

L^AT_EX 2_ε Document Styles for the University of Southampton File version v1.6, dated 2022/08/15

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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   \@tempswafalse
28   \@tfor\@this:=#2\do{
29     \@expandtwoargs\in@{,\@this,}{,\@curroptions,}
30     \ifin@ \@tempswatrue \@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 `geometry` package to setup the page dimensions.

```
62 \usepackage{geometry}
63 <*thesis | minithesis | progress | project | report | gdp | gdpsummary>
64 \geometry{a4paper,
65   % left=1.25in,
66   % right=1.25in,
67   hmarginratio=1:2,
68   textwidth=146.5mm,
69   top=0.6in,
70   bottom=0.8in,
71   headheight=20pt,
72   headsep=0.25in,
73   foot=9pt,
74   footskip=0.3in,
75   bindingoffset=0.5in,
76   includeheadfoot}
77 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
78 <*article>
```

```

79 \geometry{a4paper,
80           % left=1.25in,
81           % right=1.25in,
82           hmarginratio=1:1,
83           textwidth=169.4mm,
84           top=0.6in,
85           bottom=0.8in,
86           headheight=20pt,
87           headsep=0.25in,
88           foot=9pt,
89           footskip=0.3in,
90           bindingoffset=0.5in,
91           includeheadfoot}
92 \end{document}

```

5.4 Breaks

Control how pages and lines are broken.

```

93 \raggedbottom
94 \setlength{\topskip}{1\topskip \@plus 5\p@}
95 \doublehyphendemerits=10000 % No consecutive line hyphens.
96 \brokenpenalty=10000 % No broken words across columns/pages.
97 \widowpenalty=9999 % Almost no widows at bottom of page.
98 \clubpenalty=9999 % Almost no orphans at top of page.
99 \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.

```

100 \usepackage{fancyhdr}
101 % Help from https://texblog.org/2007/11/07/headerfooter-in-latex-with-fancyhdr/#comment-4783
102 \fancyhead[LE]{\texttrm\thepage}
103 \fancyhead[LO]{\fancyplain{}{\textsl{\rightmark}}}}
104 \fancyhead[RE]{\fancyplain{}{\textsl{\leftmark}}}}
105 \fancyhead[RO]{\texttrm\thepage}
106 \chead{} \lfoot{} \rfoot{} \cfoot{}
107 \pagestyle{fancy}
108 \fancypagestyle{plain}{
109   \fancyhf{}
110   \fancyhead[OR]{\thepage}
111   \renewcommand{\headrulewidth}{0pt}
112 }

```

\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"

```

113 (*thesis | minithesis | progress | project | report | gdp)
114 \renewcommand{\chaptermark}[1]{\btypeout{thechapter.\space #1}\markboth{\chaptername\ \thechapter}{\thepage}}
115 \renewcommand{\sectionmark}[1]{\markright{thesection.\hspace{1em}#1}}
116 \renewcommand{\subsectionmark}[1]{}

```

```

117 </thesis | minithesis | progress | project | report | gdp>
118 <*article>
119 \renewcommand{\sectionmark}[1]{\btypeout{\thesection\hspace{1em}}\markboth{\thesection.\hspace{1em}}{}}
120 \renewcommand{\subsectionmark}[1]{\btypeout{\thissection\hspace{1em}}\markboth{\thissection.\hspace{1em}}{}}
121 \renewcommand{\subsubsectionmark}[1]{\btypeout{\thissubsection\hspace{1em}}\markboth{\thissubsection.\hspace{1em}}{}}
122 </article>
123 <gdpsummary>\markboth{GDP Summary Report}{GDP Summary Report}

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

124 \def\cleardoublepage{\clearpage\if@twoside \ifodd\c@page\else
125 \hbox{}
126 \thispagestyle{empty}
127 \newpage
128 \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.

129 \def\cleartoeven{\clearpage\if@twoside \ifodd\c@page
130 \hbox{}
131 \thispagestyle{empty}
132 \newpage
133 \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.

```

134 %% ----- Figure/Table/Eq/Listing Styling -----
135 %% Set the styling for non text elements of the document
136 \usepackage{amsmath,amsfonts,amssymb,amscd,amsthm,xspace}
137 \theoremstyle{plain}
138 <*thesis | minithesis | progress | project | report | gdp>
139 \newtheorem{example}{Example}[chapter]
140 \newtheorem{theorem}{Theorem}[chapter]
141 </thesis | minithesis | progress | project | report | gdp>
142 <*article | gdpsummary>
143 \newtheorem{example}{Example}[section]
144 \newtheorem{theorem}{Theorem}[section]
145 </article | gdpsummary>
146 \newtheorem{corollary}[theorem]{Corollary}
147 \newtheorem{lemma}[theorem]{Lemma}
148 \newtheorem{proposition}[theorem]{Proposition}
149 \newtheorem{axiom}[theorem]{Axiom}
150 \theoremstyle{definition}
151 \newtheorem{definition}[theorem]{Definition}
152 \theoremstyle{remark}
153 \newtheorem{remark}[theorem]{Remark}

```

5.7 Captions

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

`\eref`
`\cref`
`\sref`
`\aref`

```

154 \usepackage[justification=centerlast,font=small,labelfont=sc]{caption}
155 \setlength{\captionmargin}{20pt}
156 \newcommand{\fref}[1]{Figure~\ref{#1}}
157 \newcommand{\tref}[1]{Table~\ref{#1}}
158 \newcommand{\eref}[1]{Equation~\ref{#1}}
159 \newcommand{\cref}[1]{Chapter~\ref{#1}}
160 \newcommand{\sref}[1]{Section~\ref{#1}}
161 \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%.

```

162 \renewcommand{\topfraction}{0.85}
163 \renewcommand{\bottomfraction}{.85}
164 \renewcommand{\textfraction}{0.1}
165 \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%.

```

166 \renewcommand{\floatpagefraction}{0.75}
167 \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.

```

168 \setcounter{topnumber}{9}
169 \setcounter{bottomnumber}{9}
170 \setcounter{totalnumber}{20}
171 \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>.

```

172 \usepackage{graphicx}
173 \usepackage{epstopdf}

```

5.10 Subfigures and subtables

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

```
174 \usepackage[]{subcaption}
175 \usepackage{booktabs}
176 \usepackage{rotating}
```

5.11 Listings

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

```
177 \usepackage{listings}
178 % \usepackage{lstpatch}
179 \lstset{captionpos=b,
180         frame=tb,
181         basicstyle=\scriptsize\ttfamily,
182         showstringspaces=false,
183         keepspaces=true}
184 \lstdefinestyle{matlab} {
185     language=Matlab,
186     keywordstyle=\color{blue},
187     commentstyle=\color[rgb]{0.13,0.55,0.13}\em,
188     stringstyle=\color[rgb]{0.7,0,0} }
```

5.12 Hyperlinks

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

```
189 \usepackage[pdfpagemode={UseOutlines},bookmarks=true,bookmarksopen=true,
190     bookmarksopenlevel=0,bookmarksnumbered=true,plainpages=false,pdfpagelabels,
191     colorlinks,linkcolor={linkBlue},citecolor={linkBlue},urlcolor={linkBlue},
192     pdfstartview={FitV},unicode,breaklinks=true]{hyperref}
193 \pdfstringdefDisableCommands{
194     \let\\\space
195 }
```

6 Internal Names

<code>\supervisor</code>	The various elements of the documents are defined as control sequences to make it
<code>\examiner</code>	easy to customize this style for other parts of the University. When the command
<code>\degree</code>	is run the other terms are defined by the args.
<code>\authors</code>	The examiner and supervisor commands can be pluralised so that it can print
<code>\addresses</code>	"Supervisors:". This is with an optional argument. [s] which will add and "s" to
<code>\university</code>	the word "Supervisor"
<code>\UNIVERSITY</code>	
<code>\department</code>	196 %% ----- Organisational Structure -----
<code>\DEPARTMENT</code>	197 \newcommand*{\supervisor}[2] [] {\def\supname{#2}\def\supplural{#1}}
	198 \newcommand*{\examiner}[2] [] {\def\examname{#2}\def\examplural{#1}}
<code>\group</code>	199 \newcommand*{\degree}[1] {\def\degreename{#1}}
<code>\GROUP</code>	200 \newcommand*{\authors}[1] {\def\authornames{#1}}
<code>\faculty</code>	201 \newcommand*{\qualifications}[1] {\def\quals{#1}}
<code>\FACULTY</code>	202 \newcommand*{\addresses}[1] {\def\addressnames{#1}}
<code>\subject</code>	203 \newcommand*{\documentDoi}[1] {\def\doicode{#1}}
<code>\keywords</code>	204 \newcommand*{\volume}[2] {\def\volno{#1}\def\volof{#2}}


```

205 \newcommand*{\orcidid}[1]{\def\orcid{#1}}
206 \newcommand*{\university}[1]{\def\univname{#1}}
207 \newcommand*{\UNIVERSITY}[1]{\def\UNIVNAME{#1}}
208 \newcommand*{\department}[1]{\def\deptname{#1}}
209 \newcommand*{\DEPARTMENT}[1]{\def\DEPTNAME{#1}}
210 \newcommand*{\group}[1]{\def\groupname{#1}}
211 \newcommand*{\GROUP}[1]{\def\GROUPNAME{#1}}
212 \newcommand*{\faculty}[1]{\def\facname{#1}}
213 \newcommand*{\FACULTY}[1]{\def\FACNAME{#1}}
214 \newcommand*{\subject}[1]{\def\subjectname{#1}}
215 \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 216 %% ----- Organisational Structure -----
\UNIVNAME 217 \documentDoi{}
\deptname 218 \supervisor {}
\DEPTNAME 219 \examiner {}
\groupname 220 \degree {}
\GROUPNAME 221 \authors {}
\facname 222 \qualifications{}
\FACNAME 223 \orcidid{}
224 \volume{}{}
\subjectname 225 \university {\texorpdfstring{\href{http://www.southampton.ac.uk}}
\keywordnames 226 {University of Southampton}}
227 {University of Southampton}}
228 \UNIVERSITY {\MakeUppercase{\univname}}
229 \department {School of Electronics and Computer Science}
230 \DEPARTMENT {\MakeUppercase{\deptname}}
231 \group {}
232 \GROUP {\MakeUppercase{\groupname}}
233 \faculty {Faculty of Engineering and Physical Science}
234 \FACULTY {\MakeUppercase{\facname}}
235 \addresses {}
236 \subject {}
237 \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
238 {*thesis | minithesis | progress | project | report | gdp | gdpsummary)}
239 % Start by Adding meta data to the produced document

```

```

240 \usepackage{titling}
241 \AtBeginDocument{
242   \hypersetup{pdftitle={\thetitle}}
243   \hypersetup{pdfsubject={\subjectname}}
244   \hypersetup{pdfauthor={\authornames}}
245   \hypersetup{pdfkeywords={\keywordnames}}
246 }
247 %   Define the title page layout
248 \renewcommand\maketitle{
249   \btypeout{Title Page}
250   \thispagestyle{empty}
251   \begin{titlepage}
252     \let\footnotesize\small
253     \let\footnoterule\relax
254     \let \footnote \thanks
255     \setcounter{footnote}{0}
256     \null\vfil
257     \vskip 60\p@
258     \begin{center}
259       \setlength{\parskip}{0pt}
260       {\scshape\LARGE\textbf{\univname}\par}
261       %% TODO: Change all the descriptions to italic like the Thesis one
262       (*thesis | minithesis | progress | project | gdp | gdpsummary)
263       \bigskip
264       {\large \facname \par}
265       {\large \deptname \par}
266       (/thesis | minithesis | progress | project | gdp | gdpsummary)
267       (*thesis | minithesis | progress)
268       {\large \groupname \par}
269       (/thesis | minithesis | progress)
270       \vfill
271       (*minithesis)
272       {\large A mini-thesis submitted for transfer from}
273       {\large MPhil to PhD \par}
274       (/minithesis)
275       (*progress)
276       {\large A progress report submitted for continuation}
277       {\large towards a PhD \par}
278       (/progress)
279       (*project)
280       {\large A project report submitted for the}
281       {\large award of \par \degreename \par}
282       (/project)
283       (*gdp)
284       {\large A group design project report submitted for}
285       {\large the award of \par \degreename \par}
286       (/gdp)
287       (*gdpsummary)
288       {\large A group design project summary report submitted}
289       {\large for the award of \par \degreename \par}
290       (/gdpsummary)
291       (*minithesis | progress | project)
292       \vfill
293       {\normalsize Supervisor\supplural: \supname \par}

```

```

294 \ifthenelse{\isempty{\examname}}
295 {\normalsize Examiner\examplural: \examname \par}{\}
296 \vfill
297 \hspace{6mm}\parbox[t][51mm][s]{89mm}{
298 \center
299 \vfill
300 {\large \bf \@title \par}
301 \vfill
302 {\normalsize \textit{by} \textbf\authornames \par}
303 \vfill
304 {\normalsize \@date \par}
305 \vfill
306 }
307 \parbox[t][95mm][s]{89mm}{\}
308 </minithesis | progress | project>
309 <*gdp | gdpsummary>
310 \vfill
311 {\normalsize \textit{by} \textbf\authornames \par}
312 \bigskip
313 {\normalsize Supervisor\supplural: \supname \par}
314 {\normalsize Examiner\examplural: \examname \par}
315 \vfill
316 \hspace{6mm}\parbox[t][51mm][s]{89mm}{
317 \center
318 \vfill
319 {\large \bf \@title \par}
320 \vfill
321 {\normalsize \@date \par}
322 \vfill
323 }
324 \parbox[t][95mm][s]{89mm}{\}
325 </gdp | gdpsummary>
326 <*thesis | report>
327 {\huge \bf \@title \par}
328 }
329 \ifthenelse{\equal{\doicode}{}}
330 {}
331 {\smallskip DOI: \href{https://doi.org/\doicode}{\doicode}\par}
332 \ifthenelse{\equal{\volno}{}}
333 {}
334 {\smallskip Volume \volno{} of \volof}
335 \vfill
336 {\LARGE \textit{by} \par}
337 \smallskip
338 {\LARGE \textbf\authornames
339 \ifthenelse{\equal{\quals}{}}
340 {}
341 {\par\LARGE
342 \quals}
343 \par}
344 \ifthenelse{\equal{\orcid}{}}
345 {}
346 {\smallskip
347 ORCID: \href{https://orcid.org/\orcid}{\orcid}}

```

```

348
349     \vfill
350 (*thesis)
351     {\large \textit{A thesis for the degree of} \par}
352     {\large \textit{Doctor of Philosophy} \par}
353 
354 (*report)     {\large \textit{Technical Report} \par}
355     \bigskip
356 \bigskip
357     {\large \facname \par}
358     {\large \deptname \par}
359 
360     \bigskip
361     \bigskip
362     \bigskip
363     {\Large \@date \par}
364     \bigskip
365 
366     \end{center}
367     \par
368     \@thanks
369     \vfil\null
370 \end{titlepage}
371 \setcounter{footnote}{0}%
372 \global\let\thanks\relax
373 \global\let\maketitle\relax
374 \global\let\@thanks\@empty
375 \global\let\@author\@empty
376 \global\let\@date\@empty
377 \global\let\title\relax
378 \global\let\author\relax
379 \global\let\date\relax
380 \global\let\and\relax
381 (*thesis | minithesis | progress | project | report)
382 \cleardoublepage
383 
384 }
385 

```

```

402     \begin{tabular}[t]{c} \authornames \end{tabular}
403 \par}
404 \vskip 1em
405 {\large \lineskip .5em
406     \begin{tabular}[t]{c} \addressnames \end{tabular}
407 \par}
408 \vskip 1.5em
409 {\large \@date \par}
410 \if\keywordnames
411 \else
412     \quotation
413     \vskip 1.5em
414     {\noindent \normalsize
415         \textbf{Keywords:}
416         \textit{\keywordnames}
417     \par}
418     \endquotation
419 \fi
420 \end{center}
421 \par
422 \@thanks
423 \vfil\null
424 \end{titlepage}
425 \setcounter{footnote}{0}
426 \global\let\thanks\relax
427 \global\let\maketitle\relax
428 \global\let\@maketitle\relax
429 \global\let\@thanks\@empty
430 \global\let\@author\@empty
431 \global\let\@date\@empty
432 \global\let\title\relax
433 \global\let\author\relax
434 \global\let\date\relax
435 \global\let\and\relax
436 }
437 \else
438 \renewcommand\maketitle{
439     \btypeout{Title Page}
440     \markboth{\authornames}{\@title}
441     \thispagestyle{empty}
442 \par
443 \begingroup
444     \renewcommand\thefootnote{\@fnsymbol\c@footnote}
445     \def\@makefnmark{
446         \rlap{\@textsuperscript{\normalfont\@thefnmark}}
447     }
448     \long\def\@makefntext##1{
449         \parindent 1em\noindent \hb@xt@1.8em
450         {\hss\@textsuperscript{\normalfont\@thefnmark}}##1
451     }
452     \if@twocolumn
453         \ifnum \col@number=\@ne
454             \maketitle
455         \else

```

```

456         \twocolumn[\@maketitle]%
457         \fi
458     \else
459         \newpage
460         % Prevent figures from going at top of page.
461         \global\@topnum\z@
462         \@maketitle
463         \fi
464         \thispagestyle{plain}\@thanks
465     \endgroup
466     \setcounter{footnote}{0}%
467     \global\let\thanks\relax
468     \global\let\maketitle\relax
469     \global\let\@maketitle\relax
470     \global\let\@thanks\@empty
471     \global\let\@author\@empty
472     \global\let\@date\@empty
473     \global\let\title\relax
474     \global\let\author\relax
475     \global\let\date\relax
476     \global\let\and\relax
477 }
478 \def\@maketitle{
479     \newpage
480     \null
481     \vskip 2em
482     \begin{center}
483         \let \footnote \thanks
484         {\LARGE \@title \par}
485         \vskip 1.5em
486         {\large \lineskip .5em
487           \begin{tabular}[t]{c} \authornames \end{tabular}
488           \par}
489         \vskip 0.7em
490         {\large \lineskip .5em
491           \begin{tabular}[t]{c} \addressnames \end{tabular}
492           \par}
493         \vskip 1em
494         {\large \@date}
495     \end{center}
496     \par
497     \vskip 1.5em
498 }
499 \fi
500 \end{article}

```

7.2 Abstract Page

`\abstract` Setup an appropriate abstract page.

```

501 \*thesis | minithesis | progress | project | report | gdp>
502 \newenvironment{abstract}
503 {
504     \btypeout{Abstract Page}

```

```

505 \thispagestyle{empty}
506 \null\vfil\vfil
507 \beginngroup
508 \centering
509 \setlength{\parskip}{0pt}
510 {\textsc\normalsize \univname \par}
511 \bigskip
512 {\underline{Abstract} \par}
513 <thesis | minithesis | progress | project | report>
514 \bigskip
515 {\textsc\normalsize \facname \par}
516 {\textsc\normalsize \deptname \par}
517 </thesis | minithesis | progress | project | report>
518 \bigskip
519 <thesis>
520 {\normalsize \underline{Doctor of Philosophy}\par}
521 </thesis>
522 <minithesis>
523 {\normalsize \underline{A mini-thesis submitted for transfer from MPhil to PhD}\par}
524 </minithesis>
525 <progress>
526 {\normalsize \underline{A progress report submitted for continuation towards a PhD}\par}
527 </progress>
528 <project>
529 {\normalsize \underline{A project report submitted for the award of \degree name}\par}
530 </project>
531 \bigskip
532 {\normalsize\bf \@title \par}
533 \medskip
534 {\normalsize by \authornames \par}
535 \bigskip
536 \endgroup
537 }
538 {
539 <thesis | minithesis | progress | project | report>
540 \vfil\vfil\null
541 \cleardoublepage
542 </thesis | minithesis | progress | project | report>
543 }
544 </thesis | minithesis | progress | project | report | gdp>
545 <article>
546 \if@titlepage
547 \renewenvironment{abstract}{
548 \titlepage
549 \null\vfil
550 \@beginparpenalty\@lowpenalty
551 \begin{center}
552 \bfseries \abstractname
553 \@endparpenalty\@M
554 \end{center}
555 \begin{itshape}
556 \noindent
557 }
558 {

```

```

559     \par
560     \end{itshape}
561     \if\keywordnames
562     \else
563         \quote
564         \vskip 1.5em
565         {\noindent \normalsize
566         \textbf{Keywords:}
567         \textit{\keywordnames}
568         \par}
569     \endquote
570     \fi
571     \vfil\null\endtitlepage
572 }
573 \else
574 \renewenvironment{abstract}{
575     \if@twocolumn
576     \section*{\abstractname}
577     \else
578     \small
579     \begin{center}
580         {\bfseries \abstractname\vspace{-.5em}\vspace{\z@}}
581     \end{center}
582     \quote
583     \fi
584     \begin{itshape}
585 }
586 {
587     \end{itshape}
588     \if\keywordnames
589     \else
590         \vskip 1.5em
591         {\noindent \normalsize
592         \textbf{Keywords:}
593         \textit{\keywordnames}
594         \par}
595     \fi
596     \if@twocolumn\else\endquote\fi
597 }
598 \fi
599 \end{article}

```

7.3 Contents Pages

Possibly all of these pages should be redone by 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.


```

600 <*thesis | minithesis | progress | project | report | gdp | article>
601 \usepackage[nottoc]{tocbibind} % Put the Lists, Glossary, Biblog and Idx in the conten
602 \addtocounter{secnumdepth}{1}
603 \setcounter{tocdepth}{6}
604 \newcounter{dummy}
605 \newcommand\addtotoc[1]{
606 \refstepcounter{dummy}
607 <*thesis | minithesis | progress | project | report | gdp>
608 \addcontentsline{toc}{chapter}{#1}}
609 </thesis | minithesis | progress | project | report | gdp>
610 <*article>
611 \addcontentsline{toc}{section}{#1}}
612 </article>

```

7.3.2 Table of Contents

`\tableofcontents` Adjust line and paragraph spacing.

```

613 \renewcommand\tableofcontents{
614 \hypersetup{linkcolor={black}}
615 \btypeout{Table of Contents}
616 \begin{spacing}{1}{
617 \setlength{\parskip}{1pt}
618 \if@twocolumn
619 \@restonecoltrue\onecolumn
620 \else
621 \@restonecolfalse
622 \fi
623 <*thesis | minithesis | progress | project | report | gdp>
624 \chapter*{\contentsname
625 </thesis | minithesis | progress | project | report | gdp>
626 <*article>
627 \section*{\contentsname
628 </article>
629 \mkboth{
630 \MakeUppercase\contentsname}{\MakeUppercase\contentsname}}
631 \@starttoc{toc}
632 \if@restonecol\twocolumn\fi
633 <thesis | minithesis | progress | project | report | gdp> \cleardoublepage
634 } \end{spacing}
635 }

```

7.3.3 List of Figures

`\listoffigures` Adjust line and paragraph spacing.

```

636 \renewcommand\listoffigures{
637 \addtotoc{\listfigurename}
638 \begin{spacing}{1}{
639 \setlength{\parskip}{1pt}
640 \if@twocolumn
641 \@restonecoltrue\onecolumn
642 \else
643 \@restonecolfalse
644 \fi

```

```

645 <*thesis | minithesis | progress | project | report | gdp>
646   \chapter*{\listfigurename
647 </thesis | minithesis | progress | project | report | gdp>
648 <*article>
649   \section*{\listfigurename
650 </article>
651   \mkboth{\MakeUppercase\listfigurename}
652           {\MakeUppercase\listfigurename}}
653   \@starttoc{lof}
654   \if@restonecol\twocolumn\fi
655 <*thesis | minithesis | progress | project | report | gdp>
656   \cleardoublepage
657 </thesis | minithesis | progress | project | report | gdp>
658 }\end{spacing}
659 }

```

7.3.4 List of Tables

`\listoftables` Adjust line and paragraph spacing.

```

660 \renewcommand\listoftables{
661 \addtotoc{\listtablename}
662 \begin{spacing}{1}{
663   \setlength{\parskip}{1pt}
664   \if@twocolumn
665     \@restonecoltrue\onecolumn
666   \else
667     \@restonecolfalse
668   \fi
669 <*thesis | minithesis | progress | project | report | gdp>
670   \chapter*{\listtablename
671 </thesis | minithesis | progress | project | report | gdp>
672 <*article>
673   \section*{\listtablename
674 </article>
675   \mkboth{
676     \MakeUppercase\listtablename}{\MakeUppercase\listtablename}}
677   \@starttoc{lot}
678   \if@restonecol\twocolumn\fi
679 <*thesis | minithesis | progress | project | report | gdp>
680   \cleardoublepage
681 </thesis | minithesis | progress | project | report | gdp>
682 }\end{spacing}
683 }

```

7.3.5 List of Symbols

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

```

\listofsymbols 684 <*thesis | minithesis | progress | report | article>
685 \newcommand\listsymbolname{Definitions and Abbreviations}
686 </thesis | minithesis | progress | report | article>
687 <*project | gdp>
688 \newcommand\listsymbolname{List of Symbols}
689 </project | gdp>

```

```

690 \usepackage{longtable}
691 \newcommand\listofsymbols[2]{
692 \btypeout{\listsymbolname}
693 \addtotoc{\listsymbolname}
694 (*thesis | minithesis | progress | project | report | gdp)
695 \chapter*{\listsymbolname
696 (/thesis | minithesis | progress | project | report | gdp)
697 (*article)
698 \section*{\listsymbolname
699 (/article)
700 \@mkboth{
701 \MakeUppercase\listsymbolname}{\MakeUppercase\listsymbolname}}
702 \begin{longtable}[c]{#1}#2\end{longtable}\par
703 (*thesis | minithesis | progress | project | report | gdp)
704 \cleardoublepage
705 (/thesis | minithesis | progress | project | report | gdp)
706 }
707 (/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, the name can be changed with `\addmaterialname{NewName}`

`\listofaddmaterial` the name can be changed with `\addmaterialname{NewName}`

`\addtolom` Material can be added by using `\addcontentsline{lom}{chapter}{Material Name}`

```

708 \newcommand\addmaterialname[List of Additional Material]
709 \newcommand\listofaddmaterial{
710 \addtotoc{\addmaterialname}
711 \begin{spacing}{1}{
712 \setlength{\parskip}{1pt}
713 \if@twocolumn
714 \@restonecoltrue\onecolumn
715 \else
716 \@restonecolfalse
717 \fi
718 (*thesis | minithesis | progress | project | report | gdp)
719 \chapter*{\addmaterialname
720 (/thesis | minithesis | progress | project | report | gdp)
721 (*article | gdpsummary)
722 \section*{\addmaterialname
723 (/article | gdpsummary)
724 \@mkboth{
725 \MakeUppercase\addmaterialname}{\MakeUppercase\addmaterialname}}
726 \@starttoc{lom}
727 \if@restonecol\twocolumn\fi
728 (*thesis | minithesis | progress | project | report | gdp)
729 \cleardoublepage
730 (/thesis | minithesis | progress | project | report | gdp)
731 }\end{spacing}
732 }
733 \newcommand\addtolom[1]{%
734 \addtocontents{lom}{\protect\contentsline{chapter}{\protect\numberline{#1}}{}}
735 }

```

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 authoship 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

736 (*thesis | minithesis | progress | report | article | project)
737 \usepackage{xifthen}
738 \newcommand\authorshipdeclaration[1]{
739 \btypeout{Declaration of Authorship}
740 \addtotoc{Declaration of Authorship}
741 \thispagestyle{plain}
742 \null\vfil
743 \vskip 60\p@
744 \begin{center}{\Large\bf Declaration of Authorship \par}\end{center}
745 I declare that this thesis and the work presented in it is my own and has
746 been generated by me as the result of my own original research.
747
748 I confirm that:
749
750 \begin{enumerate}
751 (*thesis | minithesis | progress | article)
752 \item This work was done wholly or mainly while in candidature for a research degree at this U
753 \item Where any part of this thesis has previously been submitted for a degree or any other q
754 (/thesis | minithesis | progress | article)
755 (*project | report)
756 \item This work was done wholly or mainly while in candidature for a degree at this University
757 \item Where any part of this report has previously been submitted for any other qualification
758 (/project | report)
759 \item Where I have consulted the published work of others, this is always clearly attributed;
760 \item Where I have quoted from the work of others, the source is always given. With the except
761 \item I have acknowledged all main sources of help;
762 \item Where the thesis is based on work done by myself jointly with others, I have made clear
763
764 \ifthenelse{\isempty{#1}}
765 {\item None of this work has been published before submission}
766 {\item Parts of this work have been published as: #1}
767 \end{enumerate}
768
769 \vspace{15.0mm}
770 \begin{minipage}[t]{0.7\textwidth}
771 Signed:.....
772 \end{minipage}%
773 \begin{minipage}[t]{0.3\textwidth}
774 Date:.....
775 \end{minipage}
776 \vfil\vfil\null
777 \cleardoublepage
778 }

```

```

779 </thesis | minithesis | progress | report | article | project>
780 <*gdp>
781 \usepackage{xifthen}
782 \newcommand\authorshipdeclaration[2][]{
783 \btypeout{Declaration of Authorship}
784 \addtotoc{Statement of Originality}
785 \thispagestyle{plain}
786 \null\vfil
787 \vskip 60\p@
788 \begin{center}{\Large\bf Statement of Originality \par}\end{center}
789 %TODO Check Spelling
790
791 \begin{enumerate}
792
793 \ifthenelse{\isempty{#1}}
794 {
795 \item I have read and understood the ECS Academic Integrity information
796 %% http://ecs.gg/ai
797 and the University's Academic Integrity Guidance for Students.
798 %% https://www.southampton.ac.uk/quality/assessment/academic\_integrity.page
799 \item I am aware that failure to act in accordance with the Regulations Governing Academic Integrity
800 %% http://www.calendar.soton.ac.uk/sectionIV/academic-integrity-regs.html
801 may lead to the imposition of penalties which, for the most serious cases, may include termination of studies.
802 \item I consent to the University copying and distributing any or all of my work in any form and for any purpose.
803 {#1}
804 %% The project specific statements
805 #2
806 \end{enumerate}
807 \vfil\vfil\null
808 \cleardoublepage
809 }
810 </gdp>

```

7.5 Copyright Statement

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

```

811 <*thesis>
812 \usepackage[export]{adjustbox} % for Soton logo alignment
813 \newcommand\copyrightDeclaration[1]{
814
815 \btypeout{Copyright declaration}
816 \thispagestyle{plain}
817
818 \hspace{-1.5in}\hspace{2.5cm}\begin{minipage}{17cm}
819 \null\vfil
820 \includegraphics[width=6cm,right]{UoSLogo.pdf}
821
822 \vskip 60\p@
823 \begin{center}{\selectfont\huge
824 \textcolor{custGray}{University of Southampton Research Repository}\par}
825 \end{center}
826 \vspace{1cm}

```

827
828 {\droidsans
829
830 \noindent Copyright \textcopyright{} and Moral Rights for this thesis and, where
831 applicable, any accompanying data are retained by the author and/or other
832 copyright owners. A copy can be downloaded for personal non-commercial research
833 or study, without prior permission or charge. This thesis and the accompanying
834 data cannot be reproduced or quoted extensively from without first obtaining
835 permission in writing from the copyright holder/s. The content of the thesis
836 and accompanying research data (where applicable) must not be changed in any
837 way or sold commercially in any format or medium without the formal permission
838 of the copyright holder/s.
839
840 \vspace{0.5cm}
841
842 When referring to this thesis and any accompanying data, full bibliographic
843 details must be given, e.g.
844
845 \vspace{0.5cm}
846
847 Thesis: Author (Year of Submission) ‘‘Full thesis title’’, University of
848 Southampton, name of the University Faculty or School or Department,
849 PhD Thesis, pagination.
850
851 \vspace{0.5cm}
852
853 Data: Author (Year) Title. URI [dataset]]
854 \end{minipage}
855 \vfil\vfil\null
856 \cleardoublepage
857 }
858
859 \usepackage{lastpage} % counts the full number of pages
860
861 \</thesis>

7.6 Acknowledgements

\acknowledgements Thank someone!

862 \newcommand\acknowledgements[1]{
863 \btypeout{Acknowledgements}
864 \addtotoc{Acknowledgements}
865 (*thesis | minithesis | progress | project | report | gdp)
866 \thispagestyle{plain}
867 \null\vfil
868 \vskip 60\p@
869 \begin{center}{\Large\bf Acknowledgements \par}\end{center}
870 {\normalsize #1}
871 \vfil\vfil\null
872 \cleardoublepage
873 \</thesis | minithesis | progress | project | report | gdp>
874 (*article)
875 \section*{Acknowledgements}

```

876 {\normalsize #1}
877 </article>
878 }

```

7.7 Dedicatory

`\dedicatory` Dedicate the document to someone!

```

879 \newcommand\dedicatory[1]{
880 \btypeout{Dedicatory}
881 <{*thesis | minithesis | progress | project | report | gdp}
882 \thispagestyle{plain}
883 \null\vfil
884 \vskip 60\p@
885 \begin{center}{\Large \sl #1}\end{center}
886 \vfil\null
887 \cleardoublepage
888 </thesis | minithesis | progress | project | report | gdp>
889 }

```

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.

```

890 <{*article}
891 \newcommand\frontmatter{ }
892 \newcommand\mainmatter{ }
893 \newcommand\bibname{References}
894 \newcommand\backmatter{}
895 </article>
896 <{*thesis | minithesis | progress | project | report | gdp}
897 \renewcommand\bibname{References}
898 \let\oldappendix\appendix % Put full appendix name in ToC
899 \renewcommand{\appendix}{%
900   \oldappendix
901   \let\oldac1@pp=\addcontentsline
902   \def\addcontentsline##1##2##3{\oldac1@pp{##1}{##2}{\appendixname\space ##3}}
903 }
904 \let\oldbackmatter\backmatter
905 \def\backmatter{%
906   \oldbackmatter
907   \let\addcontentsline=\oldac1@pp
908 }
909 </thesis | minithesis | progress | project | report | gdp>
910 </thesis | minithesis | progress | project | report | article | gdp | gdpsummary>

```

9 Example Documents

```

911 <{*testthesis}

```

```

912 \documentclass[sotoncolour]{uosthesis}      % Use the Thesis Style with custom link colour
913 \end{document}
914 \begin{document}
915 \documentclass[sotoncolour]{uosminithesis} % Use the minithesis Style with custom link colour
916 \end{document}
917 \begin{document}
918 \documentclass[sotoncolour]{uosprogress} % Use the progress Style with custom link colour
919 \end{document}
920 \begin{document}
921 \documentclass[sotoncolour]{uosproject} % Use the Project Style with custom link colour
922 \end{document}
923 \begin{document}
924 \documentclass[sotoncolour]{uosreport} % Use the Report Style with custom link colour
925 \end{document}
926 \begin{document}
927 \documentclass[sotoncolour]{uosarticle} % Use the Article Style with custom link colour
928 \end{document}
929 \begin{document}
930 \documentclass[sotoncolour]{uosgdp} % Use the GDP Report Style with custom link colour
931 \end{document}
932 \begin{document}
933 \documentclass[sotoncolour]{uosgdpsummary} % Use the GDP Summary Report Style with custom link colour
934 \end{document}
935 \begin{document}
936 \graphicspath{{../Figures/}} % Location of your graphics files
937 \usepackage[round]{natbib} % Use Natbib style for the refs.
938 \begin{document}
939 \usepackage{bibentry} % Use bibentry for prepublished works
940 \nobibliography* % Use bibentry for prepublished works
941 \usepackage{attrib} % Use the attrib package for quotations
942 \end{document}
943 \hypersetup{colorlinks=true} % Set to false for black/white printing
944 \begin{document}
945 \hypersetup{pdfstartpage=3} % Set first page to skip copyright declaration
946 \end{document}
947 \input{Definitions} % Include your abbreviations
948 %% -----
949 %% -----THESIS/DOC INFORMATION -----
950 \faculty {Faculty of [Insert faculty]}
951 \FACULTY {\MakeUppercase{\facname}}
952 \department {School of [Insert school]}
953 \DEPARTMENT {\MakeUppercase{\deptname}}
954 \group {[Group name]}
955 \GROUP {\MakeUppercase{\groupname}}
956 \title {An Investigation into \dots}
957 \begin{document}
958 %% TODO: Replace with your name removing []
959 \authors {[Insert full name, for example, Sarah Alison Watson]} % Use of Soton Email unavailable
960 \end{document}
961 \begin{document}
962 \authors {\texorpdfstring
963 {\href{mailto:S.A.Watson@soton.ac.uk}{Name and email, for example, Sarah Alison Watson}}
964 {Name and email, for example, Sarah Alison Watson}}
965 \end{document}

```



```

966 </testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
967 \addresses {\groupname\\deptname\\univname}
968 \date {\today}
969 < *testminithesis | testprogress | testproject | testgdp | testgdpsummary>
970 % \supervisor[s] {Mr Beavis and Mrs S Supervisor}
971 \supervisor {Mr Beavis}
972 % \examiner[s] {Dr Butthead and Dr A.N. Other}
973 \examiner {Dr Butthead}
974 </testminithesis | testprogress | testproject | testgdp | testgdpsummary>
975 < *testproject>
976 \degree {BEng Electronic Engineering}
977 </testproject>
978 < *testgdp | testgdpsummary>
979 \degree {Master of Engineering}
980 </testgdp | testgdpsummary>
981 %% Optional Fields TODO: Replace these fields with your own data
982 <testthesis | testminithesis | testprogress>
983 \qualifications{[Insert Previous Qualifications, for example MEng]}
984 < *testthesis>
985 \orcidid{0000-0002-1825-0097}
986 \documentDoi{10.1002/0470841559.ch1}
987 \volume{n}{m} %Optional Volume Numbering Volume n of m
988 </testthesis>
989 \subject {}
990 \keywords {}
991
992 \begin{document}
993 %% ----- FRONT MATTER ORGANISATION -----
994 < *testthesis>
995 \pagenumbering{gobble} % removes page number
996 \copyrightDeclaration{} % !!! Comment this line when printing the hardcopy !!!
997 \raggedright %% Set the style to Left justification, remove for fill justification
998 %% Must be done after copyrightDeclaration
999 </testthesis>
1000 \frontmatter
1001 \maketitle
1002 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
1003 < *testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp>
1004 \begin{abstract}
1005 This work is all about \dots
1006 < *testthesis | testminithesis | testprogress>
1007 There are broad instructions for this template entitled: How to use the University of Southamp
1008
1009 There is no prescribed font, you should use a font appropriate to your discipline. See Produ
1010 </testthesis | testminithesis | testprogress>
1011 \end{abstract}
1012 < *testthesis | testminithesis | testprogress | testproject | testreport | testgdp>
1013 \pdfbookmark[0]{\contentsname}{toc} % Add pdf bookmark for contents page for navigation
1014 \tableofcontents
1015 \listoffigures
1016 \listoftables
1017 %% The List of listings does not, by default, appear in the ToC, so....
1018 \addtotoc{Listings}
1019 \lstlistoflistings

```

```

1020 \listofaddmaterial
1021 \addtolom{Material Name e.g Map}
1022 \addtolom{Material Name e.g CD}
1023 \addtolom{Test Material}
1024 (*testthesis|testminithesis|testproject|testreport)
1025 %% ----- AUTHORSHIP DECLARATION/ ACKNOW. / DEDICATORY -----
1026 %% Either include citations like below (as many as required spaced with commas or 'and').
1027 %% \bibentry command must be used here with prepublished papers
1028 % https://www.stefaanlippens.net/bibentry/
1029 \authorshipdeclaration{\bibentry{Gunn:2001:pdflatex}\newline\bibentry{Lovell:2011:updated}\new
1030 %% Or state no citations like below
1031 %% \authorshipdeclaration{}
1032 %% -----
1033 \acknowledgements{Thanks to no one.}
1034 \dedicatory{To \dots}
1035 (/testthesis|testminithesis|testproject|testreport)
1036 (*testgdp)
1037 %% ----- STATEMENT OF ORIGINALITY/ ACKNOW. / DEDICATORY -----
1038 %% based on ai_statement.docx available: https://secure.ecs.soton.ac.uk/notes/elec6200/
1039 %% If not for an ECS GDP and you want to remove or change the ECS Manadatory ai statements.
1040 %%\authorshipdeclaration[\item Department specific regulation]{\item extra statements}
1041 \authorshipdeclaration{
1042 %% *****You must change the statements below if you do not agree with them. *****
1043 \item I have acknowledged all sources, and identified any content taken from elsewhere.
1044 \item I have not used any resources produced by anyone else.
1045 \item I did all the work myself, or with my allocated group, and have not helped anyone else.
1046 \item The material in the report is genuine, and I have included all my data/code/designs.
1047 \item I have not submitted any part of this work for another assessment.
1048 \item My work did not involve human participants, their cells or data, or animals.}
1049 %% -----
1050
1051 \acknowledgements{Thanks to no one.}
1052 \dedicatory{To \dots}
1053 (/testgdp)
1054 %%Lightweight Definitions and Abbreviations see package:nomencl for alternative
1055 %% Include if relevant to discipline
1056 \listofsymbols{lll}{\w$ & The weight vector\$\S$ & If relevant to discipline}
1057 (/testthesis|testminithesis|testprogress|testproject|testreport|testgdp)
1058 (/testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp)
1059 (*testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary)
1060 \mainmatter
1061 %% ----- MAIN MATTER (CONTENT) -----
1062 (/testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary)
1063 (*testthesis|testminithesis|testprogress|testproject|testreport|testgdp)
1064 \include{Introduction}
1065 \include{Conclusions}
1066 \begin{lstlisting}[caption=Listing of what an example listing would be like]
1067 This is a test listing
1068
1069 The test listing has several lines
1070 to show how the listings
1071 will be displayed
1072 \end{lstlisting}
1073 \appendix

```

```

1074 \include{AppendixA}
1075 \backmatter
1076 < *testthesis | testminithesis | testprogress >
1077 \chapter{Glossary [if relevant]}
1078 < /testthesis | testminithesis | testprogress >
1079 \bibliographystyle{plainnat}
1080 \bibliography{UOS}
1081 < *testthesis | testminithesis | testprogress >
1082 \chapter{Bibliography}
1083 To use bibliography as well as the references section use the \texttt{multibbl} package.
1084 \chapter{Index [if relevant]}
1085 < /testthesis | testminithesis | testprogress >
1086 < /testthesis | testminithesis | testprogress | testproject | testreport | testgdp >
1087 < *testgdpsummary >
1088 \section*{Introduction}
1089 \section*{Objectives}
1090 \section*{Resources}
1091 \section*{Constraints}
1092 \section*{Approaching the task}
1093 \section*{Team Organisation}
1094 \section*{Important Results}
1095 \section*{Conclusions}
1096 \section*{Recommendations}
1097 < /testgdpsummary >
1098 < *introduction >
1099 \chapter{Introduction} \label{Chapter:Introduction}
1100 < /introduction >
1101 < *testarticle >
1102 \section{Introduction} \label{Section:Introduction}
1103 < /testarticle >
1104 < *introduction | testarticle >
1105 You probably found all the files from \cite{Longman:2019:templ},
1106 they were originally made from \cite{Gunn:2001:pdflatex}.
1107 Template specific instructions can be found at:
1108 \url{https://git.soton.ac.uk/el7g15/uos-latex-template-instructions}.
1109
1110 \tref{Table:tabex} illustrates the results of some arbitrary example work.
1111 \begin{table}[!htb]
1112   \centering
1113   \begin{tabular}{cc}
1114     \toprule
1115     \textbf{Training Error} & \textbf{Testing Error} \\
1116     \midrule
1117     0 &  $\infty$  \\
1118     \bottomrule
1119   \end{tabular}
1120   \caption{The Results}
1121   \label{Table:tabex}
1122 \end{table}
1123
1124 \fref{Figure:figex} shows why this is the case.
1125 \begin{figure}[!htb]
1126   \centering
1127   \includegraphics[width=8cm]{figure}

```

```

1128 \caption{A colourful picture.}
1129 \label{Figure:figex}
1130 \end{figure}
1131
1132 This page shows you a subfigure example in \fref{Figure:figsubex}.
1133 \begin{figure}[!htb]
1134 \centering
1135 \subcaptionbox{The left caption}{
1136 \includegraphics[width=4.2cm]{figure}
1137 \label{Figure:figsubex:left}
1138 }
1139 \subcaptionbox{The right caption}{
1140 \includegraphics[width=4.2cm]{figure}
1141 \label{Figure:figsubex:right}
1142 }
1143 \caption{A doubly colourful picture.}
1144 \label{Figure:figsubex}
1145 \end{figure}
1146 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1147
1148 \section{A Section of a chapter}
1149 Nulla molestie velit sed dui ullamcorper viverra. Fusce placerat vulputate lacus eu consequat.
1150
1151 \subsection{Some quotes}
1152
1153 Nam egestas felis euismod erat tincidunt ornare. Nulla hendrerit tempor purus ac consequat. Aliquam
1154 \begin{quote}
1155 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1156 \end{quote}
1157
1158 Pellentesque sodales lobortis feugiat. Vivamus volutpat mauris id odio aliquam maximus sed sit
1159 \begin{quote}
1160 The \verb|\attrib| macro attributes block elements, for example when citing
1161 a reference after a block quotation.
1162 \ifdefined\attrib\attrib{\cite{attribpackage}}\fi
1163 \end{quote}
1164
1165 Donec vitae massa nisi. Praesent sed sollicitudin urna. Suspendisse vitae cursus tortor. In egestas
1166 \</introduction | testarticle>
1167 \< *conclusions>
1168 \chapter{Conclusions} \label{Chapter: Conclusions}
1169 \</conclusions>
1170 \< *testarticle>
1171 %% -----
1172 \section{Conclusions} \label{Section: Conclusions}
1173 \</testarticle>
1174 \< *conclusions | testarticle>
1175 It works.
1176 \</conclusions | testarticle>
1177 \< *testarticle>
1178 \acknowledgements{Thanks to no one.}
1179 \backmatter
1180 \appendix
1181 \bibliographystyle{plainnat}

```

```

1182 \bibliography{UOS}
1183 \testarticle
1184 \appendix testarticle
1185 \appendix
1186 \chapter{Stuff} \label{Chapter:Stuff}
1187 \appendix
1188 \testarticle
1189 %% -----
1190 \section{Stuff} \label{Section:Stuff}
1191 \testarticle
1192 The following gets in the way of the text....
1193 \appendix testarticle
1194 \testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary)
1195 \end{document}
1196 %% -----
1197 \testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary)

```

9.1 Example Figure

```

1198 \figure
1199 %%BoundingBox: 0 150 600 650
1200 %%EndComments
1201 0.0 setlinewidth
1202 /length 0.1 def
1203 /width 0.02 def
1204 /hsvcircle {
1205   gsave
1206     /h 0.0 def
1207     0 4 360 {
1208       pop
1209       gsave
1210       0.5 0.0 translate
1211       newpath
1212       0.0 0.0 moveto
1213       length 0.0 lineto
1214       length width lineto
1215       0.0 width lineto
1216       closepath
1217       h 1.0 1.0 sethsbcolor
1218       fill
1219       grestore
1220       /h h 4 360 div add def
1221       4 rotate
1222     } for
1223   grestore
1224 } def
1225 0.0 setlinewidth
1226 0.0 setgray
1227 300 400 translate
1228 500 500 scale
1229 30 rotate
1230 1.0 0.7 scale
1231 -30 rotate
1232 hsvcircle
1233 0.8 0.8 scale

```

```

1234 hsvcircle
1235 0.8 0.8 scale
1236 hsvcircle
1237 0.8 0.8 scale
1238 hsvcircle
1239 0.8 0.8 scale
1240 hsvcircle
1241 0.8 0.8 scale
1242 hsvcircle
1243 0.8 0.8 scale
1244 hsvcircle
1245 showpage
1246 </figure>

```

9.2 Definitions File

```

1247 (*definitions)
1248 \newcommand{\BibTeX}{\rm B\kern-.05em{\sc i\kern-.025em b}\kern-.08em T\kern-.1667em\lower.7ex\hbox{e}}
1249
1250 %% People
1251 \newcounter{address}
1252 \setcounter{address}{1}
1253 \renewcommand{\theaddress}{\textsuperscript{\fnsymbol{address}}}
1254 \newcommand{address}[1]{\refstepcounter{address}\theaddress#1\\}
1255 \newcommand{Name}[3]{\texorpdfstring{\href{mailto:#3}{#2}#1}{#2}\xspace}
1256 \newcommand{SteveRGunn}[1]{\Name{#1}{Steve R. Gunn}{S.R.Gunn@ecs.soton.ac.uk}}
1257
1258 %% Dingbats
1259 \newcommand{tick}{\ding{51}}
1260 \newcommand{cross}{\ding{55}}
1261
1262 %% Calculus
1263 \newcommand{pd}[2]{\ensuremath{\frac{\partial}{\partial} #1}{\partial} #2}\xspace}
1264 \newcommand{fd}[2]{\ensuremath{\frac{d}{d} #1}{d} #2}\xspace}
1265 \newcommand{dint}{\ensuremath{\int\!\!\!\int}\xspace}
1266 \newcommand{tint}{\ensuremath{\int\!\!\!\int\!\!\!\int}\xspace}
1267
1268 %% Math Sets
1269 \newcommand{Q}[1]{\ensuremath{\mathbb{#1}}\xspace}
1270 \newcommand{R}{\mathbb{Q}}
1271
1272 %% Matrix, Vector
1273 \newcommand{V}[1]{\ensuremath{\boldsymbol{#1}}\xspace}
1274 \newcommand{M}[1]{\ensuremath{\boldsymbol{#1}}\xspace}
1275 \newcommand{0}{V{0}}
1276 \newcommand{1}{V{1}}
1277 \newcommand{I}{M{I}}
1278
1279 %% Math Functions
1280 \newcommand{F}[1]{\ensuremath{\mathrm{#1}}\xspace}
1281 \newcommand{sgn}{F{sgn}}
1282 \newcommand{tr}{F{trace}}
1283 \newcommand{diag}{F{diag}}
1284
1285 %% Math Names

```

```

1286 \newcommand{\N}[1]{\ensuremath{\mathit{\#1}}\xspace}
1287
1288 %% Data
1289 \newcommand{\mc}[1]{\ensuremath{\mathcal{\#1}}\xspace}
1290 \newcommand{\Hyp}{\mc{H}}
1291 \newcommand{\D}{\mc{D}}
1292
1293 %% Kernel
1294 \newcommand{\K}{\M{K}}
1295 \newcommand{\eins}{\texorpdfstring{\ensuremath{\epsilon}}{\textepsilon}-insensitive\xspace}
1296 \newcommand{\e}{\ensuremath{\epsilon}\xspace}
1297 \newcommand{\Bxi}{\ensuremath{\boldsymbol{\xi}}\xspace}
1298 \newcommand{\Kanova}{\ensuremath{\mathit{K}_{\text{ANOVA}}}\xspace}
1299 \newcommand{\Kspline}{\ensuremath{\mathit{K}_{\text{spline}}}\xspace}
1300
1301 %% Bayesian
1302 \newcommand{\MP}{\ensuremath{\mathit{\scriptscriptstyle M}\hspace{-1.5pt}P}\xspace}
1303 \newcommand{\ML}{\ensuremath{\mathit{\scriptscriptstyle M}\hspace{-1.5pt}L}\xspace}
1304 \newcommand{\Qw}{\ensuremath{Q_{\text{w}}(\text{w})}\xspace}
1305 \newcommand{\Qa}{\ensuremath{Q_{\text{a}}(\text{Ba})}\xspace}
1306 \newcommand{\Qb}{\ensuremath{Q_{\text{b}}(\text{beta})}\xspace}
1307 \newcommand{\wMPab}{\ensuremath{w_{\text{MP}}|\text{Ba},\text{beta}}\xspace}
1308 \newcommand{\wMP}{\ensuremath{w_{\text{MP}}}\xspace}
1309 \newcommand{\yMP}{\ensuremath{y_{\text{MP}}}\xspace}
1310 \newcommand{\BaMP}{\ensuremath{\text{Ba}_{\text{MP}}}\xspace}
1311 \newcommand{\aMP}{\ensuremath{\alpha_{\text{MP}}}\xspace}
1312 \newcommand{\bMP}{\ensuremath{\beta_{\text{MP}}}\xspace}
1313 \newcommand{\Sab}{\ensuremath{M_{\text{Sigma}}|\text{Ba},\text{beta}}\xspace}
1314 \newcommand{\Ba}{\ensuremath{\boldsymbol{\alpha}}\xspace}
1315 \newcommand{\Bb}{\ensuremath{\boldsymbol{\beta}}\xspace}
1316 \newcommand{\Bm}{\ensuremath{\boldsymbol{\mu}}\xspace}
1317 \newcommand{\BL}{\ensuremath{\boldsymbol{\Lambda}}\xspace}
1318 \newcommand{\BPhi}{\ensuremath{\boldsymbol{\Phi}}\xspace}
1319 \newcommand{\SMP}{\ensuremath{M_{\text{Sigma}}|\text{MP}}\xspace}
1320
1321 \newcommand{\Pa}{\ensuremath{P(\alpha|\mathcal{H})}\xspace}
1322 \newcommand{\Pb}{\ensuremath{P(\beta|\mathcal{H})}\xspace}
1323 \newcommand{\Pab}{\ensuremath{P(\alpha,\beta|\mathcal{H})}\xspace}
1324 \newcommand{\Pw}{\ensuremath{P(w|\mathcal{H})}\xspace}
1325 \newcommand{\PD}{\ensuremath{P(D|\mathcal{H})}\xspace}
1326 \newcommand{\PwIa}{\ensuremath{P(w|\alpha,\mathcal{H})}\xspace}
1327 \newcommand{\PDIwb}{\ensuremath{P(D|w,\beta,\mathcal{H})}\xspace}
1328 \newcommand{\PDwab}{\ensuremath{P(D,w,\alpha,\beta|\mathcal{H})}\xspace}
1329 \newcommand{\PDIw}{\ensuremath{P(D|w,\mathcal{H})}\xspace}
1330 \newcommand{\PwID}{\ensuremath{P(w|D,\mathcal{H})}\xspace}
1331 \newcommand{\PwabID}{\ensuremath{P(w,\alpha,\beta|D,\mathcal{H})}\xspace}
1332
1333 \newcommand{\PanH}{\ensuremath{P(\alpha)}\xspace}
1334 \newcommand{\PbnH}{\ensuremath{P(\beta)}\xspace}
1335 \newcommand{\PabnH}{\ensuremath{P(\alpha,\beta)}\xspace}
1336 \newcommand{\PwnH}{\ensuremath{P(w)}\xspace}
1337 \newcommand{\PDnH}{\ensuremath{P(D)}\xspace}
1338 \newcommand{\PwIanH}{\ensuremath{P(w|\alpha)}\xspace}
1339 \newcommand{\PDIwnH}{\ensuremath{P(D|w,\beta)}\xspace}

```

```

1340 \newcommand{\PDwabnH}{\ensuremath{P(\mathcal{D}, \mathcal{W}, \mathcal{B}, \mathcal{B})}}\xspace}
1341 \newcommand{\PDIwnH}{\ensuremath{P(\mathcal{D} | \mathcal{W})}}\xspace}
1342 \newcommand{\PwIDnH}{\ensuremath{P(\mathcal{W} | \mathcal{D})}}\xspace}
1343 \newcommand{\PwabIDnH}{\ensuremath{P(\mathcal{W}, \mathcal{A}, \mathcal{B} | \mathcal{D})}}\xspace}
1344
1345 \newcommand{\PDwBab}{\ensuremath{P(\mathcal{D}, \mathcal{W}, \mathcal{B}, \mathcal{B} | \mathcal{H})}}\xspace}
1346 \newcommand{\PwIBa}{\ensuremath{P(\mathcal{W} | \mathcal{B}, \mathcal{H})}}\xspace}
1347 \newcommand{\PBab}{\ensuremath{P(\mathcal{B}, \mathcal{B} | \mathcal{H})}}\xspace}
1348 \newcommand{\PwBabID}{\ensuremath{P(\mathcal{W}, \mathcal{B}, \mathcal{B} | \mathcal{D}, \mathcal{H})}}\xspace}
1349
1350 \newcommand{\PBanH}{\ensuremath{P(\mathcal{B})}}\xspace}
1351 \newcommand{\PwIBanH}{\ensuremath{P(\mathcal{W} | \mathcal{B})}}\xspace}
1352
1353 %% Snakes
1354 \newcommand{\Esnake}{\ensuremath{\mathit{E}_{\text{snake}}}}\xspace}
1355 \newcommand{\Eimage}{\ensuremath{\mathit{E}_{\text{image}}}}\xspace}
1356 \newcommand{\Econt}{\ensuremath{\mathit{E}_{\text{cont}}}}\xspace}
1357 \newcommand{\Ecurv}{\ensuremath{\mathit{E}_{\text{curv}}}}\xspace}
1358 \newcommand{\Eint}{\ensuremath{\mathit{E}_{\text{int}}}}\xspace}
1359 \newcommand{\Eext}{\ensuremath{\mathit{E}_{\text{ext}}}}\xspace}
1360 \newcommand{\Eterm}{\ensuremath{\mathit{E}_{\text{term}}}}\xspace}
1361 \newcommand{\Eline}{\ensuremath{\mathit{E}_{\text{line}}}}\xspace}
1362 \newcommand{\Edge}{\ensuremath{\mathit{E}_{\text{edge}}}}\xspace}
1363 \newcommand{\Econ}{\ensuremath{\mathit{E}_{\text{con}}}}\xspace}
1364 \newcommand{\Eangle}{\ensuremath{\mathit{E}_{\text{angle}}}}\xspace}
1365 \newcommand{\Elshape}{\ensuremath{\mathit{E}_{\text{lshape}}}}\xspace}
1366 \newcommand{\Edgedir}{\ensuremath{\mathit{E}_{\text{edgedir}}}}\xspace}
1367 \newcommand{\Emodel}{\ensuremath{\mathit{E}_{\text{model}}}}\xspace}
1368 \newcommand{\wte}{\ensuremath{\mathit{w}_{\text{term}}}}\xspace}
1369 \newcommand{\wli}{\ensuremath{\mathit{w}_{\text{line}}}}\xspace}
1370 \newcommand{\wed}{\ensuremath{\mathit{w}_{\text{edge}}}}\xspace}
1371 \newcommand{\wco}{\ensuremath{\mathit{w}_{\text{con}}}}\xspace}
1372
1373
1374 %% Environments
1375 \newcounter{alg}
1376 \newenvironment{algorithm}[1]
1377 {
1378     \stepcounter{alg}
1379     \begin{table}[htb]
1380     \centering
1381     \begin{tabular}[t]{l}
1382     \hline&\\
1383     \multicolumn{2}{l}{\bf Algorithm \arabic{alg}: #1}}&\\
1384     \end{tabular}
1385     &\\
1386     \hline
1387     \end{tabular}
1388     \end{table}
1389 }
1390 \end{definitions}

```

9.3 References File

```

1391 \newcommand{\*references}

```



```

1392 @MISC{Longman:2019:templ,
1393   author =      {E. Longman},
1394   title =       {{University of Southampton LaTeX documents}},
1395   year =        {2019},
1396   NOTE =        "\url{https://library.soton.ac.uk/thesis/templates} and
1397                  \url{https://git.soton.ac.uk/el7g15/uos-latex-template}",
1398 }
1399 @MISC{Gunn:2001:pdflatex,
1400   author =      {S.R. Gunn},
1401   title =       {PDFLaTeX Instructions},
1402   year =        {2001},
1403   url =         {http://www.ecs.soton.ac.uk/~srg/softwaretools/document/}
1404 }
1405 @MISC{Lovell:2011:updated,
1406   author =      {C. J. Lovell},
1407   title =       {Updated templates},
1408   year =        {2011}
1409 }
1410 @MISC{Gunn:2011:updated2,
1411   author =      {S.R. Gunn and C. J. Lovell},
1412   title =       {Updated templates reference 2},
1413   year =        {2011}
1414 }
1415 @MISC{attribpackage,
1416   author =      {Matt Swift},
1417   title =       {The attrib LaTeX package
1418 attribution of block elements (Frankenstein's hat)},
1419   year =        {1999},
1420   url =         {http://cs.brown.edu/about/system/managed/latex/doc/attrib.pdf}
1421 }
1422
1423 </references>

```

9.4 Bibliography Style File

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

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