

# HSR–Stud Document Classes

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## Contents

<b>1</b>	<b>Purpose of these document classes</b>	<b>1</b>
<b>2</b>	<b>Class Options</b>	<b>1</b>
<b>3</b>	<b>Extra Metadata</b>	<b>2</b>
<b>4</b>	<b>Zusammenfassung <code>hsrzf</code> class</b>	<b>2</b>
4.1	Class options . . . . .	2
<b>5</b>	<b>Bericht <code>hsrbericht</code> class</b>	<b>2</b>
5.1	Metadata . . . . .	2
<b>6</b>	<b>Minimal working examples</b>	<b>3</b>
<b>7</b>	<b>License</b>	<b>3</b>
<b>8</b>	<b>Implementation</b>	<b>5</b>

## 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.

## 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 / ....

## 6 Minimal working examples

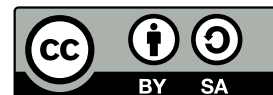
```

1 % \documentclass[margin=normal]{hsrzf}
2 %
3 % % Packages
4 % %% the HSRStud package
5 % \usepackage{hsrstud}
6 %
7 % % Metadata
8 % \course{Elektrotechnik}
9 % \module{ModAbk}
10 % \semester{Herbstsemester 2020}
11 %
12 % \authoremail{vname@hsr.ch}
13 % \author{\textsl{Vorname Name} -- \texttt{\theauthoremail}}
14 %
15 % \title{\texttt{\themodule} Zusammenfassung}
16 % \date{\thesemester}
17 %
18 % % document
19 % \begin{document}
20 % \maketitle
21 % \tableofcontents
22 % \section{Introduction}
23 % \[
24 % \quad i\hbar \partial_t \left| \psi(t) \right\rangle
25 % \quad = \hat{H} \left| \psi(t) \right\rangle
26 % \]
27 %
28 % \end{document}

```

## 7 License

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# Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

<b>Symbols</b>	<b>\fancyhead</b> 300, 301, 302, 314, 315, 316, 389, 390, 391, 400, 401, 402	<b>\hsr@margin</b> ..... ... 247, 251, 255, 259, 263, 267, 271, 275
<b>\"</b> ..... 372	<b>\fancyhf</b> 299, 313, 388, 399	<b>\hsr@matriculationnr</b> ... 153, 154, 155, 354
<b>\@author</b> ..... 352	<b>\fancypagestyle</b> ..... ... 298, 312, 387, 398	<b>\hsr@module</b> ... 86, 87, 88
<b>\@currname</b> ..... 61	<b>\fi</b> ..... 73, 194, 198, 204, 212, 216, 222, 229, 234, 240, 283, 328	<b>\hsr@project</b> 124, 125, 126
<b>\@date</b> ..... 302, 316	<b>\finishdate</b> ..... ... 144, 145, 393, 404	<b>\hsr@semester</b> .. 90, 91, 92
<b>\@empty</b> ..... 247	<b>\fontsize</b> ... 341, 343, 345	<b>\hsr@startdate</b> ..... ... 140, 141, 142, 359
<b>\@title</b> ..... 341, 389, 400	<b>\footrulewidth</b> ..... ... 309, 323, 395, 406	<b>\hsr@subtitle</b> ..... ... 115, 116, 117, 343
<b>\@unknownoptionerror</b> . 72		<b>\hsr@topic</b> ..... ... 128, 129, 130, 353
<b>\@</b> ..... 342, 344, 346, 348, 350, 352, 353, 354, 355, 357, 359, 360, 393, 404		<b>\hsr@version</b> ..... ... 132, 133, 134, 348
<b>A</b>	<b>G</b>	<b>\hsr@vmarginheight</b> .. ... 245, 249, 253, 257, 261, 265, 269, 273, 277, 282, 293, 381
<b>\address</b> ..... 149, 150	<b>\gdef</b> ..... 82, 86, 90, 95, 99, 103, 107, 115, 120, 124, 128, 132, 136, 140, 144, 149, 153, 158, 162	<b>I</b>
<b>\authoremail</b> .... 99, 100	<b>\goal</b> ..... 368	<b>\ifhsr@concrete</b> ..... ..... 195, 213, 225
<b>B</b>	<b>H</b>	<b>\ifhsr@header</b> ..... 326
<b>\begin</b> 337, 339, 347, 351, 358	<b>\headrulewidth</b> ..... ... 308, 322, 394, 405	<b>\ifhsr@sans</b> . 189, 208, 226
<b>C</b>	<b>\href</b> ..... 304, 318	<b>\ifhsr@slab</b> . 190, 207, 230
<b>\category</b> ..... 120, 121	<b>\hsr@address</b> ..... ... 149, 150, 151, 355	<b>\ifstrequal</b> . 251, 255, 259, 263, 267, 271, 275
<b>\ClassError</b> 83, 87, 91, 116, 125, 129, 133, 137, 141, 145, 154, 280	<b>\hsr@authoremail</b> .... ... 99, 100, 101, 353	<b>\ifx</b> ..... 60, 247
<b>\ClassWarning</b> ..... .... 96, 100, 104, 108, 121, 150, 159, 163	<b>\hsr@category</b> ..... ... 120, 121, 122, 345	<b>\institute</b> ..... 95, 96
<b>\clientlogo</b> .... 162, 163	<b>\hsr@clientlogo</b> ..... 162, 163, 164, 390, 401	<b>\instructor</b> .... 136, 137
<b>\contributors</b> ... 107, 108	<b>\hsr@contributors</b> ... ..... 107, 108, 109	<b>J</b>
<b>\course</b> ..... 82, 83	<b>\hsr@course</b> 82, 83, 84, 354	<b>\jobname</b> ..... 393, 404
<b>\CurrentOption</b> . 62, 66, 68	<b>\hsr@finishdate</b> ..... ... 144, 145, 146, 360	<b>K</b>
<b>\CurrentOptionValue</b> .. 60	<b>\hsr@hmarginwidth</b> ... ... 244, 248, 252, 256, 260, 264, 268, 272, 276, 281, 292, 380	<b>\keywords</b> ..... 372
<b>D</b>	<b>\hsr@institute</b> . 95, 96, 97	<b>L</b>
<b>\DeclareBoolOption</b> .. ..... 34, 38, 39, 40	<b>\hsr@instructor</b> ..... ... 136, 137, 138, 352	<b>\leftmark</b> ..... 300, 314
<b>\DeclareComplementaryOption</b> ..... 35	<b>\hsr@logo</b> ..... 158, 159, 160, 391, 402	<b>\LoadClass</b> ..... 170
<b>\DeclareDefaultOption</b> . 59	<b>\hsr@maintainer</b> ..... ..... 103, 104, 105	<b>\logo</b> ..... 158, 159
<b>\DeclareStringOption</b> ..... 52, 55		<b>M</b>
<b>E</b>		<b>\maintainer</b> .... 103, 104
<b>\else</b> ..... 69, 250		<b>\maketitle</b> ..... 336
<b>\end</b> 349, 356, 361, 362, 363		<b>\matriculationnr</b> 153, 154
<b>\expandafter</b> ..... ... 67, 68, 251, 255, 259, 263, 267, 271, 275		<b>\MessageBreak</b> ..... 62
<b>F</b>		<b>\method</b> ..... 369
<b>\fancyfoot</b> ..... 304, 305, 306, 318, 319, 320, 392, 393, 403, 404		<b>\module</b> ..... 86, 87

<b>N</b>	<b>\PassOptionsToPackage</b>	<b>T</b>
<code>\NeedsTeXFormat</code> . . . . 5, 10	. . . . . 180,	<code>\textbf</code> . . . . 341, 343,
<code>\newcommand</code> . . . . .	200, 218, 220, 236, 238	345, 348, 352, 359, 360
. . . 82, 83, 84, 86,	<code>\problem</code> . . . . . 367	<code>\texttt</code> . . . . .
87, 88, 90, 91, 92,	<code>\ProcessKeyvalOptions</code> . 76	304, 305, 318, 319, 353
95, 96, 97, 99, 100,	<code>\project</code> . . . . . 124, 125	<code>\theaddress</code> . . . . . 151
101, 103, 104, 105,	<code>\ProvidesClass</code> . . . . 6, 11	<code>\theauthoremail</code> . . . . 101
107, 108, 109, 115,	<b>R</b>	<code>\thecategory</code> . . . . . 122
116, 117, 120, 121,	<code>\relax</code> . . . . . 60	<code>\theclientlogo</code> . . . . . 164
122, 124, 125, 126,	<code>\renewcommand</code> . . . . .	<code>\thecontributors</code> . . . . 109
128, 129, 130, 132,	308, 309, 322, 323,	<code>\thecourse</code> . . . . . 84
133, 134, 136, 137,	336, 394, 395, 405, 406	<code>\thefinishdate</code> . . . . . 146
138, 140, 141, 142,	<code>\renewenvironment</code> . . . 365	<code>\theinstitute</code> . . . . . 97
144, 145, 146, 149,	<code>\RequirePackage</code> . . . . .	<code>\theinstructor</code> . . . . . 138
150, 151, 153, 154,	20, 21, 22, 25, 173,	<code>\thelogo</code> . . . . . 160
155, 158, 159, 160,	174, 175, 176, 177,	<code>\themaintainer</code> . . . . . 105
162, 163, 164, 367,	181, 201, 202, 203,	<code>\thematriculationnr</code> . 155
368, 369, 370, 371, 372	219, 221, 237, 239, 377	<code>\themodule</code> . . 88, 301, 315
<code>\newgeometry</code> . . . 291, 379	<code>\results</code> . . . . . 370	<code>\thepage</code> 306, 320, 392, 403
<code>\newlength</code> . . . . 244, 245	<b>S</b>	<code>\theproject</code> . . . . . 126
<code>\noexpand</code> . . . . 83, 87,	<code>\section</code> . . . . . 366	<code>\thesemester</code> . . . . . 92
91, 96, 100, 104,	<code>\selectfont</code> . 341, 343, 345	<code>\thestartdate</code> . . . . . 142
108, 116, 121, 125,	<code>\semester</code> . . . . . 90, 91	<code>\thesubtitle</code> . . . . . 117
129, 133, 137, 141,	<code>\setlength</code> . . . . . 248,	<code>\thetopic</code> . . . . . 130
145, 150, 154, 159, 163	249, 252, 253, 256,	<code>\theversion</code> . . . . . 134
<b>P</b>	257, 260, 261, 264,	<code>\thispagestyle</code> . . . . 338
<code>\PackageError</code> 191, 209, 231	265, 268, 269, 272,	<code>\topic</code> . . . . . 128, 129
<code>\PackageWarningNoLine</code> . 61	273, 276, 277, 281, 282	<b>V</b>
<code>\pageref</code> 306, 320, 392, 403	<code>\SetupKeyvalOptions</code> . . 28	<code>\version</code> . . . . . 132, 133
<code>\pagestyle</code> . . . . 327, 409	<code>\startdate</code> . . . . 140, 141	<code>\vspace</code> . . . . . 340,
<code>\paragraph</code> . . . . . 367,	<code>\subtitle</code> . . . . . 115, 116	342, 344, 346, 350, 357
368, 369, 370, 371, 372	<code>\suggestions</code> . . . . . 371	
<code>\PassOptionsToClass</code> . . 67		

## 8 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 %% Default font
25 \RequirePackage{lmodern}
26
27 %% Class options
28 \SetupKeyvalOptions{
29   family=hsr,
30   prefix=hsr@
31 }
32
33 %% Use header and footer
34 \DeclareBoolOption[false]{header}
35 \DeclareComplementaryOption{noheader}{header}
36
37 %% Use a sans-serif slab-serif or concrete font
38 \DeclareBoolOption[false]{sans}
39 \DeclareBoolOption[false]{slab}
40 \DeclareBoolOption[false]{concrete}
41
42 %% Configures the geometry package
43 %%
44 %% Possible values:
45 %% - huge      (45mm, 40mm)
46 %% - large     (35mm, 35mm)
47 %% - big       (30mm, 30mm)
48 %% - normal    (25mm, 30mm)
49 %% - small     (20mm, 20mm)
50 %% - tiny      (10mm, 20mm)
51 %% - minimal   ( 5mm, 20mm)
52 \DeclareStringOption{margin}[huge]
53
54 %% Configures the polyglossia package
55 % \DeclareStringOption[] {lang} [german]
56
57
58 %% Pass other options to the class
59 \DeclareDefaultOption{%
60   \ifx\CurrentOptionValue\relax
61     \PackageWarningNoLine{\@currname}{%
62       Unknown option ``\CurrentOption''\MessageBreak
63       is passed to class ``article''%
64     }%
65     % Pass the option to package color.
66     % Again it is better to expand \CurrentOption.
67     \expandafter\PassOptionsToClass
68     \expandafter{\CurrentOption}{article}
69   \else
70     % Package color does not take options with values.
71     % We provide the standard LaTeX error.
72     \@unknownoptionerror
73   \fi
74 }
75
76 \ProcessKeyvalOptions{hsr}
77
78
79 %% Create new metadata fields

```

```

80
81 %% Required fields
82 \newcommand\course[1]{\gdef\hsr@course{#1}}
83 \newcommand\hsr@course{\ClassError{hsrzf}{no \noexpand\course given}{}}
84 \newcommand\thecourse{\hsr@course}
85
86 \newcommand\module[1]{\gdef\hsr@module{#1}}
87 \newcommand\hsr@module{\ClassError{hsrzf}{no \noexpand\module given}{}}
88 \newcommand\themodule{\hsr@module}
89
90 \newcommand\semester[1]{\gdef\hsr@semester{#1}}
91 \newcommand\hsr@semester{\ClassError{hsrzf}{no \noexpand\semester given}{}}
92 \newcommand\thesemester{\hsr@semester}
93
94 %% Optional fields
95 \newcommand\institute[1]{\gdef\hsr@institute{#1}}
96 \newcommand\hsr@institute{\ClassWarning{hsrzf}{no \noexpand\institute given}{}}
97 \newcommand\theinstitute{\hsr@institute}
98
99 \newcommand\authoremail[1]{\gdef\hsr@authoremail{#1}}
100 \newcommand\hsr@authoremail{\ClassWarning{hsrzf}{no \noexpand\authoremail given}{}}
101 \newcommand\theauthoremail{\hsr@authoremail}
102
103 \newcommand\maintainer[1]{\gdef\hsr@maintainer{#1}}
104 \newcommand\hsr@maintainer{\ClassWarning{hsrzf}{no \noexpand\maintainer given}{}}
105 \newcommand\themaintainer{\hsr@maintainer}
106
107 \newcommand\contributors[1]{\gdef\hsr@contributors{#1}}
108 \newcommand\hsr@contributors{\ClassWarning{hsrzf}{no \noexpand\contributors given}{}}
109 \newcommand\thecontributors{\hsr@contributors}
110 </hsrzf | hsrbericht>
111 <*hsrbericht>
112 %% The report class has some extra metadata
113
114 %% Extra title informations
115 \newcommand\subtitle[1]{\gdef\hsr@subtitle{#1}}
116 \newcommand\hsr@subtitle{\ClassError{hsrbericht}{no \noexpand\subtitle given}{}}
117 \newcommand\thesubtitle{\hsr@subtitle}
118
119 %% Project informations
120 \newcommand\category[1]{\gdef\hsr@category{#1}}
121 \newcommand\hsr@category{\ClassWarning{hsrbericht}{no \noexpand\category given}{}}
122 \newcommand\thecategory{\hsr@category}
123
124 \newcommand\project[1]{\gdef\hsr@project{#1}}
125 \newcommand\hsr@project{\ClassError{hsrbericht}{no \noexpand\project given}{}}
126 \newcommand\theproject{\hsr@project}
127
128 \newcommand\topic[1]{\gdef\hsr@topic{#1}}
129 \newcommand\hsr@topic{\ClassError{hsrbericht}{no \noexpand\topic given}{}}
130 \newcommand\thetopic{\hsr@topic}
131
132 \newcommand\version[1]{\gdef\hsr@version{#1}}
133 \newcommand\hsr@version{\ClassError{hsrbericht}{no \noexpand\version given}{}}
134 \newcommand\theversion{\hsr@version}
135
136 \newcommand\instructor[1]{\gdef\hsr@instructor{#1}}
137 \newcommand\hsr@instructor{\ClassError{hsrbericht}{no \noexpand\instructor given}{}}

```

```

138 \newcommand\theinstructor{\hsr@instructor}
139
140 \newcommand\startdate[1]{\gdef\hsr@startdate{#1}}
141 \newcommand\hsr@startdate{\ClassError{hsrbericht}{no \noexpand\startdate given}{}}
142 \newcommand\thestartdate{\hsr@startdate}
143
144 \newcommand\finishdate[1]{\gdef\hsr@finishdate{#1}}
145 \newcommand\hsr@finishdate{\ClassError{hsrbericht}{no \noexpand\finishdate given}{}}
146 \newcommand\thefinishdate{\hsr@finishdate}
147
148 %% Author informations
149 \newcommand\address[1]{\gdef\hsr@address{#1}}
150 \newcommand\hsr@address{\ClassWarning{hsrbericht}{no \noexpand\address given}{}}
151 \newcommand\theaddress{\hsr@address}
152
153 \newcommand\matriculationnr[1]{\gdef\hsr@matriculationnr{#1}}
154 \newcommand\hsr@matriculationnr{\ClassError{hsrbericht}{no \noexpand\matriculationnr given}{}}
155 \newcommand\thematriculationnr{\hsr@matriculationnr}
156
157 %% Logos informations
158 \newcommand\logo[1]{\gdef\hsr@logo{#1}}
159 \newcommand\hsr@logo{\ClassWarning{hsrbericht}{no \noexpand\logo given}{}}
160 \newcommand\thelogo{\hsr@logo}
161
162 \newcommand\clientlogo[1]{\gdef\hsr@clientlogo{#1}}
163 \newcommand\hsr@clientlogo{\ClassWarning{hsrbericht}{no \noexpand\clientlogo given}{}}
164 \newcommand\theclientlogo{\hsr@clientlogo}
165 </hsrbericht>
166 <*hsrzf | hsrbericht>
167
168 %^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
169 %^A Setup base class
170 \LoadClass[a4paper]{article}
171
172 %% Style deps
173 \RequirePackage{geometry}
174 \RequirePackage{fancyhdr}
175 \RequirePackage{titling}
176 \RequirePackage{totpages}
177 \RequirePackage{array}
178
179 %% Insert metadata in the pdf
180 \PassOptionsToPackage{plainpages=false, pdfpagelabels, pdfusetitle}{hyperref}
181 \RequirePackage{hyperref}
182
183 %^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
184 %^A Setup Style
185 %
186
187
188 %% Configure Sans-Serif font
189 \ifhsr@sans
190   \ifhsr@slab
191     \PackageError{hsrzf}{%
192       sans ans slab options cannot be used at the same time
193     }
194   \fi
195   \ifhsr@concrete{hsrzf}{%

```



```

196     sans and concrete options cannot be used at the same time
197 }
198 \fi
199
200 \PassOptionsToPackage{T1}{fontenc}
201 \RequirePackage{fontenc}
202 \RequirePackage{cmbright}
203 \RequirePackage{sfbmath}
204 \fi
205
206 %% Configure Slab-Serif font
207 \ifhsr@slab
208   \ifhsr@sans
209     \PackageError{hsrzf}{%
210       slab and sans options cannot be used at the same time
211     }
212   \fi
213   \ifhsr@concrete{hsrzf}{%
214     slab and concrete options cannot be used at the same time
215   }
216   \fi
217
218   \PassOptionsToPackage{T1}{fontenc}
219   \RequirePackage{fontenc}
220   \PassOptionsToPackage{rm,light}{roboto}
221   \RequirePackage{roboto}
222 \fi
223
224 %% Configure (secret) concrete font
225 \ifhsr@concrete
226   \ifhsr@sans{hsrzf}{%
227     concrete and sans options cannot be used at the same time
228   }
229   \fi
230   \ifhsr@slab
231     \PackageError{hsrzf}{%
232       concrete and slab options cannot be used at the same time
233     }
234   \fi
235
236   \PassOptionsToPackage{boldsans,amssymb}{concmath}
237   \RequirePackage{concmath}
238   \PassOptionsToPackage{T1}{fontenc}
239   \RequirePackage{fontenc}
240 \fi
241
242 %% configure geometry
243 %% defaults to big
244 \newlength{\hsr@hmarginwidth}
245 \newlength{\hsr@vmarginheight}
246
247 \ifx\hsr@margin\@empty
248   \setlength\hsr@hmarginwidth{30mm}
249   \setlength\hsr@vmarginheight{30mm}
250 \else
251   \expandafter\ifstrequal\expandafter{\hsr@margin}{huge}{
252     \setlength\hsr@hmarginwidth{45mm}
253     \setlength\hsr@vmarginheight{40mm}}{}

```

```

254 %%
255 \expandafter\ifstrequal\expandafter{\hsr@margin}{large}{
256   \setlength\hsr@hmarginwidth{35mm}
257   \setlength\hsr@vmarginheight{35mm}}{}
258 %%
259 \expandafter\ifstrequal\expandafter{\hsr@margin}{big}{
260   \setlength\hsr@hmarginwidth{30mm}
261   \setlength\hsr@vmarginheight{30mm}}{}
262 %%
263 \expandafter\ifstrequal\expandafter{\hsr@margin}{normal}{
264   \setlength\hsr@hmarginwidth{25mm}
265   \setlength\hsr@vmarginheight{30mm}}{}
266 %%
267 \expandafter\ifstrequal\expandafter{\hsr@margin}{small}{
268   \setlength\hsr@hmarginwidth{20mm}
269   \setlength\hsr@vmarginheight{20mm}}{}
270 %%
271 \expandafter\ifstrequal\expandafter{\hsr@margin}{tiny}{
272   \setlength\hsr@hmarginwidth{10mm}
273   \setlength\hsr@vmarginheight{20mm}}{}
274 %%
275 \expandafter\ifstrequal\expandafter{\hsr@margin}{minimal}{
276   \setlength\hsr@hmarginwidth{ 5mm}
277   \setlength\hsr@vmarginheight{20mm}}{}
278 %%
279 % TODO: fix this
280 % \ClassError{hsrzf}{Invalid margin size}
281 % \setlength\hsr@hmarginwidth{30mm}
282 % \setlength\hsr@vmarginheight{30mm}
283 \fi
284
285 </hsrzf | hsrbericht>
286
287 %^A%  

288 %^A HSR ZF specific
289 <*hsrzf>
290 %% TODO: change vmarginheight if header is on
291 \newgeometry{
292   hmargin=\hsr@hmarginwidth,
293   vmargin=\hsr@vmarginheight,
294   marginparsep=0pt,
295   marginpar=0pt,
296 }
297
298 \fancypagestyle{hsrzf}{%
299   \fancyhf{} % clear
300   \fancyhead[L]{\leftmark}
301   \fancyhead[C]{\themodule}
302   \fancyhead[R]{\@date}
303
304   \fancyfoot[L]{\href{https://github.com/HSR-Stud/}{\texttt{HSR-Stud}}}
305   \fancyfoot[C]{\texttt{CC BY-NC-SA}}
306   \fancyfoot[R]{\thepage ~/ \pageref{TotPages}}
307
308   \renewcommand{\headrulewidth}{.5pt}
309   \renewcommand{\footrulewidth}{.5pt}
310 }
311

```

```

312 \fancypagestyle{hsrzf-norulers}{%
313     \fancyhf{} % clear
314     \fancyhead[L]{\leftmark}
315     \fancyhead[C]{\themodule}
316     \fancyhead[R]{\@date}
317
318     \fancyfoot[L]{\href{https://github.com/HSR-Stud/}{\texttt{HSR-Stud}}}
319     \fancyfoot[C]{\texttt{CC BY-NC-SA}}
320     \fancyfoot[R]{\thepage ~/ \pageref{TotPages}}
321
322     \renewcommand{\headrulewidth}{0pt}
323     \renewcommand{\footrulewidth}{0pt}
324 }
325
326 \ifhsr@header
327 \pagestyle{hsrzf}
328 \fi
329 </hsrzf>
330
331 %^A%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
332 %^A HSR Bericht specific
333 <*hsrbericht>
334
335 %% Redefine title and abstract
336 \renewcommand\maketitle{%
337 \begin{titlepage}
338     \thispagestyle{hsrbericht}
339     \begin{center}
340         \vspace*{6cm}
341         \textbf{\fontsize{48}{60}\selectfont \@title}
342         \vspace{1.5cm} \\\
343         \textbf{\fontsize{24}{48}\selectfont \hsr@subtitle}
344         \vspace{1cm} \\\
345         \textbf{\fontsize{22}{48}\selectfont \hsr@category}
346         \vspace{0.5cm} \\\
347         \begin{tabular}{rl}
348             \textbf{Version:} & \hsr@version \\\
349         \end{tabular}
350         \vspace{4cm} \\\
351         \begin{tabular}{rl p{1.5cm} rl}
352             \textbf{Autor:} & \textbf{\@author} & & \hsr@instructor \\\
353             E-Mail: & \texttt{\hsr@authoremail} & & Themengebiet: & \hsr@topic \\\
354             Matrikelnummer: & \hsr@matriculationnr & & Studiengang: & \hsr@course \\\
355             Adresse: & \hsr@address & & & \\\
356         \end{tabular}{}
357         \vspace{2cm} \\\
358         \begin{tabular}{rl}
359             \textbf{Erstellt am:} & \hsr@startdate \\\
360             \textbf{Letzte Änderung am:} & \hsr@finishdate \\\
361         \end{tabular}
362     \end{center}
363 \end{titlepage}}
364
365 \renewenvironment{abstract}{%
366     \section*{Abstract}%
367     \newcommand\problem{\paragraph{Problem}}
368     \newcommand\goal{\paragraph{Ziel}}
369     \newcommand\method{\paragraph{Method / Vorgehen}}

```

```

370 \newcommand\results{\paragraph{Wesentliche Ergebnisse}}
371 \newcommand\suggestions{\paragraph{Empfehlungen}}
372 \newcommand\keywords{\paragraph{Schl\usselwörter}}
373 }{}
374
375 %% TODO: twoside / book support
376 %% Debug:
377 %% \RequirePackage{showframe}
378
379 \newgeometry{
380   hmargin=\hsr@hmarginwidth,
381   vmargin=\hsr@vmarginheight,
382   marginparsep=0pt,
383   marginpar=0pt,
384 }
385
386 %% Configure headers
387 \fancypagestyle{hsrbericht}{%
388   \fancyhf{} % clear
389   \fancyhead[C]{\@title}
390   \fancyhead[R]{\hsr@clientlogo}
391   \fancyhead[L]{\hsr@logo}
392   \fancyfoot[R]{\thepage / \pageref{TotPages} }
393   \fancyfoot[L]{Dokument: \jobname \\\ Druck: \finishdate}
394   \renewcommand{\headrulewidth}{.5pt}
395   \renewcommand{\footrulewidth}{.5pt}
396 }
397
398 \fancypagestyle{plain}{%
399   \fancyhf{} % clear
400   \fancyhead[C]{\@title}
401   \fancyhead[R]{\hsr@clientlogo}
402   \fancyhead[L]{\hsr@logo}
403   \fancyfoot[R]{\thepage / \pageref{TotPages} }
404   \fancyfoot[L]{Dokument: \jobname \\\ Druck: \finishdate}
405   \renewcommand{\headrulewidth}{.5pt}
406   \renewcommand{\footrulewidth}{.5pt}
407 }
408
409 \pagestyle{hsrbericht}
410
411 </hsrbericht>

```