HSR–Stud Document Classes

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Contents

1 Purpose of these document classes

The following document classes were made by and for the HSR-Stud organization. These classes are intended to be used to create beautiful summaries and cheat sheets. Available classes are:

hsrzf For summaries (Zusammenfassung)

hsrbericht For reports (Bericht)

2 Class Options

sans Use Sans-Serif fonts (`cmbright` and `hfbright`).

slab Use Slab-Serif fonts (`bitter` and `eulervm`).

margin=<size> Sets up margins to reasonable size.

     * Any other given option is passed to the underlying class (article).

Size	H	V	Size	H	V
huge	45	40	small	20	20
large	35	35	tiny	10	20
big	30	30	minimal	5	20
normal	25	30			

Table 1: Sizes for the `margin` option. All sizes are in millimeters

3 Extra Metadata

Thanks to the `titling` package, normal metadata informations are available throug the following commands: `\theauthor`, `\thedate`, `\thetitle`. Additionally, more metadata variables have been created for this class, to conserve informations related to the university course.

`\course` The degree programme of the discussed subject. Example: `Elektrotechnik`

`\module` Short name of the module according to the class schedule. Example: `ComEng1`

`\semester` Semester during which the summarized subject was taught. Example: `FS20`

`\institute` Internal institute in which the module was taught. This field is optional.

`\authoremail` Email of the author. This field is optional.

`\maintainer` Name of the person maintaining the work. This field is optional.

`\contributors` List of names of those who have contributed to the document. This field is optional.

Like `\date`, `\title`, etc. these fields have too an accessor macro `\the<metadata>`. For example: `\thecourse`, `\themodule`, and so on.

4 Zusammenfassung `hsrzf` class

This class is intended to be used to write short summaries.

4.1 Class options

`header` Use the HSR–Stud standard header. The option `noheader` disables the header.

4.2 Minimal working example

5 Bericht `hsrbericht` class

This class tries to conform to the indications given by the communication department of the HSR. The specifications are found in the "Werkzeugkastens Technische Berichte".

5.1 Metadata

In addition to the metadata described in the previous section. This class requires:

`\subtitle` Pretty self explanatory.

`\category` Category assigned to the project. This field is optional.

`\project` Name or reference to your project.

\topic You chosen topic in the category.

\instructor Name of the instructor / academic that is following or has assigned your work.

\startdate Date when you started the project.

\finishdate Date when you finished the project (can be set to **\today** to keep automatically updated.

\address Address or place where your work is produced. This field is optional.
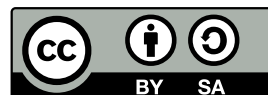
\matriculationnr Your matriculation number.

\logo Code to insert your logo.

\clientlogo Code to insert the logo of the client / research department / ….

5.2 Minimal working example

6 License

7 Implementation

```
1  %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
2  %^^A Class Headers
3
4  ⟨∗hsrzf⟩
5  \NeedsTeXFormat{LaTeX2e}
6  \ProvidesClass{hsrzf}[2020/04/05 v0.1 HSRStud Summary class]
7  ⟨/hsrzf⟩
8
9  ⟨∗hsrbericht⟩
10 \NeedsTeXFormat{LaTeX2e}
11 \ProvidesClass{hsrbericht}[2020/05/05 v0.1 HSRStud Report class]
12 ⟨/hsrbericht⟩
13
14 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
15 %^^A Implementation
16 %
17 ⟨∗hsrzf | hsrbericht⟩
18
19 %% Coding Packages (Dependencies)
20 \RequirePackage{iftex}
21 \RequirePackage{kvoptions}
22 \RequirePackage{etoolbox}
23
24 %% Class options
25 \SetupKeyvalOptions{
26   family=hsr,
27   prefix=hsr@
28 }
29
30 %% Use header and footer
31 \DeclareBoolOption[false]{header}
32 \DeclareComplementaryOption{noheader}{header}
33
```

```
34 %% Use a sans-serif font
35 \DeclareBoolOption[false]{sans}
36 \DeclareBoolOption[false]{slab}
37
38 % secret option :)
39 \DeclareBoolOption[false]{concrete}
40
41 %% Configures the geometry package
42 %%
43 %% Possible values:
44 %%  - huge    (45mm, 40mm)
45 %%  - large   (35mm, 35mm)
46 %%  - big     (30mm, 30mm)
47 %%  - normal  (25mm, 30mm)
48 %%  - small   (20mm, 20mm)
49 %%  - tiny    (10mm, 20mm)
50 %%  - minimal ( 5mm, 20mm)
51 \DeclareStringOption{margin}[huge]
52
53 %% Configures the polyglossia package
54 % \DeclareStringOption[]{lang}[german]
55
56
57 %% Pass other options to the class
58 \DeclareDefaultOption{%
59   \ifx\CurrentOptionValue\relax
60     \PackageWarningNoLine{\@currname}{%
61       Unknown option ``\CurrentOption''\MessageBreak
62       is passed to class ``article''%
63     }%
64     % Pass the option to package color.
65     % Again it is better to expand \CurrentOption.
66     \expandafter\PassOptionsToClass
67       \expandafter{\CurrentOption}{article}
68   \else
69     % Package color does not take options with values.
70     % We provide the standard LaTeX error.
71     \@unknownoptionerror
72   \fi
73 }
74
75 \ProcessKeyvalOptions{hsr}
76
77
78 %% Create new metadata fields
79
80 %% Required fields
81 \newcommand\course[1]{\gdef\hsr@course{#1}}
82 \newcommand\hsr@course{\ClassError{hsrzf}{no \noexpand\course given}{}}
83 \newcommand\thecourse{\hsr@course}
84
85 \newcommand\module[1]{\gdef\hsr@module{#1}}
86 \newcommand\hsr@module{\ClassError{hsrzf}{no \noexpand\module given}{}}
87 \newcommand\themodule{\hsr@module}
88
89 \newcommand\semester[1]{\gdef\hsr@semester{#1}}
90 \newcommand\hsr@semester{\ClassError{hsrzf}{no \noexpand\semester given}{}}
91 \newcommand\thesemester{\hsr@semester}
```

```latex
92
93 %% Optional fields
94 \newcommand\institute[1]{\gdef\hsr@institute{#1}}
95 \newcommand\hsr@institute{\ClassWarning{hsrzf}{no \noexpand\institute given}{}}
96 \newcommand\theinstitute{\hsr@institute}
97
98 \newcommand\authoremail[1]{\gdef\hsr@authoremail{#1}}
99 \newcommand\hsr@authoremail{\ClassWarning{hsrzf}{no \noexpand\authoremail given}{}}
100 \newcommand\theauthoremail{\hsr@authoremail}
101
102 \newcommand\maintainer[1]{\gdef\hsr@maintainer{#1}}
103 \newcommand\hsr@maintainer{\ClassWarning{hsrzf}{no \noexpand\maintainer given}{}}
104 \newcommand\themaintainer{\hsr@maintainer}
105
106 \newcommand\contributors[1]{\gdef\hsr@contributors{#1}}
107 \newcommand\hsr@contributors{\ClassWarning{hsrzf}{no \noexpand\contributors given}{}}
108 \newcommand\thecontributors{\hsr@contributors}
109 ⟨/hsrzf | hsrbericht⟩
110 ⟨∗hsrbericht⟩
111 %% The report class has some extra metadata
112
113 %% Extra title informations
114 \newcommand\subtitle[1]{\gdef\hsr@subtitle{#1}}
115 \newcommand\hsr@subtitle{\ClassError{hsrbericht}{no \noexpand\subtitle given}{}}
116 \newcommand\thesubtitle{\hsr@subtitle}
117
118 %% Project informations
119 \newcommand\category[1]{\gdef\hsr@category{#1}}
120 \newcommand\hsr@category{\ClassWarning{hsrbericht}{no \noexpand\category given}{}}
121 \newcommand\thecategory{\hsr@category}
122
123 \newcommand\project[1]{\gdef\hsr@project{#1}}
124 \newcommand\hsr@project{\ClassError{hsrbericht}{no \noexpand\project given}{}}
125 \newcommand\theproject{\hsr@project}
126
127 \newcommand\topic[1]{\gdef\hsr@topic{#1}}
128 \newcommand\hsr@topic{\ClassError{hsrbericht}{no \noexpand\topic given}{}}
129 \newcommand\thetopic{\hsr@topic}
130
131 \newcommand\version[1]{\gdef\hsr@version{#1}}
132 \newcommand\hsr@version{\ClassError{hsrbericht}{no \noexpand\version given}{}}
133 \newcommand\theversion{\hsr@version}
134
135 \newcommand\instructor[1]{\gdef\hsr@instructor{#1}}
136 \newcommand\hsr@instructor{\ClassError{hsrbericht}{no \noexpand\instructor given}{}}
137 \newcommand\theinstructor{\hsr@instructor}
138
139 \newcommand\startdate[1]{\gdef\hsr@startdate{#1}}
140 \newcommand\hsr@startdate{\ClassError{hsrbericht}{no \noexpand\startdate given}{}}
141 \newcommand\thestartdate{\hsr@startdate}
142
143 \newcommand\finishdate[1]{\gdef\hsr@finishdate{#1}}
144 \newcommand\hsr@finishdate{\ClassError{hsrbericht}{no \noexpand\finishdate given}{}}
145 \newcommand\thefinishdate{\hsr@finishdate}
146
147 %% Author informations
148 \newcommand\address[1]{\gdef\hsr@address{#1}}
149 \newcommand\hsr@address{\ClassWarning{hsrbericht}{no \noexpand\address given}{}}
```

```latex
150 \newcommand\theaddress{\hsr@address}
151
152 \newcommand\matriculationnr[1]{\gdef\hsr@matriculationnr{#1}}
153 \newcommand\hsr@matriculationnr{\ClassError{hsrbericht}{no \noexpand\matriculationnr given}{}}
154 \newcommand\thematriculationnr{\hsr@matriculationnr}
155
156 %% Logos informations
157 \newcommand\logo[1]{\gdef\hsr@logo{#1}}
158 \newcommand\hsr@logo{\ClassWarning{hsrbericht}{no \noexpand\logo given}{}}
159 \newcommand\thelogo{\hsr@logo}
160
161 \newcommand\clientlogo[1]{\gdef\hsr@clientlogo{#1}}
162 \newcommand\hsr@clientlogo{\ClassWarning{hsrbericht}{no \noexpand\clientlogo given}{}}
163 \newcommand\theclientlogo{\hsr@clientlogo}
164 ⟨/hsrbericht⟩
165 ⟨*hsrzf | hsrbericht⟩
166
167 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
168 %^^A Setup base class
169 \LoadClass[a4paper]{article}
170
171 %% Style deps
172 \RequirePackage{geometry}
173 \RequirePackage{fancyhdr}
174 \RequirePackage{titling}
175 \RequirePackage{lastpage}
176 \RequirePackage{array}
177
178 %% Insert metadata in the pdf
179 \PassOptionsToPackage{plainpages=false, pdfpagelabels, pdfusetitle}{hyperref}
180 \RequirePackage{hyperref}
181
182 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
183 %^^A Setup Style
184 %
185
186
187 %% Configure Sans-Serif font
188 \ifhsr@sans
189   \ifhsr@slab
190     \PackageError{hsrzf}{%
191       sans ans slab options cannot be used at the same time
192     }
193   \fi
194   \ifhsr@concrete{hsrzf}{%
195     sans and concrete options cannot be used at the same time
196   }
197   \fi
198
199   \PassOptionsToPackage{T1}{fontenc}
200   \RequirePackage{fontenc}
201   \RequirePackage{cmbright}
202   \RequirePackage{sfmath}
203 \fi
204
205 %% Configure Slab-Serif font
206 \ifhsr@slab
207   \ifhsr@sans
```

```
208     \PackageError{hsrzf}{%
209       slab and sans options cannot be used at the same time
210     }
211   \fi
212   \ifhsr@concrete{hsrzf}{%
213     slab and concrete options cannot be used at the same time
214   }
215   \fi
216
217   \PassOptionsToPackage{T1}{fontenc}
218   \RequirePackage{fontenc}
219   \PassOptionsToPackage{rm,light}{roboto}
220   \RequirePackage{roboto}
221 \fi
222
223 %% Configure (secret) concrete font
224 \ifhsr@concrete
225   \ifhsr@sans{hsrzf}{%
226     concrete and sans options cannot be used at the same time
227   }
228   \fi
229   \ifhsr@slab
230     \PackageError{hsrzf}{%
231       concrete ans slab options cannot be used at the same time
232     }
233   \fi
234
235   \PassOptionsToPackage{boldsans,amssymb}{concmath}
236   \RequirePackage{concmath}
237   \PassOptionsToPackage{T1}{fontenc}
238   \RequirePackage{fontenc}
239 \fi
240
241 %% configure geometry
242 %% defaults to big
243 \newlength{\hsr@hmarginwidth}
244 \newlength{\hsr@vmarginheight}
245
246 \ifx\hsr@margin\@empty
247   \setlength\hsr@hmarginwidth{30mm}
248   \setlength\hsr@vmarginheight{30mm}
249 \else
250   \expandafter\ifstrequal\expandafter{\hsr@margin}{huge}{
251     \setlength\hsr@hmarginwidth{45mm}
252     \setlength\hsr@vmarginheight{40mm}}{}
253 %%
254   \expandafter\ifstrequal\expandafter{\hsr@margin}{large}{
255     \setlength\hsr@hmarginwidth{35mm}
256     \setlength\hsr@vmarginheight{35mm}}{}
257 %%
258   \expandafter\ifstrequal\expandafter{\hsr@margin}{big}{
259     \setlength\hsr@hmarginwidth{30mm}
260     \setlength\hsr@vmarginheight{30mm}}{}
261 %%
262   \expandafter\ifstrequal\expandafter{\hsr@margin}{normal}{
263     \setlength\hsr@hmarginwidth{25mm}
264     \setlength\hsr@vmarginheight{30mm}}{}
265 %%
```

```
266    \expandafter\ifstrequal\expandafter{\hsr@margin}{small}{
267        \setlength\hsr@hmarginwidth{20mm}
268        \setlength\hsr@vmarginheight{20mm}}{}
269 %%
270    \expandafter\ifstrequal\expandafter{\hsr@margin}{tiny}{
271        \setlength\hsr@hmarginwidth{10mm}
272        \setlength\hsr@vmarginheight{20mm}}{}
273 %%
274    \expandafter\ifstrequal\expandafter{\hsr@margin}{minimal}{
275        \setlength\hsr@hmarginwidth{ 5mm}
276        \setlength\hsr@vmarginheight{20mm}}{}
277 %%
278    % TODO: fix this
279    % \ClassError{hsrzf}{Invalid margin size}
280    % \setlength\hsr@hmarginwidth{30mm}
281    % \setlength\hsr@vmarginheight{30mm}
282 \fi
283
284 ⟨/hsrzf | hsrbericht⟩
285
286 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
287 %^^A HSR ZF specific
288 ⟨*hsrzf⟩
289 %% TODO: change vmarginheight if header is on
290 \newgeometry{
291        hmargin=\hsr@hmarginwidth,
292        vmargin=\hsr@vmarginheight,
293        marginparsep=0pt,
294        marginpar=0pt,
295 }
296
297 \fancypagestyle{hsrzf}{%
298        \fancyhf{} % clear
299        \fancyhead[C]{\thetitle}
300        \fancyhead[R]{\rightmark}
301        \fancyhead[L]{\leftmark}
302        \fancyfoot[R]{\@date}
303        \fancyfoot[L]{\theauthor}
304        \renewcommand{\headrulewidth}{.5pt}
305        \renewcommand{\footrulewidth}{.5pt}
306 }
307
308 \fancypagestyle{hsrzf-norulers}{%
309        \fancyhf{} % clear
310        \fancyhead[C]{\thetitle}
311        \fancyhead[R]{\rightmark}
312        \fancyhead[L]{\leftmark}
313        \fancyfoot[R]{\@date}
314        \fancyfoot[L]{\theauthor}
315        \renewcommand{\headrulewidth}{0pt}
316        \renewcommand{\footrulewidth}{0pt}
317 }
318
319 \ifhsr@header
320 \pagestyle{hsrzf}
321 \fi
322 ⟨/hsrzf⟩
323
```

```latex
324 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
325 %^^A HSR Bericht specific
326 ⟨∗hsrbericht⟩
327
328 %% Redefine title and abstract
329 \renewcommand\maketitle{%
330 \begin{titlepage}
331     \thispagestyle{hsrbericht}
332     \begin{center}
333     \vspace*{6cm}
334     \textbf{\fontsize{48}{60}\selectfont \@title}
335     \vspace{1.5cm} \\
336     \textbf{\fontsize{24}{48}\selectfont \hsr@subtitle}
337     \vspace{1cm} \\
338     \textbf{\fontsize{22}{48}\selectfont \hsr@category}
339     \vspace{0.5cm} \\
340     \begin{tabular}{rl}
341     \textbf{Version:} & \hsr@version \\
342     \end{tabular}
343     \vspace{4cm} \\
344     \begin{tabular}{rl p{1.5cm} rl}
345     \textbf{Autor:} & \textbf{\@author}        && Dozent:       & \hsr@instructor \\
346     E-Mail:         & \texttt{\hsr@authoremail} && Themengebiet: & \hsr@topic \\
347     Matrikelnummer: & \hsr@matriculationnr      && Studiengang:  & \hsr@course \\
348     Adresse:        & \hsr@address              &&               & \\
349     \end{tabular}{}
350     \vspace{2cm} \\
351     \begin{tabular}{rl}
352     \textbf{Erstellt am:}       & \textbf{\hsr@startdate} \\
353     \textbf{Letze Änderung am:} & \textbf{\hsr@finishdate} \\
354     \end{tabular}
355     \end{center}
356 \end{titlepage}}
357
358 \renewenvironment{abstract}{%
359     \section*{Abstract}%
360     \newcommand\problem{\paragraph{Problem}}
361     \newcommand\goal{\paragraph{Ziel}}
362     \newcommand\method{\paragraph{Method / Vorgehen}}
363     \newcommand\results{\paragraph{Wesentliche Ergebnisse}}
364     \newcommand\suggestions{\paragraph{Empfehlungen}}
365     \newcommand\keywords{\paragraph{Schl\"usselw\"orter}}
366 }{}
367
368 %% TODO: twoside / book support
369 %% Debug:
370 %% \RequirePackage{showframe}
371
372 \newgeometry{
373     hmargin=\hsr@hmarginwidth,
374     vmargin=\hsr@vmarginheight,
375     marginparsep=0pt,
376     marginpar=0pt,
377 }
378
379 %% Configure headers
380 \fancypagestyle{hsrbericht}{%
381     \fancyhf{} % clear
```

```
382     \fancyhead[C]{\@title}
383     \fancyhead[R]{\hsr@clientlogo}
384     \fancyhead[L]{\hsr@logo}
385     \fancyfoot[R]{\thepage / \pageref{LastPage} }
386     \fancyfoot[L]{Dockument: \jobname \\ Druck: \finishdate}
387     \renewcommand{\headrulewidth}{.5pt}
388     \renewcommand{\footrulewidth}{.5pt}
389 }
390
391 \fancypagestyle{plain}{%
392     \fancyhf{} % clear
393     \fancyhead[C]{\@title}
394     \fancyhead[R]{\hsr@clientlogo}
395     \fancyhead[L]{\hsr@logo}
396     \fancyfoot[R]{\thepage / \pageref{LastPage} }
397     \fancyfoot[L]{Dockument: \jobname \\ Druck: \finishdate}
398     \renewcommand{\headrulewidth}{.5pt}
399     \renewcommand{\footrulewidth}{.5pt}
400 }
401
402 \pagestyle{hsrbericht}
403
404 ⟨/hsrbericht⟩

    vim: set tw=80 sw=2 ts=2 et :
```