

L^AT_EX 2_ε Document Styles for the University of Southampton File version v2.2, dated 2019/03/12

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1 Quickstart

This guide assumes you have installed MiKTeX or TeX live distributions. It also requires having the program “make” for producing the templates again.

The folder labelled tex-mf should be installed in your local tex files source or whatever your tex distro uses.

The Templates have been built for the Department of Electronics and Computer Science in the Faculty of Engineering and Physical Science at the University of Southampton.

The basic settings for University, Faculty and School are explained in Section 6

If a user only wishes to change the file for their thesis it is probably easier to navigate to the class file labeled uosthesis and change the department and faculty naming there. This will be located in the subdirectory where you unzipped the files under tex/latex/uosdocs/

2 Description

These L^AT_EX 2_ε document classes are designed to produce thesis, mini-thesis, progress, project, report, GDP report and GDP summary report documents which conformed to the University of Southampton guidelines of April 2001. They were updated in Jan 2019 to conform to changes in those guidelines. Specifically copy-right and authorship declaration changes. They are based on the document class `book`, but modify some of its layout decisions. An article class is also provided which is based on the document class `article`.

3 The DOCSTRIP modules

The following modules are used in the implementation to direct DOCSTRIP when generating the external files:

thesis	produce the <code>uosthesis</code> document class
minithesis	produce the <code>uosminithesis</code> document class
progress	produce the <code>uosprogress</code> document class
project	produce the <code>uosproject</code> document class
report	produce the <code>uosreport</code> document class
article	produce the <code>uosarticle</code> document class
gdp	produce the <code>uosgdp</code> document class
gdpsummary	produce the <code>uosgdpsummary</code> document class
testthesis	produce an example thesis
testminithesis	produce an example minithesis
testprogress	produce an example progress
testproject	produce an example project
testreport	produce an example report
testarticle	produce an example article
testgdp	produce an example GDP report
testgdpsummary	produce an example GDP summary report
introduction	produce an example introduction chapter
conclusions	produce an example conclusions chapter
appendix	produce an example appendix chapter
figure	produce an example figure file
definitions	produce an example definitions file
references	produce an example references file
bst	produce a bibliography style file
driver	produce a documentation driver file

4 Implementation

The checksum is to determine if there has been a truncation in the file during transmission over a network

The class has a custom option to define what colours should be used for links. This option defines `sotoncolour` to use UoS palette colours. Colour Code taken from <http://edshare.soton.ac.uk/10481>

All options are passed on to the `book` or `article` class.

```
1 <{*thesis | minithesis | progress | project | report | article | gdp | gdpsummary}>
```

```
\baseclass
```

```
2 %% ----- Class/Formating Adjustment -----
3 %% Adjust the book class to match the requirements
4 %% Set spacing, line and paragraph options
5 %% Set LaTeX builder options (work break penalties etc.)
6 <{*thesis | minithesis | progress | project | report | gdp | gdpsummary}>
7 \def\baseclass{book}
8 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
9 <{*article}>
10 \def\baseclass{article}
11 </article>

12 \RequirePackage{xcolor}
13 \colorlet{linkBlue}{blue}
14 \colorlet{custGray}{gray}
15 \colorlet{chapRed}{red}
```

```

16 \DeclareOption{sotoncolour}{
17 \definecolor{sotonMarineBlue}{RGB}{1,67,89} % Soton marine blue (P 7469C)
18 \definecolor{sotonGrey}{RGB}{153,153,166} % Soton grey (P 443C)
19 \definecolor{sotonRed}{RGB}{171,18,16} % Soton Red (P 484C)
20 \colorlet{linkBlue}{sotonMarineBlue}
21 \colorlet{custGray}{sotonGrey}
22 \colorlet{chapRed}{sotonRed}
23 }
24 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{\baseclass}}

```

`\@checkoptions` Before we can process the options we must deal with a small problem. That is, we want to change the default options of the `book` or `article` class to `a4paper` and `11pt` or `12pt` but the macro `\ProcessOptions` used by the `book` or `article` class processes the options in the order specified in the file. Because `a4paper` is the first of the paper sizing options it will be overridden by any user defined option. But the same is not true of the font size option `11pt` or `12pt`. To remedy this we define a macro `\@checkoptions{<default>}{<option-list>}` which checks to see if any options in `<option-list>` have been specified and if not adds `<default>` to the option list.

```

25 \def\@checkoptions#1#2{
26   \edef\@curroptions{\@optionlist{\@currname.\@current}}
27   \@tempwafalse
28   \@tfor\@this:=#2\do{
29     \@expandtwoargs\in@{,\@this,}{,\@curroptions,}
30     \ifin@ \@tempswatruet \break@tfor \fi
31     \let\@this\@empty
32     \if@tempswa \else \PassOptionsToClass{#1}{\baseclass}\fi
33 }

```

With this macro at our disposal we can continue to process the options

```

34 <*thesis | minithesis | progress | report | article | gdp | gdpsummary>
35 \@checkoptions{11pt}{10pt}{11pt}{12pt}
36 </thesis | minithesis | progress | report | article | gdp | gdpsummary>
37 <*project>
38 \@checkoptions{12pt}{10pt}{11pt}{12pt}
39 </project>
40 \PassOptionsToClass{a4paper}{\baseclass}
41 \ProcessOptions\relax

```

and load the `book` or `article` document class with `A4` as the default paper size.

```

42 \LoadClass{\baseclass}

```

4.1 Banner

`\bhrule` Provide a function to produce a banner on the output making the location of the current section simpler.

```

43 \newcommand\bhrule{\typeout{-----}}
44 \newcommand\btypeout[1]{\bhrule\typeout{\space #1}\bhrule}

```

4.2 Date

`\today` This macro uses the \TeX primitives `\month`, `\day` and `\year` to provide the date of the \LaTeX -run in a suitable format.

```
45 <*thesis>
46 \def\today{\ifcase\month\or
47   January\or February\or March\or April\or May\or June\or
48   July\or August\or September\or October\or November\or December\fi
49   \space \number\year}
50 </thesis>
```

5 Document Layout

5.1 Font

```
51 %% \usepackage[T1]{fontspec}
52 %   Set font for copyright statement body text
53 \usepackage[defaultsans]{droidsans}
54 %   Set a particular style of font for the thesis. A font that has smallcaps
55 \usepackage{mathpazo}
56 %%\usepackage[T1]{fontenc} %This may not be necessary for english only text
```

5.2 Spacing

Load the `setspace` package so that spacing can easily be set. The text in all three styles is set to one and a half spacing, paragraphs not indented, and a newline between paragraphs.

```
57 \usepackage{setspace}
58 <thesis | minithesis | progress | project | report | gdp | gdpsummary>\onehalfspacing
59 <article>\singlespacing
60 \setlength{\parindent}{0pt}
61 \setlength{\parskip}{2.0ex plus0.5ex minus0.2ex}
```

5.3 Margins

Load the `vmargin` package to setup the page dimensions.

```
62 \usepackage{vmargin}
63 <*thesis | minithesis | progress | project | report | gdp | gdpsummary>
64 \setmarginsrb          { 1.5in} % left margin
65                        { 0.6in} % top margin
66                        { 1.0in} % right margin
67                        { 0.8in} % bottom margin
68                        { 20pt}  % head height
69                        {0.25in} % head sep
70                        { 9pt}   % foot height
71                        { 0.3in} % foot sep
72 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
73 <*article>
74 \setmarginsrb          { 0.8in} % left margin
75                        { 0.6in} % top margin
76                        { 0.8in} % right margin
77                        { 0.8in} % bottom margin
78                        { 20pt}  % head height
```

```

79 {0.25in} % head sep
80 { 9pt} % foot height
81 { 0.3in} % foot sep
82 </article>

```

5.4 Breaks

Control how pages and lines are broken.

```

83 \raggedbottom
84 \setlength{\topskip}{1\topskip \@plus 5\p@}
85 \doublehyphendemerits=10000 % No consecutive line hyphens.
86 \brokenpenalty=10000 % No broken words across columns/pages.
87 \widowpenalty=9999 % Almost no widows at bottom of page.
88 \clubpenalty=9999 % Almost no orphans at top of page.
89 \interfootnotelinepenalty=9999 % Almost never break footnotes.

```

5.5 Fancy Page Headers

Setup the the default fancy page headers with an underlined header containing chapter, name and page number.

```

90 \usepackage{fancyhdr}
91 % Help from https://texblog.org/2007/11/07/headerfooter-in-latex-with-fancyhdr/#comment-4783
92 \fancyhead[LE]{\textrm\thepage}
93 \fancyhead[LO]{\fancyplain{}{\textsl{\rightmark}}}}
94 \fancyhead[RE]{\fancyplain{}{\textsl{\leftmark}}}}
95 \fancyhead[RO]{\textrm\thepage}
96 \chead{} \lfoot{} \rfoot{} \cfoot{}
97 \pagestyle{fancy}
98 \fancypagestyle{plain}{
99   \fancyhf{}
100   \fancyhead[OR]{\thepage}
101   \renewcommand{\headrulewidth}{0pt}
102 }

```

`\chaptermark` Redefine `chaptermark` and `sectionmark` to set up the correct header name and
`\sectionmark` produce a banner on the output making the location of messages simpler.
`\subsectionmark` The `\btypeout` command is for console logging where chapters start
`\chapapp` expands to "Chapter" or "Appendix"

```

103 <thesis | minithesis | progress | project | report | gdp>
104 \renewcommand{\chaptermark}[1]{\btypeout{\thechapter.\space #1}\markboth{\chaptername\ \thechapter}{\thepage}}
105 \renewcommand{\sectionmark}[1]{\markright{\thesection.\hspace{1em}#1}}
106 \renewcommand{\subsectionmark}[1]{}
107 </thesis | minithesis | progress | project | report | gdp>
108 <*article>
109 \renewcommand{\sectionmark}[1]{\btypeout{\thesection\hspace{1em}}\markboth{}{\thesection.\hspace{1em}#1}}
110 \renewcommand{\subsectionmark}[1]{}
111 \renewcommand{\subsubsectionmark}[1]{}
112 </article>
113 \gdpsummary\markboth{GDP Summary Report}{GDP Summary Report}

```

`\cleardoublepage` Redefine `cleardoublepage` to remove headers from blank pages in twosided documents.

```

114 \def\cleardoublepage{\clearpage\if@twoside \ifodd\c@page\else
115 \hbox{}
116 \thispagestyle{empty}
117 \newpage
118 \if@twocolumn\hbox{}\newpage\fi\fi\fi}

```

`\cleartoeven` Define `cleartoeven` to remove headers from blank pages and force to even page for appendix or index.

```

119 \def\cleartoeven{\clearpage\if@twoside \ifodd\c@page
120 \hbox{}
121 \thispagestyle{empty}
122 \newpage
123 \if@twocolumn\hbox{}\newpage\fi\fi\fi}

```

5.6 Mathematics

Load the `amsmath` packages, so we can do some serious math, and setup the theorem environments.

```

124 %% ----- Figure/Table/Equation/Listing Styling -----
125 %% Set the styling for non text elements of the document
126 \usepackage{amsmath,amsfonts,amssymb,amscd,amsthm,xspace}
127 \theoremstyle{plain}
128 \newtheorem{example}{Example}[chapter]
129 \newtheorem{theorem}{Theorem}[chapter]
130 \newtheorem{lemma}{Lemma}[chapter]
131 \newtheorem{proposition}{Proposition}[chapter]
132 \newtheorem{axiom}{Axiom}[chapter]
133 \newtheorem{definition}{Definition}[chapter]
134 \newtheorem{remark}{Remark}[chapter]
135 \newtheorem{corollary}{Corollary}[chapter]
136 \newtheorem{lemma}{Lemma}[chapter]
137 \newtheorem{proposition}{Proposition}[chapter]
138 \newtheorem{axiom}{Axiom}[chapter]
139 \newtheorem{definition}{Definition}[chapter]
140 \newtheorem{remark}{Remark}[chapter]
141 \newtheorem{corollary}{Corollary}[chapter]
142 \newtheorem{lemma}{Lemma}[chapter]
143 \newtheorem{proposition}{Proposition}[chapter]

```

5.7 Captions

`\fref` Load the `caption` package to improve formatting of captions, and provide short
`\tref` referencing commands.

```

\eref 144 \usepackage[justification=centerlast,font=small,labelfont=sc]{caption}
\cref 145 \setlength{\captionmargin}{20pt}
\sref 146 \newcommand{\fref}[1]{Figure~\ref{#1}}
\aref 147 \newcommand{\tref}[1]{Table~\ref{#1}}
148 \newcommand{\eref}[1]{Equation~\ref{#1}}
149 \newcommand{\cref}[1]{Chapter~\ref{#1}}
150 \newcommand{\sref}[1]{Section~\ref{#1}}
151 \newcommand{\aref}[1]{Appendix~\ref{#1}}

```

5.8 Float Placement

`\topfraction` Preventing figures from appearing on a page by themselves. L^AT_EX's figure placement algorithm is quite biased in favour of putting figures on a page by themselves, instead of on the top of a page with some text below it. Fortunately, the parameters of the algorithm can be changed. The main problem is that L^AT_EX per default only allows a part of the top of a text-page (70%) to contain figures, and requires at least 20% of a page to be text when text and figures share a page. These parameters should be set to more reasonable values, for example 85% and 10%.

```
152 \renewcommand{\topfraction}{0.85}
153 \renewcommand{\bottomfraction}{.85}
154 \renewcommand{\textfraction}{0.1}
155 \renewcommand{\dbltopfraction}{.85}
```

`\floatpagefraction` This helps, but sometimes L^AT_EX puts a figure on a page by itself, although it would fit perfectly well on the top of a page. This happens when the figure will not fit on the page where it was defined. L^AT_EX then attempts to put it on a figures-only page before it attempts to put it at the top of the next page. A page may contain figures alone if the figure(s) use at least half the page. To prevent half-empty pages this limit should probably be increased to around 75%.

```
156 \renewcommand{\floatpagefraction}{0.75}
157 \renewcommand{\dblfloatpagefraction}{.75}
```

Be careful not to make `floatpagefraction` larger than `topfraction`, then you risk to produce a figure that can neither go on the top of a text page, nor on a page by itself. If that happens, the figure and all later figures will be postponed until next time a `clearpage` is executed (typically at the end of a chapter or the end of the document). This will also happen if a figure is too large to fit on a page.

```
158 \setcounter{topnumber}{9}
159 \setcounter{bottomnumber}{9}
160 \setcounter{totalnumber}{20}
161 \setcounter{dbltopnumber}{9}
```

5.9 Graphics

Load the `graphicx` package, so we can include pictures easily. Load the `epstopdf`, so that eps files are automatically converted to pdf when pdfL^AT_EX is used. This requires a version of *epstopdf* to be installed on you system. You can find a windows version at

<http://www.ctan.org/tex-archive/support/epstopdf/epstopdf.exe>.

```
162 \usepackage{graphicx}
163 \usepackage{epstopdf}
```

5.10 Subfigures and subtables

Load the `subcaption` package, so we can include subfigures easily.

```
164 \usepackage[] {subcaption}
165 \usepackage{booktabs}
166 \usepackage{rotating}
```

5.11 Listings

Load the listings package, so we can include listings easily.

```
167 \usepackage{listings}
168 % \usepackage{lstpatch}
169 \lstset{captionpos=b,
170         frame=tb,
171         basicstyle=\scriptsize\ttfamily,
172         showstringspaces=false,
173         keepspaces=true}
174 \lstdefinestyle{matlab} {
175     language=Matlab,
176     keywordstyle=\color{blue},
177     commentstyle=\color[rgb]{0.13,0.55,0.13}\em,
178     stringstyle=\color[rgb]{0.7,0,0} }
```

5.12 Hyperlinks

Load the hyperref package to provide hyperlinks in pdf and dvi documents.

```
179 \usepackage[pdfpagemode={UseOutlines},bookmarks=true,bookmarksopen=true,
180     bookmarksopenlevel=0,bookmarksnumbered=true,hypertextnames=false,
181     colorlinks,linkcolor={linkBlue},citecolor={linkBlue},urlcolor={linkBlue},
182     pdfstartview={FitV},unicode,breaklinks=true]{hyperref}
183 \pdfstringdefDisableCommands{
184     \let\\\space
185 }
```

6 Internal Names

\supervisor	The various elements of the documents are defined as control sequences to make it
\examiner	easy to customize this style for other parts of the University. When the command
\degree	is run the other terms are defined by the args.
\authors	The examiner and supervisor commands can be pluralised so that it can print
\addresses	"Supervisors:". This is with an optional argument. [s] which will add and "s" to
\university	the word "Supervisor"
\UNIVERSITY	186 %% ----- Organisational Structure -----
\department	187 \newcommand*\supervisor[2] [] {\def\supname{#2}\def\supplural{#1}}
\DEPARTMENT	188 \newcommand*\examiner[2] [] {\def\examname{#2}\def\examplural{#1}}
\group	189 \newcommand*\degree[1] {\def\degreename{#1}}
\GROUP	190 \newcommand*\authors[1] {\def\authornames{#1}}
\faculty	191 \newcommand*\qualifications[1] {\def\quals{#1}}
\FACULTY	192 \newcommand*\addresses[1] {\def\addressnames{#1}}
\subject	193 \newcommand*\doi[1] {\def\doicode{#1}}
\keywords	194 \newcommand*\volume[2] {\def\volno{#1}\def\volof{#2}}
	195 \newcommand*\orcidid[1] {\def\orcid{#1}}
	196 \newcommand*\university[1] {\def\univname{#1}}
	197 \newcommand*\UNIVERSITY[1] {\def\UNIVNAME{#1}}
	198 \newcommand*\department[1] {\def\deptname{#1}}
	199 \newcommand*\DEPARTMENT[1] {\def\DEPTNAME{#1}}
	200 \newcommand*\group[1] {\def\groupname{#1}}
	201 \newcommand*\GROUP[1] {\def\GROUPNAME{#1}}


```

202 \newcommand*{\faculty}[1]{\def\facname{#1}}
203 \newcommand*{\FACULTY}[1]{\def\FACNAME{#1}}
204 \newcommand*{\subject}[1]{\def\subjectname{#1}}
205 \newcommand*{\keywords}[1]{\def\keywordnames{#1}}

\supname The internal names of the elements are set to defaults appropriate to the Depart-
\examname ment of Electronics and Computer Science.
\degreename By running these commands at the top of your tex file it will overwrite the
\authornames defaults.
\univname 206 %% ----- Organisational Structure -----
\UNIVNAME 207 \doi{}
\deptname 208 \supervisor {}
\DEPTNAME 209 \examiner {}
\groupname 210 \degree {}
\GROUPNAME 211 \authors {}
\facname 212 \qualifications{}
\FACNAME 213 \orcidid{}
\volume{}{}
\subjectname 214 \volume{}{}
\keywordnames 215 \university {\texorpdfstring{\href{http://www.southampton.ac.uk}
216 {University of Southampton}}
217 {University of Southampton}}
218 \UNIVERSITY {\MakeUppercase{\univname}}
219 \department {School of Electronics and Computer Science}
220 \DEPARTMENT {\MakeUppercase{\deptname}}
221 \group {Cyber Physical Systems Group}
222 \GROUP {\MakeUppercase{\groupname}}
223 \faculty {Faculty of Engineering and Physical Science}
224 \FACULTY {\MakeUppercase{\facname}}
225 \addresses {}
226 \subject {}
227 \keywords {}

```

7 Special Pages

7.1 Title Page

```

\maketitle Setup an appropriate title page and pdf strings if we are using pdfLATEX.
The
global
let
@title
@empty has been removed
Possibly the relax statement also needs to be removed
228 <{*thesis | minithesis | progress | project | report | gdp | gdpsummary}>
229 % Start by Adding meta data to the produced document
230 \usepackage{titling}
231 \AtBeginDocument{
232 \hypersetup{pdftitle={\thetitle}}
233 \hypersetup{pdfsubject={\subjectname}}
234 \hypersetup{pdfauthor={\authornames}}
235 \hypersetup{pdfkeywords={\keywordnames}}
236 }

```

```

237 %    Define the title page layout
238 \renewcommand\maketitle{
239   \btypeout{Title Page}
240   \thispagestyle{empty}
241   \begin{titlepage}
242     \let\footnotesize\small
243     \let\footnoterule\relax
244     \let \footnote \thanks
245     \setcounter{footnote}{0}
246     \null\vfil
247     \vskip 60\p@
248     \begin{center}
249       \setlength{\parskip}{0pt}
250       {\scshape\LARGE\textbf{\univname}\par}
251       %% TODO: Change all the descriptions to italic like the Thesis one
252 <thesis | minithesis | progress | project | gdp | gdpsummary>
253       \bigskip
254       {\large \facname \par}
255 </thesis | minithesis | progress | project | gdp | gdpsummary>
256 <*thesis | minithesis | progress | project>
257       {\large \deptname \par}
258 </thesis | minithesis | progress | project>
259       \vfill
260 <*minithesis>
261       {\large A mini-thesis submitted for transfer from}
262       {\large MPhil to PhD \par}
263 </minithesis>
264 <*progress>
265       {\large A progress report submitted for continuation}
266       {\large towards a PhD \par}
267 </progress>
268 <*project>
269       {\large A project report submitted for the}
270       {\large award of \par \degreename \par}
271 </project>
272 <*gdp>
273       {\large A group design project report submitted for}
274       {\large the award of \par \degreename \par}
275 </gdp>
276 <*gdpsummary>
277       {\large A group design project summary report submitted}
278       {\large for the award of \par \degreename \par}
279 </gdpsummary>
280 <*minithesis | progress | project>
281       \vfill
282       {\normalsize Supervisor\supplural: \supname \par}
283       \ifthenelse{\isempty{\examname}}{
284       {\normalsize Examiner\examplural: \examname \par}{
285       \vfill
286       \hspace{6mm}\parbox[t][51mm][s]{89mm}{
287         \center
288         \vfill
289         {\large \bf \@title \par}
290         \vfill

```

```

291         {\normalsize \textit{by} \textbf\authornames \par}
292         \vfill
293         {\normalsize \@date \par}
294         \vfill
295     }
296     \parbox[t][95mm][s]{89mm}{
297 \</minithesis | progress | project>
298 \<*gdp | gdpsummary>
299     \vfill
300     {\normalsize \textit{by} \textbf\authornames \par}
301     \bigskip
302     {\normalsize Supervisor\supplural: \supname \par}
303     {\normalsize Examiner\examplural: \examname \par}
304     \vfill
305     \hspace{6mm}\parbox[t][51mm][s]{89mm}{
306         \center
307         \vfill
308         {\large \bf \@title \par}
309         \vfill
310         {\normalsize \@date \par}
311         \vfill
312     }
313     \parbox[t][95mm][s]{89mm}{
314 \</gdp | gdpsummary>
315 \<*thesis | report>
316     {\huge \bf \@title \par}
317 }
318     \ifthenelse{\equal{\doicode}{}}{
319     {}
320     {\smallskip DOI: \href{http://orcid.org/\doicode}{\doicode}\par}
321     \ifthenelse{\equal{\volno}{}}{
322     {}
323     {\smallskip Volume \volno{} of \volof}
324     \vfill
325     {\LARGE \textit{by} \par}
326     \smallskip
327     {\LARGE \textbf\authornames
328     \ifthenelse{\equal{\quals}{}}{
329     {}
330     {\par\Large
331     \quals}
332     \par}
333     \ifthenelse{\equal{\orcid}{}}{
334     {}
335     {\smallskip
336     ORCID: \href{http://orcid.org/\orcid}{\orcid}}
337     }
338     \vfill
339 \<*thesis>
340     {\large \textit{A thesis for the degree of} \par}
341     {\large \textit{Doctor of Philosophy} \par}
342 \</thesis>
343 \<*report>     {\large \textit{Technical Report} \par}
344     \bigskip

```

```

345 \bigskip
346     {\large \facname \par}
347     {\large \deptname \par}
348 </report>
349     \bigskip
350     \bigskip
351     \bigskip
352     {\Large \@date \par}
353     \bigskip
354 </thesis | report>
355     \end{center}
356     \par
357     \@thanks
358     \vfil\null
359 \end{titlepage}
360 \setcounter{footnote}{0}%
361 \global\let\thanks\relax
362 \global\let\maketitle\relax
363 \global\let\@thanks\@empty
364 \global\let\@author\@empty
365 \global\let\@date\@empty
366 \global\let\title\relax
367 \global\let\author\relax
368 \global\let\date\relax
369 \global\let\and\relax
370 < *thesis | minithesis | progress | project | report>
371 \cleardoublepage
372 </thesis | minithesis | progress | project | report>
373 }
374 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
375 < *article>
376 \if@titlepage
377 \renewcommand\maketitle{
378 \btypeout{Title Page}
379 \markboth{\authornames}{\@title}
380 \begin{titlepage}
381 \thispagestyle{empty}
382 \let\footnotesize\small
383 \let\footnoterule\relax
384 \let \footnote \thanks
385 \null\vfil
386 \vskip 60\p@
387 \begin{center}
388 {\LARGE \@title \par}
389 \vskip 3em
390 {\large \lineskip .75em
391 \begin{tabular}[t]{c} \authornames \end{tabular}
392 \par}
393 \vskip 1em
394 {\large \lineskip .5em
395 \begin{tabular}[t]{c} \addressnames \end{tabular}
396 \par}
397 \vskip 1.5em
398 {\large \@date \par}

```

```

399     \if\keywordnames
400     \else
401         \quotation
402         \vskip 1.5em
403         {\noindent \normalsize
404         \textbf{Keywords:}
405         \textit{\keywordnames}
406         \par}
407     \endquotation
408     \fi
409 \end{center}
410 \par
411 \@thanks
412 \vfil\null
413 \end{titlepage}
414 \setcounter{footnote}{0}
415 \global\let\thanks\relax
416 \global\let\maketitle\relax
417 \global\let\@maketitle\relax
418 \global\let\@thanks\@empty
419 \global\let\@author\@empty
420 \global\let\@date\@empty
421 \global\let\title\relax
422 \global\let\author\relax
423 \global\let\date\relax
424 \global\let\and\relax
425 }
426 \else
427 \renewcommand\maketitle{
428     \btypeout{Title Page}
429     \markboth{\authornames}{\@title}
430     \thispagestyle{empty}
431     \par
432     \begingroup
433     \renewcommand\thefootnote{\@fnsymbol\c@footnote}
434     \def\@makefnmark{
435         \rlap{\@textsuperscript{\normalfont\@thefnmark}}
436     }
437     \long\def\@makefntext##1{
438         \parindent 1em\noindent \hb@xt@1.8em
439         {\hss\@textsuperscript{\normalfont\@thefnmark}}##1
440     }
441     \if@twocolumn
442         \ifnum \col@number=\@ne
443             \@maketitle
444         \else
445             \twocolumn[\@maketitle]%
446         \fi
447     \else
448         \newpage
449         % Prevent figures from going at top of page.
450         \global\@topnum\z@
451         \@maketitle
452     \fi

```

```

453     \thispagestyle{plain}\@thanks
454 \endgroup
455 \setcounter{footnote}{0}%
456 \global\let\thanks\relax
457 \global\let\maketitle\relax
458 \global\let\@maketitle\relax
459 \global\let\@thanks\@empty
460 \global\let\@author\@empty
461 \global\let\@date\@empty
462 \global\let\title\relax
463 \global\let\author\relax
464 \global\let\date\relax
465 \global\let\and\relax
466 }
467 \def\@maketitle{
468   \newpage
469   \null
470   \vskip 2em
471   \begin{center}
472     \let \footnote \thanks
473     {\LARGE \@title \par}
474     \vskip 1.5em
475     {\large \lineskip .5em
476       \begin{tabular}[t]{c} \authornames \end{tabular}
477       \par}
478     \vskip 0.7em
479     {\large \lineskip .5em
480       \begin{tabular}[t]{c} \addressnames \end{tabular}
481       \par}
482     \vskip 1em
483     {\large \@date}
484   \end{center}
485   \par
486   \vskip 1.5em
487 }
488 \fi
489 \end{article}

```

7.2 Abstract Page

`\abstract` Setup an appropriate abstract page.

```

490 <*thesis | minithesis | progress | project | report | gdp>
491 \newenvironment{abstract}
492 {
493   \btypeout{Abstract Page}
494   \thispagestyle{empty}
495   \null\vfil
496   \begin{center}
497     \setlength{\parskip}{0pt}
498     {\textsc\normalsize \univname \par}
499     \bigskip
500     {\underline{Abstract} \par}
501 <*thesis | minithesis | progress | project | report>

```

```

502     \bigskip
503     {\textsc\normalsize \facname \par}
504     {\textsc\normalsize \deptname \par}
505 </thesis | minithesis | progress | project | report>
506     \bigskip
507 <*thesis>
508     {\normalsize \underline{Doctor of Philosophy}\par}
509 </thesis>
510 <*minithesis>
511     {\normalsize \underline{A mini-thesis submitted for transfer from MPhil to PhD}\par}
512 </minithesis>
513 <*progress>
514     {\normalsize \underline{A progress report submitted for continuation towards a PhD}\par}
515 </progress>
516 <*project>
517     {\normalsize \underline{A project report submitted for the award of \degreename}\par}
518 </project>
519     \bigskip
520     {\normalsize\bf \@title \par}
521     \medskip
522     {\normalsize by \authornames \par}
523     \bigskip
524     \end{center}
525 }
526 {
527 <*thesis | minithesis | progress | project | report>
528     \vfil\vfil\vfil\null
529     \cleardoublepage
530 </thesis | minithesis | progress | project | report>
531 }
532 </thesis | minithesis | progress | project | report | gdp>
533 <*article>
534 \if@titlepage
535     \renewenvironment{abstract}{
536         \titlepage
537         \null\vfil
538         \@beginparpenalty\@lowpenalty
539         \begin{center}
540             \bfseries \abstractname
541             \@endparpenalty\@M
542         \end{center}
543         \begin{itshape}
544             \noindent
545         }
546     {
547         \par
548         \end{itshape}
549         \if\keywordnames
550         \else
551             \quote
552             \vskip 1.5em
553             {\noindent \normalsize
554                 \textbf{Keywords:}
555                 \textit{\keywordnames}

```

```

556         \par}
557     \endquote
558     \fi
559     \vfil\null\endtitlepage
560 }
561 \else
562     \renewenvironment{abstract}{
563         \if@twocolumn
564             \section*{\abstractname}
565         \else
566             \small
567             \begin{center}
568                 {\bfseries \abstractname\vspace{-.5em}\vspace{\z@}}
569             \end{center}
570             \quote
571         \fi
572         \begin{itshape}
573     }
574     {
575         \end{itshape}
576         \if\keywordnames
577         \else
578             \vskip 1.5em
579             {\noindent \normalsize
580                 \textbf{Keywords:}
581                 \textit{\keywordnames}
582             \par}
583         \fi
584         \if@twocolumn\else\endquote\fi
585     }
586 \fi
587 \end{article}

```

7.3 Contents Pages

Possibly all of these pages should be redone but using the `tocloft` package to reduce complexity in this style file.

7.3.1 Add to Table of Contents

`\addtotoc` Get a better list of contents package

Ensures numbering for sub-subsections in the table of contents, and provide for 6 levels to appear in toc. Define `addtotoc` to enable adding elements to the toc at chapter level, using a dummy counter to fix bookmarks in pdfL^AT_EX.

```

588 (*thesis | minithesis | progress | project | report | gdp | article)
589 \usepackage[nottoc]{tocbibind} % Put the Lists, Glossary, Biblog and Idx in the conten
590 \addtocounter{secnumdepth}{1}
591 \setcounter{tocdepth}{6}
592 \newcounter{dummy}
593 \newcommand\addtotoc[1]{
594     \refstepcounter{dummy}
595     (*thesis | minithesis | progress | project | report | gdp)
596     \addcontentsline{toc}{chapter}{#1}}

```



```

597 </thesis | minithesis | progress | project | report | gdp>
598 <*article>
599 \addcontentsline{toc}{section}{#1}}
600 </article>

```

7.3.2 Table of Contents

`\tableofcontents` Adjust line and paragraph spacing.

```

601 \renewcommand\tableofcontents{
602 \hypersetup{linkcolor=black}}
603 \btypeout{Table of Contents}
604 \begin{spacing}{1}{
605     \setlength{\parskip}{1pt}
606     \if@twocolumn
607         \@restonecoltrue\onecolumn
608     \else
609         \@restonecolfalse
610     \fi
611 <*thesis | minithesis | progress | project | report | gdp>
612     \chapter*{\contentsname
613 </thesis | minithesis | progress | project | report | gdp>
614 <*article>
615     \section*{\contentsname
616 </article>
617     \@mkboth{
618         \MakeUppercase\contentsname}{\MakeUppercase\contentsname}}
619     \@starttoc{toc}
620     \if@restonecol\twocolumn\fi
621 <thesis | minithesis | progress | project | report | gdp> \cleardoublepage
622 } \end{spacing}
623 }

```

7.3.3 List of Figures

`\listoffigures` Adjust line and paragraph spacing.

```

624 \renewcommand\listoffigures{
625 \addtotoc{\listfigurename}
626 \begin{spacing}{1}{
627     \setlength{\parskip}{1pt}
628     \if@twocolumn
629         \@restonecoltrue\onecolumn
630     \else
631         \@restonecolfalse
632     \fi
633 <*thesis | minithesis | progress | project | report | gdp>
634     \chapter*{\listfigurename
635 </thesis | minithesis | progress | project | report | gdp>
636 <*article>
637     \section*{\listfigurename
638 </article>
639     \@mkboth{\MakeUppercase\listfigurename}
640         {\MakeUppercase\listfigurename}}
641     \@starttoc{lof}

```

```

642 \if@restonecol\twocolumn\fi
643 <*thesis | minithesis | progress | project | report | gdp>
644 \cleardoublepage
645 </thesis | minithesis | progress | project | report | gdp>
646 } \end{spacing}
647 }

```

7.3.4 List of Tables

`\listoftables` Adjust line and paragraph spacing.

```

648 \renewcommand\listoftables{
649 \addtotoc{\listtablename}
650 \begin{spacing}{1}{
651 \setlength{\parskip}{1pt}
652 \if@twocolumn
653 \@restonecoltrue\onecolumn
654 \else
655 \@restonecolfalse
656 \fi
657 <*thesis | minithesis | progress | project | report | gdp>
658 \chapter*{\listtablename
659 </thesis | minithesis | progress | project | report | gdp>
660 <*article>
661 \section*{\listtablename
662 </article>
663 \@mkboth{
664 \MakeUppercase\listtablename}{\MakeUppercase\listtablename}}
665 \@starttoc{lot}
666 \if@restonecol\twocolumn\fi
667 <*thesis | minithesis | progress | project | report | gdp>
668 \cleardoublepage
669 </thesis | minithesis | progress | project | report | gdp>
670 } \end{spacing}
671 }

```

7.3.5 List of Symbols

`\listsymbolname` Provide a `listofsymbols` command to produce a list of symbols,

```

\listofsymbols 672 <*thesis | minithesis | progress | report | article>
673 \newcommand\listsymbolname{Definitions and Abbreviations}
674 </thesis | minithesis | progress | report | article>
675 <*project | gdp>
676 \newcommand\listsymbolname{List of Symbols}
677 </project | gdp>
678 \usepackage{longtable}
679 \newcommand\listofsymbols[2]{
680 \btypeout{\listsymbolname}
681 \addtotoc{\listsymbolname}
682 <*thesis | minithesis | progress | project | report | gdp>
683 \chapter*{\listsymbolname
684 </thesis | minithesis | progress | project | report | gdp>
685 <*article>
686 \section*{\listsymbolname

```

```

687 </article>
688     \mkboth{
689         \MakeUppercase\listsymbolname}{\MakeUppercase\listsymbolname}}
690 \begin{longtable}[c]{#1}#2\end{longtable}\par
691 <*thesis | minithesis | progress | project | report | gdp>
692     \cleardoublepage
693 </thesis | minithesis | progress | project | report | gdp>
694 }
695 </thesis | minithesis | progress | project | report | gdp | article>

```

7.3.6 List of Additional Material

```

\addmaterialname Provide a listofaddmaterial command to produce a list of additional material,
\listofaddmaterial the name can be changed with \addmaterialname{NewName}
\addtolom Material can be added by using \addcontentsline{lom}{chapter}{Material Name}

696 \newcommand\addmaterialname{List of Additional Material}
697 \newcommand\listofaddmaterial{
698 \addtotoc{\addmaterialname}
699 \begin{spacing}{1}{
700     \setlength{\parskip}{1pt}
701     \if@twocolumn
702         \@restonecoltrue\onecolumn
703     \else
704         \@restonecolfalse
705     \fi
706 <*thesis | minithesis | progress | project | report | gdp>
707     \chapter*{\addmaterialname
708 </thesis | minithesis | progress | project | report | gdp>
709 <*article>
710     \section*{\addmaterialname
711 </article>
712     \mkboth{
713         \MakeUppercase\addmaterialname}{\MakeUppercase\addmaterialname}}
714     \@starttoc{lom}
715     \if@restonecol\twocolumn\fi
716 <*thesis | minithesis | progress | project | report | gdp>
717     \cleardoublepage
718 </thesis | minithesis | progress | project | report | gdp>
719 }\end{spacing}
720 }
721 \newcommand\addtolom[1]{%
722 \addtocontents{lom}{\protect\contentsline{chapter}{\protect\numberline{#1}}{}}
723 }

```

7.4 Declaration of Authorship

`\authorshipdeclaration` Taken from Modified Template by Lovell 9.3

TODO: Consider a separate dissertation class for non technical?

TODO: Provide extra argument for putting the date into the Declaration

This Authorship macro takes one argument for the case of People who have published part of their thesis already (perhaps in a paper).

This authorship macro produces the statement of Originality for the gdp class.

The authorship is normally done in custom appendix for projects like this.

xifthen else package used for the isempty command

```

724 <{*thesis | minithesis | progress | report | article | project}
725 \usepackage{xifthen}
726 \newcommand\authorshipdeclaration[1]{
727 \btypeout{Declaration of Authorship}
728 \addtotoc{Declaration of Authorship}
729 \thispagestyle{plain}
730 \null\vfil
731 \vskip 60\p@
732 \begin{center}{\Large\bf Declaration of Authorship \par}\end{center}
733 I declare that this thesis and the work presented in it is my own and has
734 been generated by me as the result of my own original research.
735
736 I confirm that:
737
738 \begin{enumerate}
739 <{*thesis | minithesis | progress | report | article}
740 \item This work was done wholly or mainly while in candidature for a research degree at this U
741 \item Where any part of this thesis has previously been submitted for a degree or any other qu
742 </thesis | minithesis | progress | report | article}
743 <{*project}
744 \item This work was done wholly or mainly while in candidature for a degree at this University
745 \item Where any part of this thesis has previously been submitted for any other qualification
746 </project}
747 \item Where I have consulted the published work of others, this is always clearly attributed;
748 \item Where I have quoted from the work of others, the source is always given. With the except
749 \item I have acknowledged all main sources of help;
750 \item Where the thesis is based on work done by myself jointly with others, I have made clear
751
752 \ifthenelse{\isempty{#1}}
753 {\item None of this work has been published before submission}
754 {\item Parts of this work have been published as: #1}
755 \end{enumerate}
756
757 \vspace{15.0mm}
758 \begin{minipage}[t]{0.7\textwidth}
759 Signed:.....
760 \end{minipage}%
761 \begin{minipage}[t]{0.3\textwidth}
762 Date:.....
763 \end{minipage}
764 \vfil\vfil\null
765 \cleardoublepage
766 }
767 </thesis | minithesis | progress | report | article | project}
768 <{*gdp}
769 \usepackage{xifthen}
770 \newcommand\authorshipdeclaration[2][]{
771 \btypeout{Declaration of Authorship}
772 \addtotoc{Statement of Originality}
773 \thispagestyle{plain}
774 \null\vfil
775 \vskip 60\p@
776 \begin{center}{\Large\bf Statement of Originality \par}\end{center}

```

```

777 %TODO Check Spelling
778
779 \begin{enumerate}
780
781 \ifthenelse{\isempty{#1}}{
782 {
783 \item I have read and understood the ECS Academic Integrity information
784 %% http://ecs.gg/ai
785 and the Universitys Academic Integrity Guidance for Students.
786 %% https://www.southampton.ac.uk/quality/assessment/academic\_integrity.page
787 \item I am aware that failure to act in accordance with the Regulations Governing Academic Integrity
788 %% http://www.calendar.soton.ac.uk/sectionIV/academic-integrity-regs.html
789 may lead to the imposition of penalties which, for the most serious cases, may include termination of the University's academic regulations.
790 \item I consent to the University copying and distributing any or all of my work in any form and for any purpose.
791 {#1}
792 %% The project specific statements
793 #2
794 \end{enumerate}
795 \vfil\vfil\vfil
796 \cleardoublepage
797 }
798 </gdp>

```

7.5 Copyright Statement

`\copyrightDeclaration` This standard Copyright statement is to be included for a thesis submission to University of Southampton Digital Repository

```

799 <{*thesis>
800 \usepackage[export]{adjustbox} % for Soton logo alignment
801 \newcommand\copyrightDeclaration[1]{
802
803 \btypeout{Copyright declaration}
804 \thispagestyle{plain}
805
806 \hspace{-1.5in}\hspace{2.5cm}\begin{minipage}{17cm}
807 \null\vfil
808 \includegraphics[width=6cm,right]{UoSLogo.png}
809
810 \vskip 60\p@
811 \begin{center}{\selectfont\huge
812 \textcolor{custGray}{University of Southampton Research Repository}\par}
813 \end{center}
814 \vspace{1cm}
815
816 {\fontfamily{fds}\selectfont
817
818 \noindent Copyright \textcopyright~ and Moral Rights for this thesis and, where
819 applicable, any accompanying data are retained by the author and/or other
820 copyright owners. A copy can be downloaded for personal non-commercial research
821 or study, without prior permission or charge. This thesis and the accompanying
822 data cannot be reproduced or quoted extensively from without first obtaining
823 permission in writing from the copyright holder/s. The content of the thesis
824 and accompanying research data (where applicable) must not be changed in any

```

```

825 way or sold commercially in any format or medium without the formal permission
826 of the copyright holder/s.
827
828 \vspace{0.5cm}
829
830 When referring to this thesis and any accompanying data, full bibliographic
831 details must be given, e.g.
832
833 \vspace{0.5cm}
834
835 Thesis: Author (Year of Submission) "Full thesis title", University of
836 Southampton, name of the University Faculty or School or Department,
837 PhD Thesis, pagination.
838
839 \vspace{0.5cm}
840
841 Data: Author (Year) Title. URI [dataset]]
842 \end{minipage}
843 \vfil\vfil\null
844 \cleardoublepage
845 }
846
847 \usepackage{lastpage} % counts the full number of pages
848
849 \</thesis>

```

7.6 Acknowledgements

`\acknowledgements` Thank someone!

```

850 \newcommand\acknowledgements[1]{
851 \btypeout{Acknowledgements}
852 \addtotoc{Acknowledgements}
853 \<thesis | minithesis | progress | project | report | gdp>
854 \thispagestyle{plain}
855 \null\vfil
856 \vskip 60\p@
857 \begin{center}{\Large\bf Acknowledgements \par}\end{center}
858 {\normalsize #1}
859 \vfil\vfil\null
860 \cleardoublepage
861 \</thesis | minithesis | progress | project | report | gdp>
862 \<*article>
863 \section*{Acknowledgements}
864 {\normalsize #1}
865 \</article>
866 }

```

7.7 Dedicatory

`\dedicatory` Dedicate the document to someone!

```

867 \newcommand\dedicatory[1]{
868 \btypeout{Dedicatory}
869 \<thesis | minithesis | progress | project | report | gdp>

```

```

870 \thispagestyle{plain}
871 \null\vfil
872 \vskip 60\p@
873 \begin{center}{\Large \sl #1}\end{center}
874 \vfil\null
875 \cleardoublepage
876 </thesis | minithesis | progress | project | report | gdp>
877 }

```

8 Parts

```

\frontmatter Define frontmatter,mainmatter,backmatter for the article class and rename the
\mainmatter bibliography to something that makes more sense. For other classes make the
\backmatter Appendix entry in the table of contents better and rename the references in a
\appendix slightly different way.

878 <*article>
879 \newcommand\frontmatter{ }
880 \newcommand\mainmatter{ }
881 \newcommand\bibname{References}
882 \newcommand\backmatter{}
883 </article>
884 <*thesis | minithesis | progress | project | report | gdp>
885 \renewcommand\bibname{References}
886 \let\oldappendix\appendix % Put full appendix name in ToC
887 \renewcommand{\appendix}{%
888   \oldappendix
889   \let\oldacl@pp=\addcontentsline
890   \def\addcontentsline##1##2##3{\oldacl@pp{##1}{##2}{\appendixname\space ##3}}
891 }
892 \let\oldbackmatter\backmatter
893 \def\backmatter{%
894   \oldbackmatter
895   \let\addcontentsline=\oldacl@pp
896 }
897 </thesis | minithesis | progress | project | report | gdp>

898 </thesis | minithesis | progress | project | report | article | gdp | gdpsummary>

```

9 Example Documents

```

899 <*testthesis>
900 \documentclass[sotoncolour]{uosthesis} % Use the Thesis Style with custom link colour
901 </testthesis>
902 <*testminithesis>
903 \documentclass[sotoncolour]{uosminithesis} % Use the minithesis Style with custom link colour
904 </testminithesis>
905 <*testprogress>
906 \documentclass[sotoncolour]{uosprogress} % Use the progress Style with custom link colour
907 </testprogress>
908 <*testproject>
909 \documentclass[sotoncolour]{uosproject} % Use the Project Style with custom link colour
910 </testproject>

```

```

911 <*testreport>
912 \documentclass[sotoncolour]{uosreport}      % Use the Report Style with custom link colour
913 </testreport>
914 <*testarticle>
915 \documentclass[sotoncolour]{uosarticle}      % Use the Article Style with custom link colour
916 </testarticle>
917 <*testgdp>
918 \documentclass[sotoncolour]{uosgdp}          % Use the GDP Report Style with custom link colour
919 </testgdp>
920 <*testgdpsummary>
921 \documentclass[sotoncolour]{uosgdpsummary}    % Use the GDP Summary Report Style with custom link colour
922 </testgdpsummary>
923 <*testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary>
924 \graphicspath{{../Figures/}}                % Location of your graphics files
925 \usepackage[round]{natbib}                  % Use Natbib style for the refs.
926 <*testthesis|testminithesis|testproject|testreport|testgdp>
927 \usepackage{bibentry}                       % Use bibentry for prepublished works
928 \nobibliography*                            % Use bibentry for prepublished works
929 \usepackage{attrib}                         % Use the attrib package for quotations
930 </testthesis|testminithesis|testproject|testreport|testgdp>
931 \hypersetup{colorlinks=true}                % Set to false for black/white printing
932 \input{Definitions}                         % Include your abbreviations
933 %% -----
934 %% -----THESIS/DOC INFORMATION -----
935 \department {School of [Insert school]}
936 \DEPARTMENT {\MakeUppercase{\deptname}}
937 \group      {[Group name]}
938 \GROUP      {\MakeUppercase{\groupname}}
939 \faculty    {Faculty of [Insert faculty]}
940 \FACULTY    {\MakeUppercase{\facname}}
941 \title      {An Investigation into \dots}
942 <*testthesis>
943 %% TODO: Replace with your name removing []
944 \authors    {[Insert full name, for example, Sarah Alison Watson]} % Use of Soton Email unadv
945 </testthesis>
946 <*testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary>
947 \authors    {\texorpdfstring
948              {\href{mailto:S.A.Watson@soton.ac.uk}{Name and email, for example, Sarah Alison W
949              {Name and email, for example, Sarah Alison Watson}
950              }
951 </testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary>
952 \addresses  {\groupname\\deptname\\univname}
953 \date       {\today}
954 <*testminithesis|testprogress|testproject|testgdp|testgdpsummary>
955 % \supervisor[s] {Mr Beavis and Mrs S Supervisor}
956 \supervisor {Mr Beavis}
957 % \examiner[s] {Dr Butthead and Dr A.N. Other}
958 \examiner   {Dr Butthead}
959 </testminithesis|testprogress|testproject|testgdp|testgdpsummary>
960 <*testproject>
961 \degree     {BEng Electronic Engineering}
962 </testproject>
963 <*testgdp|testgdpsummary>
964 \degree     {Master of Engineering}

```



```

965 </testgdp|testgdpsummary>
966 %% Optional Fields TODO: Replace these fields with your own data
967 <testthesis|testminithesis|testprogress>
968 \qualifications{[Insert Previous Qualifications, for example MEng]}
969 <*testthesis>
970 \orcidid{0000-0002-1825-0097}
971 \doi{10.1002/0470841559.ch1}
972 \volume{n}{m} %Optional Volume Numbering Volume n of m
973 </testthesis>
974 \subject {}
975 \keywords {}
976
977 \begin{document}
978 %% ----- FRONT MATTER ORGANISATION -----
979 <*testthesis>
980 \pagenumbering{gobble} % removes page number
981 \copyrightDeclaration{} % !!! Comment this line when printing the hardcopy !!!
982 \raggedright % Set the style to Left justification, remove for fill justifi
983 % Must be done after copyrightDeclaration
984 </testthesis>
985 \frontmatter
986 \maketitle
987 </testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary>
988 <*testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp>
989 \begin{abstract}
990 This work is all about \dots
991 <*testthesis|testminithesis|testprogress>
992 There are broad instructions for this template entitled: How to use the University of Southamp
993
994 There is no prescribed font, you should use a font appropriate to your discipline. See Produ
995 </testthesis|testminithesis|testprogress>
996 \end{abstract}
997 <*testthesis|testminithesis|testprogress|testproject|testreport|testgdp>
998 \tableofcontents
999 \listoffigures
1000 \listoftables
1001 %% The List of listings does not, by default, appear in the ToC, so....
1002 \addtotoc{Listings}
1003 \lstlistoflistings
1004 \listofaddmaterial
1005 \addtolom{Material Name e.g Map}
1006 \addtolom{Material Name e.g CD}
1007 \addtolom{Test Material}
1008 <*testthesis|testminithesis|testproject|testreport>
1009 %% ----- AUTHORSHIP DECLARATION/ ACKNOW. / DEDICATORY -----
1010 %% Either include citations like below (as many as required spaced with commas or 'and').
1011 %% \bibentry command must be used here with prepublished papers
1012 % https://www.stefaanlippens.net/bibentry/
1013 \authorshipdeclaration{\bibentry{Gunn:2001:pdflatex}\newline\bibentry{Lovell:2011:updated}\new
1014 %% Or state no citations like below
1015 %% \authorshipdeclaration{}
1016 %% -----
1017 \acknowledgements{Thanks to no one.}
1018 \dedicatory{To \dots}

```

```

1019 </testthesis | testminithesis | testproject | testreport>
1020 (*testgdp)
1021 %% ----- STATEMENT OF ORIGINALITY/ ACKNOW. / DEDICATORY -----
1022 %% based on ai_statement.docx available: https://secure.ecs.soton.ac.uk/notes/elec6200/
1023 %% If not for an ECS GDP and you want to remove or change the ECS Mandatory ai statements.
1024 %%\authorshipdeclaration[\item Department specific regulation]{\item extra statements}
1025 \authorshipdeclaration{
1026 %% *****You must change the statements below if you do not agree with them. *****
1027 \item I have acknowledged all sources, and identified any content taken from elsewhere.
1028 \item I have not used any resources produced by anyone else.
1029 \item I did all the work myself, or with my allocated group, and have not helped anyone else.
1030 \item The material in the report is genuine, and I have included all my data/code/designs.
1031 \item I have not submitted any part of this work for another assessment.
1032 \item My work did not involve human participants, their cells or data, or animals.}
1033 %% -----
1034
1035 \acknowledgements{Thanks to no one.}
1036 \dedicatory{To \dots}
1037 </testgdp>
1038 %%Lightweight Definitions and Abbreviations see package:nomencl for alternative
1039 %% Include if relevant to discipline
1040 \listofsymbols{ll}{\w$ & The weight vector\$\S$ & If relevant to discipline}
1041 </testthesis | testminithesis | testprogress | testproject | testreport | testgdp>
1042 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp>
1043 (*testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary)
1044 \mainmatter
1045 %% ----- MAIN MATTER (CONTENT) -----
1046 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
1047 (*testthesis | testminithesis | testprogress | testproject | testreport | testgdp)
1048 \include{Introduction}
1049 \include{Conclusions}
1050 \begin{lstlisting}[caption=Listing of what an example listing would be like]
1051 This is a test listing
1052
1053 The test listing has serveral lines
1054 to show how the listings
1055 will be displayed
1056 \end{lstlisting}
1057 \appendix
1058 \include{AppendixA}
1059 \backmatter
1060 (*testthesis | testminithesis | testprogress)
1061 \chapter{Glossary [if relevant]}
1062 </testthesis | testminithesis | testprogress>
1063 \bibliographystyle{plainnat}
1064 \bibliography{UOS}
1065 (*testthesis | testminithesis | testprogress)
1066 \chapter{Bibliography}
1067 To use bibliography as well as the references section use the \texttt{multibbl} package.
1068 \chapter{Index [if relevant]}
1069 </testthesis | testminithesis | testprogress>
1070 </testthesis | testminithesis | testprogress | testproject | testreport | testgdp>
1071 (*testgdpsummary)
1072 \section*{Introduction}

```

```

1073 \section*{Objectives}
1074 \section*{Resources}
1075 \section*{Constraints}
1076 \section*{Approaching the task}
1077 \section*{Team Organisation}
1078 \section*{Important Results}
1079 \section*{Conclusions}
1080 \section*{Recommendations}
1081 \</testgdpsummary>
1082 \<introduction>
1083 \chapter{Introduction} \label{Chapter:Introduction}
1084 \</introduction>
1085 \<testarticle>
1086 \section{Introduction} \label{Section:Introduction}
1087 \</testarticle>
1088 \<introduction|testarticle>
1089 You probably found all the files from \cite{Longman:2019:templ},
1090 they were originally made from \cite{Gunn:2001:pdflatex}.
1091 Template specific instructions can be found at:
1092 \url{https://git.soton.ac.uk/el7g15/uos-latex-template-instructions}.
1093
1094 \tref{Table:tabex} illustrates the results of some arbitrary example work.
1095 \begin{table}[!htb]
1096   \centering
1097   \begin{tabular}{cc}
1098     \toprule
1099     \textbf{Training Error} & \textbf{Testing Error}\\
1100     \midrule
1101     0 &  $\infty$ 
1102     \bottomrule
1103   \end{tabular}
1104   \caption{The Results}
1105   \label{Table:tabex}
1106 \end{table}
1107
1108 \fref{Figure:figex} shows why this is the case.
1109 \begin{figure}[!htb]
1110   \centering
1111   \includegraphics[width=8cm]{figure}
1112   \caption{A colourful picture.}
1113   \label{Figure:figex}
1114 \end{figure}
1115
1116 This page shows you a subfigure example in \fref{Figure:figsubex}.
1117 \begin{figure}[!htb]
1118   \centering
1119   \subcaptionbox{The left caption}{
1120     \includegraphics[width=4.2cm]{figure}
1121     \label{Figure:figsubex:left}
1122   }
1123   \subcaptionbox{The right caption}{
1124     \includegraphics[width=4.2cm]{figure}
1125     \label{Figure:figsubex:right}
1126   }

```

```

1127 \caption{A doubly colourful picture.}
1128 \label{Figure:figsubex}
1129 \end{figure}
1130 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1131
1132 \section{A Section of a chapter}
1133 Nulla molestie velit sed dui ullamcorper viverra. Fusce placerat vulputate lacus eu consequat. Aliquam
1134
1135 \subsection{Some quotes}
1136
1137 Nam egestas felis euismod erat tincidunt ornare. Nulla hendrerit tempor purus ac consequat. Aliquam
1138 \begin{quote}
1139 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1140 \end{quote}
1141
1142 Pellentesque sodales lobortis feugiat. Vivamus volutpat mauris id odio aliquam maximus sed sit amet
1143 \begin{quote}
1144 The \verb|\attrib| macro attributes block elements, for example when citing
1145 a reference after a block quotation.
1146 \attrib{\cite{attribpackage}}
1147 \end{quote}
1148
1149 Donec vitae massa nisi. Praesent sed sollicitudin urna. Suspendisse vitae cursus tortor. In euismod
1150 \</introduction | testarticle>
1151 \< *conclusions>
1152 \chapter{Conclusions} \label{Chapter: Conclusions}
1153 \</conclusions>
1154 \< *testarticle>
1155 %% -----
1156 \section{Conclusions} \label{Section: Conclusions}
1157 \</testarticle>
1158 \< *conclusions | testarticle>
1159 It works.
1160 \</conclusions | testarticle>
1161 \< *testarticle>
1162 \acknowledgements{Thanks to no one.}
1163 \backmatter
1164 \appendix
1165 \bibliographystyle{plainnat}
1166 \bibliography{UOS}
1167 \</testarticle>
1168 \< *appendix | testarticle>
1169 \< *appendix>
1170 \chapter{Stuff} \label{Chapter:Stuff}
1171 \</appendix>
1172 \< *testarticle>
1173 %% -----
1174 \section{Stuff} \label{Section:Stuff}
1175 \</testarticle>
1176 The following gets in the way of the text....
1177 \</appendix | testarticle>
1178 \< *testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
1179 \end{document}
1180 %% -----

```

1181 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>

9.1 Example Figure

```
1182 <*figure>
1183 %%BoundingBox: 0 150 600 650
1184 %%EndComments
1185 0.0 setlinewidth
1186 /length 0.1 def
1187 /width 0.02 def
1188 /hsvcircle {
1189   gsave
1190     /h 0.0 def
1191     0 4 360 {
1192       pop
1193       gsave
1194       0.5 0.0 translate
1195       newpath
1196       0.0 0.0 moveto
1197       length 0.0 lineto
1198       length width lineto
1199       0.0 width lineto
1200       closepath
1201       h 1.0 1.0 sethsbcolor
1202       fill
1203       grestore
1204       /h h 4 360 div add def
1205       4 rotate
1206     } for
1207   grestore
1208 } def
1209 0.0 setlinewidth
1210 0.0 setgray
1211 300 400 translate
1212 500 500 scale
1213 30 rotate
1214 1.0 0.7 scale
1215 -30 rotate
1216 hsvcircle
1217 0.8 0.8 scale
1218 hsvcircle
1219 0.8 0.8 scale
1220 hsvcircle
1221 0.8 0.8 scale
1222 hsvcircle
1223 0.8 0.8 scale
1224 hsvcircle
1225 0.8 0.8 scale
1226 hsvcircle
1227 0.8 0.8 scale
1228 hsvcircle
1229 showpage
1230 </figure>
```

9.2 Definitions File

```

1231 (*definitions)
1232 \newcommand{\BibTeX}{\rm B\kern-.05em{\sc i\kern-.025em b}\kern-.08em T\kern-.1667em\lower.7
1233
1234 %% People
1235 \newcounter{address}
1236 \setcounter{address}{1}
1237 \renewcommand{\theaddress}{\textsuperscript{\fnsymbol{address}}}
1238 \newcommand{address}[1]{\refstepcounter{address}\theaddress#1\}
1239 \newcommand{Name}[3]{\texorpdfstring{\href{mailto:#3}{#2#1}{#2}\xspace}
1240 \newcommand{SteveRGunn}[1]{\Name{#1}{Steve R. Gunn}{S.R.Gunn@ecs.soton.ac.uk}}
1241
1242 %% Dingbats
1243 \newcommand{tick}{\ding{51}}
1244 \newcommand{cross}{\ding{55}}
1245
1246 %% Calculus
1247 \newcommand{pd}[2]{\ensuremath{\frac{\partial #1}{\partial #2}}\xspace}
1248 \newcommand{fd}[2]{\ensuremath{\frac{d #1}{d #2}}\xspace}
1249 \newcommand{dint}{\ensuremath{\int\!\!\!\int}\xspace}
1250 \newcommand{tint}{\ensuremath{\int\!\!\!\int\!\!\!\int}\xspace}
1251
1252 %% Math Sets
1253 \newcommand{Q}[1]{\ensuremath{\mathbb{#1}}\xspace}
1254 \newcommand{R}{\mathbb{R}}
1255
1256 %% Matrix, Vector
1257 \newcommand{V}[1]{\ensuremath{\boldsymbol{#1}}\xspace}
1258 \newcommand{M}[1]{\ensuremath{\boldsymbol{#1}}\xspace}
1259 \newcommand{0}{V{0}}
1260 \newcommand{1}{V{1}}
1261 \newcommand{I}{M{I}}
1262
1263 %% Math Functions
1264 \newcommand{F}[1]{\ensuremath{\mathrm{#1}}\xspace}
1265 \newcommand{sgn}{F{sgn}}
1266 \newcommand{tr}{F{trace}}
1267 \newcommand{diag}{F{diag}}
1268
1269 %% Math Names
1270 \newcommand{N}[1]{\ensuremath{\mathit{#1}}\xspace}
1271
1272 %% Data
1273 \newcommand{mc}[1]{\ensuremath{\mathcal{#1}}\xspace}
1274 \newcommand{Hyp}{mc{H}}
1275 \newcommand{D}{mc{D}}
1276
1277 %% Kernel
1278 \newcommand{K}{M{K}}
1279 \newcommand{eins}{\texorpdfstring{\ensuremath{\epsilon}}{\textepsilon-insensitive}\xspace}
1280 \newcommand{e}{\ensuremath{\epsilon}\xspace}
1281 \newcommand{Bxi}{\ensuremath{\boldsymbol{\xi}}\xspace}
1282 \newcommand{Kanova}{\ensuremath{\mathit{K}_{ANOVA}}\xspace}
1283 \newcommand{Kspline}{\ensuremath{\mathit{K}_{spline}}\xspace}
1284

```

```

1285 %% Bayesian
1286 \newcommand{\MP}{\ensuremath{\mathit{\scriptscriptstyle \hspace{-1.5pt}M\hspace{-1.5pt}P}}\hspace{-1.5pt}}
1287 \newcommand{\ML}{\ensuremath{\mathit{\scriptscriptstyle \hspace{-1.5pt}M\hspace{-1.5pt}L}}\hspace{-1.5pt}}
1288 \newcommand{\Qw}{\ensuremath{Q_{\hspace{-1.5pt}w}(\hspace{-1.5pt}w)}\hspace{-1.5pt}}
1289 \newcommand{\Qa}{\ensuremath{Q_{\hspace{-1.5pt}a}(\hspace{-1.5pt}a)}\hspace{-1.5pt}}
1290 \newcommand{\Qb}{\ensuremath{Q_{\hspace{-1.5pt}b}(\hspace{-1.5pt}b)}\hspace{-1.5pt}}
1291 \newcommand{\wMPab}{\ensuremath{w_{\hspace{-1.5pt}MP|\hspace{-1.5pt}a,\hspace{-1.5pt}b}}\hspace{-1.5pt}}
1292 \newcommand{\wMP}{\ensuremath{w_{\hspace{-1.5pt}MP}}\hspace{-1.5pt}}
1293 \newcommand{\yMP}{\ensuremath{y_{\hspace{-1.5pt}MP}}\hspace{-1.5pt}}
1294 \newcommand{\BaMP}{\ensuremath{Ba_{\hspace{-1.5pt}MP}}\hspace{-1.5pt}}
1295 \newcommand{\aMP}{\ensuremath{\alpha_{\hspace{-1.5pt}MP}}\hspace{-1.5pt}}
1296 \newcommand{\bMP}{\ensuremath{\beta_{\hspace{-1.5pt}MP}}\hspace{-1.5pt}}
1297 \newcommand{\Sab}{\ensuremath{M_{\hspace{-1.5pt}a,\hspace{-1.5pt}b}}\hspace{-1.5pt}}
1298 \newcommand{\Ba}{\ensuremath{\boldsymbol{\alpha}}\hspace{-1.5pt}}
1299 \newcommand{\Bb}{\ensuremath{\boldsymbol{\beta}}\hspace{-1.5pt}}
1300 \newcommand{\Bm}{\ensuremath{\boldsymbol{\mu}}\hspace{-1.5pt}}
1301 \newcommand{\BL}{\ensuremath{\boldsymbol{\Lambda}}\hspace{-1.5pt}}
1302 \newcommand{\BPhi}{\ensuremath{\boldsymbol{\Phi}}\hspace{-1.5pt}}
1303 \newcommand{\SMP}{\ensuremath{M_{\hspace{-1.5pt}MP}}\hspace{-1.5pt}}
1304
1305 \newcommand{\Pa}{\ensuremath{P(\alpha|\mathcal{H})}\hspace{-1.5pt}}
1306 \newcommand{\Pb}{\ensuremath{P(\beta|\mathcal{H})}\hspace{-1.5pt}}
1307 \newcommand{\Pab}{\ensuremath{P(\alpha,\beta|\mathcal{H})}\hspace{-1.5pt}}
1308 \newcommand{\Pw}{\ensuremath{P(w|\mathcal{H})}\hspace{-1.5pt}}
1309 \newcommand{\PD}{\ensuremath{P(D|\mathcal{H})}\hspace{-1.5pt}}
1310 \newcommand{\PwIa}{\ensuremath{P(w|\alpha,\mathcal{H})}\hspace{-1.5pt}}
1311 \newcommand{\PDwIb}{\ensuremath{P(D|w,\beta,\mathcal{H})}\hspace{-1.5pt}}
1312 \newcommand{\PDwab}{\ensuremath{P(D,w,\alpha,\beta|\mathcal{H})}\hspace{-1.5pt}}
1313 \newcommand{\PDwI}{\ensuremath{P(D|w,\mathcal{H})}\hspace{-1.5pt}}
1314 \newcommand{\PwID}{\ensuremath{P(w|D,\mathcal{H})}\hspace{-1.5pt}}
1315 \newcommand{\PwabID}{\ensuremath{P(w,\alpha,\beta|D,\mathcal{H})}\hspace{-1.5pt}}
1316
1317 \newcommand{\PanH}{\ensuremath{P(\alpha)}\hspace{-1.5pt}}
1318 \newcommand{\PbnH}{\ensuremath{P(\beta)}\hspace{-1.5pt}}
1319 \newcommand{\PabnH}{\ensuremath{P(\alpha,\beta)}\hspace{-1.5pt}}
1320 \newcommand{\PwnH}{\ensuremath{P(w)}\hspace{-1.5pt}}
1321 \newcommand{\PDnH}{\ensuremath{P(D)}\hspace{-1.5pt}}
1322 \newcommand{\PwIaH}{\ensuremath{P(w|\alpha)}\hspace{-1.5pt}}
1323 \newcommand{\PDwIbH}{\ensuremath{P(D|w,\beta)}\hspace{-1.5pt}}
1324 \newcommand{\PDwabnH}{\ensuremath{P(D,w,\alpha,\beta)}\hspace{-1.5pt}}
1325 \newcommand{\PDwIH}{\ensuremath{P(D|w)}\hspace{-1.5pt}}
1326 \newcommand{\PwIDnH}{\ensuremath{P(w|D)}\hspace{-1.5pt}}
1327 \newcommand{\PwabIDnH}{\ensuremath{P(w,\alpha,\beta|D)}\hspace{-1.5pt}}
1328
1329 \newcommand{\PDwBab}{\ensuremath{P(D,w,Ba,\beta|\mathcal{H})}\hspace{-1.5pt}}
1330 \newcommand{\PwIBa}{\ensuremath{P(w|Ba,\mathcal{H})}\hspace{-1.5pt}}
1331 \newcommand{\PBab}{\ensuremath{P(Ba,\beta|\mathcal{H})}\hspace{-1.5pt}}
1332 \newcommand{\PwBabID}{\ensuremath{P(w,Ba,\beta|D,\mathcal{H})}\hspace{-1.5pt}}
1333
1334 \newcommand{\PBanH}{\ensuremath{P(Ba)}\hspace{-1.5pt}}
1335 \newcommand{\PwIBanH}{\ensuremath{P(w|Ba)}\hspace{-1.5pt}}
1336
1337 %% Snakes
1338 \newcommand{\Esake}{\ensuremath{\mathit{E_{\hspace{-1.5pt}snake}}}\hspace{-1.5pt}}

```

```

1339 \newcommand{\Eimage}{\ensuremath{\mathit{E}_{\text{image}}}}\xspace}
1340 \newcommand{\Econt}{\ensuremath{\mathit{E}_{\text{cont}}}}\xspace}
1341 \newcommand{\Ecurv}{\ensuremath{\mathit{E}_{\text{curv}}}}\xspace}
1342 \newcommand{\Eint}{\ensuremath{\mathit{E}_{\text{int}}}}\xspace}
1343 \newcommand{\Eext}{\ensuremath{\mathit{E}_{\text{ext}}}}\xspace}
1344 \newcommand{\Eterm}{\ensuremath{\mathit{E}_{\text{term}}}}\xspace}
1345 \newcommand{\Eline}{\ensuremath{\mathit{E}_{\text{line}}}}\xspace}
1346 \newcommand{\Edge}{\ensuremath{\mathit{E}_{\text{edge}}}}\xspace}
1347 \newcommand{\Econ}{\ensuremath{\mathit{E}_{\text{con}}}}\xspace}
1348 \newcommand{\Eangle}{\ensuremath{\mathit{E}_{\text{angle}}}}\xspace}
1349 \newcommand{\Elshape}{\ensuremath{\mathit{E}_{\text{lshape}}}}\xspace}
1350 \newcommand{\Eedgedir}{\ensuremath{\mathit{E}_{\text{edgedir}}}}\xspace}
1351 \newcommand{\Emodel}{\ensuremath{\mathit{E}_{\text{model}}}}\xspace}
1352 \newcommand{\wte}{\ensuremath{\mathit{w}_{\text{term}}}}\xspace}
1353 \newcommand{\wli}{\ensuremath{\mathit{w}_{\text{line}}}}\xspace}
1354 \newcommand{\wed}{\ensuremath{\mathit{w}_{\text{edge}}}}\xspace}
1355 \newcommand{\wco}{\ensuremath{\mathit{w}_{\text{con}}}}\xspace}
1356
1357
1358 %% Environments
1359 \newcounter{alg}
1360 \newenvironment{algorithm}[1]
1361 {
1362     \stepcounter{alg}
1363     \begin{table}[htb]
1364     \centering
1365     \begin{tabular}[t]{l}
1366     \hline&\\
1367     \multicolumn{2}{l}{\bf Algorithm \arabic{alg}: #1}\&\\
1368     \end{tabular}
1369     &\\
1370     \hline
1371     \end{tabular}
1372     \end{table}
1373 }
1374 </definitions>

9.3 References File

1375 <*references>
1376 @MISC{Longman:2019:templ,
1377   author = {E. Longman},
1378   title = {{University of Southampton LaTeX documents}},
1379   year = {2019},
1380   NOTE = {"\url{https://library.soton.ac.uk/thesis/templates} and
1381     \url{https://git.soton.ac.uk/el7g15/uos-latex-template}"},
1382 }
1383 @MISC{Gunn:2001:pdflatex,
1384   author = {S.R. Gunn},
1385   title = {PDFLaTeX Instructions},
1386   year = {2001},
1387   url = {http://www.ecs.soton.ac.uk/~srg/softwaretools/document/}
1388 }
1389 @MISC{Lovell:2011:updated,
1390   author = {C. J. Lovell},

```



```

1391 title =      {Updated templates},
1392 year =      {2011}
1393 }
1394 @MISC{Gunn:2011:updated2,
1395 author =      {S.R. Gunn and C. J. Lovell},
1396 title =      {Updated templates reference 2},
1397 year =      {2011}
1398 }
1399 @MISC{attribpackage,
1400 author =      {Matt Swift},
1401 title =      {The attrib LaTeX package
1402 attribution of block elements (Frankensteins hat)},
1403 year =      {1999},
1404 url =      {http://cs.brown.edu/about/system/managed/latex/doc/attrib.pdf}
1405 }
1406
1407 </references>

```

9.4 Bibliography Style File

This has now been changed to the ordinary plainnat as natbib caught up

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