

# HSR–Stud Document Classes

Naoki Pross <npross@hsr.ch>

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## 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 through the following commands: `\theauthor`, `\thedata`, `\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.

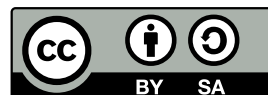
`\logo` Code to insert your logo.

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

```

```

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

```

```

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

```

```

208   }
209   \fi
210   \ifhsr@concrete{hsrzf}{%
211     slab and concrete options cannot be used at the same time
212   }
213   \fi
214
215   \PassOptionsToPackage{T1}{fontenc}
216   \RequirePackage{fontenc}
217   \PassOptionsToPackage{rm,light}{roboto}
218   \RequirePackage{roboto}
219 \fi
220
221 %% Configure (secret) concrete font
222 \ifhsr@concrete
223   \ifhsr@sans{hsrzf}{%
224     concrete and sans options cannot be used at the same time
225   }
226   \fi
227   \ifhsr@slab
228     \PackageError{hsrzf}{%
229       concrete and slab options cannot be used at the same time
230     }
231   \fi
232
233   \PassOptionsToPackage{boldsans,amssymb}{concmath}
234   \RequirePackage{concmath}
235   \PassOptionsToPackage{T1}{fontenc}
236   \RequirePackage{fontenc}
237 \fi
238
239 %% configure geometry
240 %% defaults to big
241 \newlength{hsr@hmarginwidth}
242 \newlength{hsr@vmarginheight}
243
244 \ifx\hsr@margin\empty
245   \setlength{hsr@hmarginwidth}{30mm}
246   \setlength{hsr@vmarginheight}{30mm}
247 \else
248   \expandafter\ifstrequal\expandafter{\hsr@margin}{huge}{
249     \setlength{hsr@hmarginwidth}{45mm}
250     \setlength{hsr@vmarginheight}{40mm}}{}
251 %%
252   \expandafter\ifstrequal\expandafter{\hsr@margin}{large}{
253     \setlength{hsr@hmarginwidth}{35mm}
254     \setlength{hsr@vmarginheight}{35mm}}{}
255 %%
256   \expandafter\ifstrequal\expandafter{\hsr@margin}{big}{
257     \setlength{hsr@hmarginwidth}{30mm}
258     \setlength{hsr@vmarginheight}{30mm}}{}
259 %%
260   \expandafter\ifstrequal\expandafter{\hsr@margin}{normal}{
261     \setlength{hsr@hmarginwidth}{25mm}
262     \setlength{hsr@vmarginheight}{30mm}}{}
263 %%
264   \expandafter\ifstrequal\expandafter{\hsr@margin}{small}{
265     \setlength{hsr@hmarginwidth}{20mm}

```

```

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

```



```

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

```

```

382
383 %% Configure headers
384 \fancypagestyle{hsrbericht}{%
385     \fancyhf{} % clear
386     \fancyhead[C]{\@title}
387     \fancyhead[R]{\hsr@clientlogo}
388     \fancyhead[L]{\hsr@logo}
389     \fancyfoot[R]{\thepage / \pageref{LastPage} }
390     \fancyfoot[L]{Dokument: \jobname \\ Druck: \finishdate}
391     \renewcommand{\headrulewidth}{.5pt}
392     \renewcommand{\footrulewidth}{.5pt}
393 }
394
395 \fancypagestyle{plain}{%
396     \fancyhf{} % clear
397     \fancyhead[C]{\@title}
398     \fancyhead[R]{\hsr@clientlogo}
399     \fancyhead[L]{\hsr@logo}
400     \fancyfoot[R]{\thepage / \pageref{LastPage} }
401     \fancyfoot[L]{Dokument: \jobname \\ Druck: \finishdate}
402     \renewcommand{\headrulewidth}{.5pt}
403     \renewcommand{\footrulewidth}{.5pt}
404 }
405
406 \pagestyle{hsrbericht}
407
408 </hsrbericht>

```

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