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.

concrete Use the "Concrete Roman" and "Concrete Math" fonts.

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	30
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.

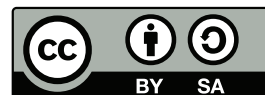|	
\topic	You chosen topic in the category.
\instructor	Name of the instructor / academic that is following or has assigned your work.
\startdate	Date when you started the project.
\finishdate	Date when you finished the project (can be set to **\today** to keep automatically updated.
\address	Address 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

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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=hsrzf,
27     prefix=hsrzf@
28 }
29
30 %% Use header and footer
31 \DeclareBoolOption[false]{header}
32 \DeclareComplementaryOption{noheader}{header}
33
```

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

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

```latex
150 \newcommand\hsr@matriculationnr{\ClassError{hsrbericht}{no \noexpand\matriculationnr given}{}}
151 \newcommand\thematriculationnr{\hsr@matriculationnr}
152
153 %% Logos informations
154 \newcommand\logo[1]{\gdef\hsr@logo{#1}}
155 \newcommand\hsr@logo{\ClassWarning{hsrbericht}{no \noexpand\logo given}{}}
156 \newcommand\thelogo{\hsr@logo}
157
158 \newcommand\clientlogo[1]{\gdef\hsr@clientlogo{#1}}
159 \newcommand\hsr@clientlogo{\ClassWarning{hsrbericht}{no \noexpand\clientlogo given}{}}
160 \newcommand\theclientlogo{\hsr@clientlogo}
161 ⟨/hsrbericht⟩
162 ⟨*hsrzf | hsrbericht⟩
163
164 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
165 %^^A Setup base class
166 \LoadClass[a4paper]{article}
167
168 %% Style deps
169 \RequirePackage{geometry}
170 \RequirePackage{fancyhdr}
171 \RequirePackage{titling}
172 \RequirePackage{lastpage}
173 \RequirePackage{array}
174
175 %% Insert metadata in the pdf
176 \PassOptionsToPackage{plainpages=false, pdfpagelabels, pdfusetitle}{hyperref}
177 \RequirePackage{hyperref}
178
179 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
180 %^^A Setup Style
181 %
182
183
184 %% Configure Sans-Serif font
185 \ifhsrzf@sans
186 \renewcommand{\familydefault}{\sfdefault}
187 \fi
188
189 %% Configure concrete font
190 \ifhsrzf@concrete
191 \PassOptionsToPackage{T1}{fontenc}
192 \RequirePackage{fontenc}
193 \PassOptionsToPackage{boldsans,amssymb}{concmath}
194 \RequirePackage{concmath}
195 \fi
196
197 %% configure geometry
198 %% defaults to big
199 \newlength{\hsr@hmarginwidth}
200 \newlength{\hsr@vmarginheight}
201
202 \ifx\hsrzf@margin\@empty
203     \setlength\hsr@hmarginwidth{30mm}
204     \setlength\hsr@vmarginheight{30mm}
205 \else
206     \expandafter\ifstrequal\expandafter{\hsrzf@margin}{huge}{
207         \setlength\hsr@hmarginwidth{45mm}
```

```
208        \setlength\hsr@vmarginheight{40mm}}{}
209     \expandafter\ifstrequal\expandafter{\hsrzf@margin}{large}{
210        \setlength\hsr@hmarginwidth{35mm}
211        \setlength\hsr@vmarginheight{35mm}}{}
212     \expandafter\ifstrequal\expandafter{\hsrzf@margin}{big}{
213        \setlength\hsr@hmarginwidth{30mm}
214        \setlength\hsr@vmarginheight{30mm}}{}
215     \expandafter\ifstrequal\expandafter{\hsrzf@margin}{normal}{
216        \setlength\hsr@hmarginwidth{25mm}
217        \setlength\hsr@vmarginheight{30mm}}{}
218     \expandafter\ifstrequal\expandafter{\hsrzf@margin}{small}{
219        \setlength\hsr@hmarginwidth{20mm}
220        \setlength\hsr@vmarginheight{30mm}}{}
221     \expandafter\ifstrequal\expandafter{\hsrzf@margin}{tiny}{
222        \setlength\hsr@hmarginwidth{10mm}
223        \setlength\hsr@vmarginheight{20mm}}{}
224     \expandafter\ifstrequal\expandafter{\hsrzf@margin}{minimal}{
225        \setlength\hsr@hmarginwidth{ 5mm}
226        \setlength\hsr@vmarginheight{20mm}}{}
227 \fi
228
229 ⟨/hsrzf | hsrbericht⟩
230
231 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
232 %^^A HSR ZF specific
233 ⟨*hsrzf⟩
234 \newgeometry{
235     hmargin=\hsr@hmarginwidth,
236     vmargin=\hsr@vmarginheight,
237     marginparsep=0pt,
238     marginpar=0pt,
239 }
240
241 \fancypagestyle{hsrzf}{%
242     \fancyhf{} % clear
243     \fancyhead[C]{\thetitle}
244     \fancyhead[R]{\rightmark}
245     \fancyhead[L]{\leftmark}
246     \fancyfoot[R]{\@date}
247     \fancyfoot[L]{\theauthor}
248     \renewcommand{\headrulewidth}{.5pt}
249     \renewcommand{\footrulewidth}{.5pt}
250 }
251
252 \fancypagestyle{hsrzf-norulers}{%
253     \fancyhf{} % clear
254     \fancyhead[C]{\thetitle}
255     \fancyhead[R]{\rightmark}
256     \fancyhead[L]{\leftmark}
257     \fancyfoot[R]{\@date}
258     \fancyfoot[L]{\theauthor}
259     \renewcommand{\headrulewidth}{0pt}
260     \renewcommand{\footrulewidth}{0pt}
261 }
262
263 \ifhsrzf@header
264 \pagestyle{hsrzf}
265 \fi
```

```
266 ⟨/hsrzf⟩
267
268 %^^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
269 %^^A HSR Bericht specific
270 ⟨*hsrbericht⟩
271
272 %% Redefine title and abstract
273 \renewcommand\maketitle{%
274 \begin{titlepage}
275     \thispagestyle{hsrbericht}
276     \begin{center}
277     \vspace*{6cm}
278     \textbf{\fontsize{48}{60}\selectfont \@title}
279     \vspace{1.5cm} \\
280     \textbf{\fontsize{24}{48}\selectfont \hsr@subtitle}
281     \vspace{1cm} \\
282     \textbf{\fontsize{22}{48}\selectfont \hsr@category}
283     \vspace{0.5cm} \\
284     \begin{tabular}{rl}
285     \textbf{Version:} & \hsr@version \\
286     \end{tabular}
287     \vspace{4cm} \\
288     \begin{tabular}{rl p{1.5cm} rl}
289     \textbf{Autor:} & \textbf{\@author}        && Dozent:        & \hsr@instructor \\
290     E-Mail:         & \texttt{\hsr@authoremail} && Themengebiet: & \hsr@topic \\
291     Matrikelnummer: & \hsr@matriculationnr      && Studiengang:  & \hsr@course \\
292     Adresse:        & \hsr@address              &&               & \\
293     \end{tabular}{}
294     \vspace{2cm} \\
295     \begin{tabular}{rl}
296     \textbf{Erstellt am:}       & \textbf{\hsr@startdate} \\
297     \textbf{Letze Änderung am:} & \textbf{\hsr@finishdate} \\
298     \end{tabular}
299     \end{center}
300 \end{titlepage}}
301
302 \renewenvironment{abstract}{%
303     \section*{Abstract}%
304     \newcommand\problem{\paragraph{Problem}}
305     \newcommand\goal{\paragraph{Ziel}}
306     \newcommand\method{\paragraph{Method / Vorgehen}}
307     \newcommand\results{\paragraph{Wesentliche Ergebnisse}}
308     \newcommand\suggestions{\paragraph{Empfehlungen}}
309     \newcommand\keywords{\paragraph{Schl\"usselw\"orter}}
310 }{}
311
312 %% TODO: twoside / book support
313 %% Debug:
314 %% \RequirePackage{showframe}
315
316 \newgeometry{
317     hmargin=\hsr@hmarginwidth,
318     vmargin=\hsr@vmarginheight,
319     marginparsep=0pt,
320     marginpar=0pt,
321 }
322
323 %% Configure headers
```

8

```
324 \fancypagestyle{hsrbericht}{%
325     \fancyhf{} % clear
326     \fancyhead[C]{\@title}
327     \fancyhead[R]{\hsr@clientlogo}
328     \fancyhead[L]{\hsr@logo}
329     \fancyfoot[R]{\thepage / \pageref{LastPage} }
330     \fancyfoot[L]{Dockument: \jobname \\ Druck: \finishdate}
331     \renewcommand{\headrulewidth}{.5pt}
332     \renewcommand{\footrulewidth}{.5pt}
333 }
334
335 \fancypagestyle{plain}{%
336     \fancyhf{} % clear
337     \fancyhead[C]{\@title}
338     \fancyhead[R]{\hsr@clientlogo}
339     \fancyhead[L]{\hsr@logo}
340     \fancyfoot[R]{\thepage / \pageref{LastPage} }
341     \fancyfoot[L]{Dockument: \jobname \\ Druck: \finishdate}
342     \renewcommand{\headrulewidth}{.5pt}
343     \renewcommand{\footrulewidth}{.5pt}
344 }
345
346 \pagestyle{hsrbericht}
347
348 ⟨/hsrbericht⟩
```