

# HSR–Stud Document Classes

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May 6, 2020

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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.

**`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	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.

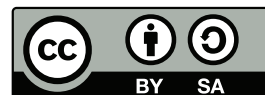
`\logo` Code to insert your logo.

`\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=hsrzf,
27   prefix=hsrzf@
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]{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, 20mm)
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}}

```

```

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{20mm}}{}
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 %% TODO: change vmarginheight if header is on
235 \newgeometry{
236     hmargin=\hsr@hmarginwidth,
237     vmargin=\hsr@vmarginheight,
238     marginparsep=0pt,
239     marginpar=0pt,
240 }
241
242 \fancypagestyle{hsrzf}{%
243     \fancyhf{} % clear
244     \fancyhead[C]{\thetitle}
245     \fancyhead[R]{\rightmark}
246     \fancyhead[L]{\leftmark}
247     \fancyfoot[R]{\@date}
248     \fancyfoot[L]{\theauthor}
249     \renewcommand{\headrulewidth}{.5pt}
250     \renewcommand{\footrulewidth}{.5pt}
251 }
252
253 \fancypagestyle{hsrzf-norulers}{%
254     \fancyhf{} % clear
255     \fancyhead[C]{\thetitle}
256     \fancyhead[R]{\rightmark}
257     \fancyhead[L]{\leftmark}
258     \fancyfoot[R]{\@date}
259     \fancyfoot[L]{\theauthor}
260     \renewcommand{\headrulewidth}{0pt}
261     \renewcommand{\footrulewidth}{0pt}
262 }
263
264 \ifhsrzf@header
265 \pagestyle{hsrzf}

```

```

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

```



```

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

```