001 Leuven:+32-16-321130:info@esat.kuleuven.be}%
891   {[ec,is,pa,sn]%
892     {ec:option Electronics and Chip Design}%
893     {is:option Information Systems and Signal Processing}%
894     {pa:option Power Systems and Automation}%
895     {sn:option ICT Security and Networks}}}%
896   {{ei.2020:option Electronics and Integrated Circuits}%
897     {em.2020:option Embedded Systems and Multimedia}}}}
898 \kulemt@def@master{eene}{E1N{0.5,0,1,0}%
899   {Master of Science in Engineering: Energy}}{[-]}

```

```

900 \kulemt@def@master{ekene}{E1N{0.5,0,1,0}%
901   {EIT-KIC Master of Science in Energy}{-}}
902 \kulemt@def@master{eksuma}{E1N{0.3,0,0.3,0}%
903   {EIT-KIC Master of Science in Sustainable Materials}%
904   {Dept.\ MTM - KU~Leuven, Kasteelpark Arenberg 44 bus 2450, B-3001 Leuven}%
905   {{malg:option Sustainable Materials (Leuven-Grenoble)}}%
906   {mall:option Sustainable Materials (Leuven-Leoben)}}%
907   {malt:option Sustainable Materials (Leuven-Trento)}}%
908   {matl:option Sustainable Materials (Trento-Leuven)}}%
909   {mdlm:option Materials Development (Leuven-Milano)}}%
910   {mdml:option Materials Development (Milano-Leuven)}}%
911   {mell:option Sustainable Metallurgy (Leoben-Leuven)}}}
912 \kulemt@obsolete@master{ememn}{E1N{0.5,0,1,0}%
913   {Erasmus Mundus Joint Master of Economics and
914     Management of Network~Industries}}
915 \kulemt@obsolete@master{emlt}{E1N{0,0,0.33,0}%
916   {Master of Engineering: Logistics and Traffic}%
917   {Centre for Industrial Management, Celestijnenlaan 300A Bus 2422,
918     B-3001 Leuven:+32-16-322567}}
919 \kulemt@def@master{emsc}{E1N{0,0,0.33,0}%
920   {Master of Science in Mobility and Supply Chain Engineering}%
921   {Centre for Industrial Management, Celestijnenlaan 300A Bus 2422,
922     B-3001 Leuven:+32-16-322567}}
923 \kulemt@def@master{emtk}{E1N{0.3,0,0.3,0}%
924   {Master of Science in Materials Engineering}%
925   {Dept.\ MTM - KU~Leuven, Kasteelpark Arenberg 44 bus 2450, B-3001 Leuven}%
926   {{bm:option Biomaterials}%
927     {mc:option Metals and Ceramics}%
928     {nm:option Nanomaterials}%
929     {pc:option Polymers and Composites}}}%
930   {{mn.2015:option Materials for Nanotechnology}}}%
931 \kulemt@obsolete@master{enan.2015}{E1N{0,0.8,0.7,0:0,0,0,0}%
932   {Master of Science in Nanoscience and Nanotechnology}{-}}
933   {{nm:option Nanomaterials and Nanochemistry}%
934     {ne:option Nanoelectronic Design}%
935     {nd:option Nanodevices and Nanophysics}%
936     {nb:option Nanobiotechnology}}}%
937   {{be.2014:major subject Bioscience engineering}%
938     {eng.2014:major subject Engineering}%
939     {ns.2014:major subject Natural sciences}}}%
940 \kulemt@def@master{enan}{E1N{0,0.8,0.7,0:0,0,0,0}%
941   {Master of Science in Nanoscience, Nanotechnology and Nanoengineering}{-}}
942   {{nb:option Nanobiotechnology}%
943     {nc:option Nanodevices and Circuits}%
944     {nd:option Nanodevices and Nanophysics}%
945     {ne:option Nanoelectronic Design}%
946     {nm:option Nanomaterials and Nanochemistry}%
947     {np:option Nanophysics Engineering}%
948     {qe:option Quantum Engineering, Materials and Technology}}}%
949 \kulemt@def@master{emnan}{EON{0,0.8,0.7,0:0,0,0,0}%
950   {Erasmus Mundus Master of Science in Nanoscience and Nanotechnology}{-}}
951   {{bn:graduation option Bionanotechnology}%
952     {bp:graduation option Biophysics}%
953     {nc:graduation option Nanochemistry}}%

```

```

954 {ne:graduation option Nanoelectronics}%
955 {nf:graduation option Nanophysics}%
956 {nm:graduation option Nanomaterials}%
957 {np:graduation option Nanopharmacotherapy}%
958 {om:graduation option Organic and Molecular Electronics}%
959 {qc:graduation option Quantum Computing}%
960 {qn:graduation option Quantum and Nanoscale Engineering}}
961 \kulemt@obsolete@master{esta.2021}{EON}%
962 {Master of Science in Statistics}{}%
963 {{ars:option All Round Statistics}%
964 {bm:option Biometrics}%
965 {bs:option Business Statistics}%
966 {gsm:option General Statistical Methodology}%
967 {is:option Industrial Statistics}%
968 {qas:abridged programme --
969     Quantitative Analysis in the Social Sciences}%
970 {sbe:option Social, Behavioral and Educational Statistics}}}
971 \kulemt@def@master{esta}{EON}%
972 {Master of Science in Statistics and Data Science}{}%
973 {{bio:profile Statistics and Data Science for Biometrics}%
974 {bu:profile Statistics and Data Science for Business}%
975 {em:profile European Master of Official Statistics (EMOS)}%
976 {ind:profile Statistics and Data Science for Industry}%
977 {is:profile Interdisciplinary Statistics and Data Science}%
978 {qas:abridged programme --
979     Quantitative Analysis in the Social Sciences}%
980 {sbe:profile Statistics and Data Science for
981     Social, Behavioral and Educational Statistics}%
982 {ts:profile Theoretical Statistics and Data Science}}}
983 \kulemt@def@master{ewit}{E1N{0.9,0.94,0.02,0.07:0,0,0,0}%
984 {Master of Science in Mathematical Engineering}%
985 {\kulemt@ifdutch{het}{the} Departement Computerwetenschappen,
986     Celestijnenlaan 200A bus 2402, B-3001 Leuven:%
987     +32-16-327700:info@cs.kuleuven.be}}
988 \kulemt@def@master{ewtk}{E1N{0.6,0.3,0,0:0,0,0,0}%
989 {Master of Science in Mechanical Engineering}{[-]}}
990 %
991 \kulemt@div@master{Advanced master's programmes}
992 \kulemt@def@master{cms}{E1N}%
993 {Master of Science in Conservation of Monuments and Sites}}
994 \kulemt@def@master{mai}{EON}%
995 {Master of Science in Artificial Intelligence}%
996 {\kulemt@ifdutch{het}{the} Departement Computerwetenschappen,
997     Celestijnenlaan 200A bus 2402, B-3001 Leuven:%
998     +32-16-327700:info@cs.kuleuven.be}%
999 {{bda:option Big Data Analytics}%
1000 {ecs:option Engineering and Computer Science}%
1001 {slt:option Speech and Language Technology}}}%
1002 {{cs.2015:option Cognitive Science}}}
1003 \kulemt@def@master{mcs}{E1N}%
1004 {Master of Science in Cybersecurity}}
1005 \kulemt@def@master{mhs}{E1N}%
1006 {Master of Science in Human Settlements}}
1007 \kulemt@obsolete@master{mim}{E1N}%

```

```

1008 {Master of Industrial Management}{}%
1009 {{ese:option Environment, Safety and Energy}%
1010 {ict:option Information and Communication Technology}%
1011 {plp:option Production and Logistics Planning}}}
1012 \kulemt@def@master{mms}{NON{}}%
1013 {Master of Science in de medische stralingsfysica}}
1014 \kulemt@def@master{mne}{E1N{}}%
1015 {Master of Science in Nuclear Engineering}}
1016 \kulemt@def@master{mse}{E1N{}}%
1017 {Master of Science in Safety Engineering}{}%
1018 {[p,ps]}%
1019 {p:option Prevention}%
1020 {ps:option Process Safety}}}
1021 \kulemt@def@master{mss}{EON{}}%
1022 {Master of Science in Space Studies}{}%
1023 {{slpbm:profile Space Law, Policy, Business and Management}%
1024 {ss:profile Space Sciences}%
1025 {sta:profile Space Technology and Applications}}}
1026 \kulemt@obsolete@master{mvt}{N1N{}}%
1027 {Master in de veiligheidstechniek}}
1028 \kulemt@def@master{ulp}{E1N{}}%
1029 {Master of Science in Urbanism, Landscape and Planning}}
1030 \kulemt@obsolete@master{usp}{E1N{}}%
1031 {Master of Science in Urbanism and Strategic Planning}{}%
1032 {{sp:option Spatial Planning}%
1033 {u:option Urbanism}}}
1034 %
1035 \kulemt@end@master@def

```

4.2 Local definitions

If you don't agree with the default titles of the jury members (promoter, assessor, assistant), you can redefine them here. These definitions are inspired by the official KU Leuven translations and by suggestions from the Faculty.

```

1036 \def\kulemt@paa@#1{%
1037   \ifcase #1%
1038     \kulemt@ifdutch
1039       {Promotor\kulemt@ifand\kulemt@promotor{en}{}}%
1040       {Supervisor\kulemt@ifand\kulemt@promotor{s}{}}%
1041   \or
1042     \kulemt@ifdutch
1043       {Evaluator\kulemt@ifand\kulemt@assessor{en}{}}%
1044       {Assessor\kulemt@ifand\kulemt@assessor{s}{}}%
1045   \or
1046     \kulemt@ifdutch
1047       {Begeleider\kulemt@ifand\kulemt@assistant{s}{}}%
1048       {Assistant-supervisor\kulemt@ifand\kulemt@assistant{s}{}}%
1049   \fi}

```


Change History

v1.0		\kulemt@master@options@v: New command.	17
General: Initial release	1		
v1.1		\kulemt@set@master: Extra argument for obsolete master's programme options.	17
General: The phv font seems to require a T1 encoding to work for accented characters. This also means it can be defined at the class loading time.	26		
v1.2		v1.7	
General: Disallow empty values for the promotor keyword	13	General: Explicitly set input encoding to <code>ascii</code>	10
\kulemt@paa@fp: Make it a no-op for an empty keyword value . .	27	New option <code>promoter</code>	13
v1.3		Option <code>bindcover</code> is obsolete . .	16
General: Required pages are now printed at the end of \document	33	kulemt.cfg: 2013 master's programme titles and options	34
v1.4		Disallow options for some master's programmes	34
General: Raise an error if language <code>dutch</code> is not installed	4	\kulemt@check@masteroption: Generate an error again, but only when the master's programme requires options explicitly.	20
kulemt.cfg: New master's programme <code>mse</code> replaces <code>mvt</code> .	34	\kulemt@fac@logo: No-op because a combined logo is used	18
\kulemt@copyright@dutch: Remove the hardcoded "promotor"	30	\kulemt@frontpage: Colour banner width set to 19 cm	29
\kulemt@copyright@english: Remove the hardcoded "promotor"	30	Disable <code>microtype</code> in the front pages	28
\kulemt@error@mm: Make \mainmatter* work again . .	33	New logo handling and positioning	28
\kulemt@ifand: Take 3 arguments and make it expandable	4	\kulemt@kulfac@logo: New command	18
\kulemt@obsolete@master: New command	16	\kulemt@master@option: Handle disallowing master's programme options.	10
v1.5		\kulemt@master@options@v1: New command.	17
\latinencoding: Set to T1 only if T1 is the current encoding. . .	21	\kulemt@set@mo: New command. .	17
v1.6		v1.8	
General: New option <code>bindcover</code> .	16	General: Make sure \@tempb is not overwritten by \@tempa	33
kulemt.cfg: All master's programme titles and options updated to the 2012 situation	34	\kulemt@add@once@opts: Make sure \@tempa is not overwritten	9
abstract*: New optional language argument	34	\kulemt@copyrightpage: Make sure \@tempb is not overwritten by \@tempa	31
\kulemt@check@masteroption: Missing master's programme options generate a warning instead of an error.	20	v1.8a	
\kulemt@handle@mo: Extra first argument <i><molist></i>	10	kulemt.cfg: Update Nano options and add some English master's programmes	34
\kulemt@master@options@o: New command.	17	v1.9	
		General: New option <code>oldfontcommands</code>	9

kulemt.cfg: Update options of <code>bwk</code> , <code>cws</code> , <code>ecws</code> , <code>mai</code> , <code>vlit</code> , and added <code>evlit</code>	34	<code>\kulemt@frontpage</code> : Use the KU Leuven logo at its natural dimensions	28
v1.10		v1.13	
kulemt.cfg: 2020 master's programme titles and options	34	kulemt.cfg: 2022 master's programme titles and options	34
v1.11		Changed titles as suggested by the university	40
kulemt.cfg: 2021 master's programme titles and options	34	v1.14	
v1.12		kulemt.cfg: 2023 master's programme titles and options	34
General: No longer test for the presence of language <code>dutch</code>	4		

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