

ufthesis
A L^AT_EX 2_ε Class to Format
Theses and Dissertations at the
University of Florida
(Full Documentation)

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Abstract

This class file should help users format their thesis or dissertation according to the guidelines established by the Editorial Office of the Graduate School at the University of Florida [1]. While this *template*, like all others, is not approved by the Graduate School, it should help most users satisfy the formatting requirements. Use of the `ufthesis` document class does not guarantee acceptance of your document by the Graduate School. Several people have used this document class, and have successfully made it through the Editorial Office review cycle.

This documentation provides a descriptive listing of the L^AT_EX 2_ε source coding contained in `ufthesis.cls`. General comments about the code and where it came from, are provided to help one understand the underlying code. Please see the `ufthesis` licensing requirements for modifying/distribution instructions.

*Please contact the author regarding any bugs or possible modifications to the class file or its documentation.

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1 Introduction

The idea of this document class is to input the standard L^AT_EX 2_ε report class and make changes as necessary to meet the Graduate School requirements. The following packages, in addition to those included with the base distribution of L^AT_EX 2_ε, must exist on your system; the dates in parentheses give the dates of the oldest version this class was tested with. Since they are all standard packages, they are readily available at any CTAN (Comprehensive T_EX Archive Network) site. A convenient way to access the local CTAN site is via browsing <http://www.cise.ufl.edu/ftp/tex/help/Catalogue/alpha.html>

- `setspace` (2000/12/01) [4].
- `ulem` (2000/05/26) [5].
You can use `\uline{<text>}` to underline *<text>*. The documentation of the `ulem` package provides more information.
- `sectsty` (1999/04/12) [6].
Since underlining in section headings is rather nontrivial, the `sectsty` package was used to manipulate the formatting of sectional headings.
- `ragged2e` (1999/06/08) [7].
Since the Editorial Office prefers ragged right justification (to avoid hyphenation at the end of lines), we use this package to handle justification appropriately.
- `everysel` (1999/06/08) [8].
Required by the `ragged2e` package.

2 Verifying Page Alignment . . .

Before using this documentclass for the final printing of your thesis (the one you submit to the Graduate School), it is important to verify the proper page alignment from the DVI file to the final output. Otherwise, the margins of the printed output may not agree with those required by the Editorial Office. The following two subsections discuss two methods that can be used to ensure proper page alignment.

2.1 The proper way to adjust page alignment

The base L^AT_EX 2_ε distribution comes with (since 1994) a special file that can be used to verify/configure the T_EX system for proper page

alignment. \LaTeX the file `testpage.tex`, using the *letterpaper* and *single-sided* options when prompted. Process the `testpage.dvi` (using `dvips`) and send the output to the printer exactly as you plan to do for your final submission. The result should be a printed page that clearly defines the edges of the text area. Use a ruler to measure the left and top margins on this page. If they are not one inch, then your \TeX system requires some adjustment.

Tomas Rokicki's `dvips` program uses a configuration file called `config.ps` for site-wide control of the printing process. If different printers exist, then each printer may have a corresponding `config.printer` file, where *printer* is the actual printer name. To adjust the paper alignment, you must edit the appropriate configuration file. In its original configuration, the configuration file contains a line "O 0pt,0pt." The "0pt,0pt" parameters control the alignment of the left and top edges of the printed page. Just change the line that contains "O 0pt,0pt" to whatever left and top offsets you require. Note that 1 pt is defined to be 1/72nd of an inch. So, you have very fine control over the paper alignment.

This process may be recursive, in that you might have to modify the configuration file and then process `testpage.tex` again. Continue this process until you have the proper page alignment. Please note that this issue relates to properly configuring your \TeX system, and is not just peculiar to the `ufthesis` documentclass.

2.2 An easy method to adjust page alignment

If you have a \TeX implementation on your own personal computer, then the method described in the previous subsection is the preferred method. However, if you are using a \TeX system on a network, or computer system maintained by the University, then you may not be able to modify the appropriate configuration files. Instead of modifying configuration files, you can add two commands to your thesis file to adjust the page alignment.

Similar to the `testpage.tex` file, the `ufthesis` documentclass is distributed with a file called `ufalign.tex`. \LaTeX the `ufalign.tex` file and process it through `dvips`, just as you plan to process your thesis for the final submission. That is, use the same commands and the same printer that you will use for your final printout. One of the boxes on the page displays the area in which the main text of your thesis will be typeset. Therefore, the left and top margins to this box should be 1.5 inches and 1 inch, respectively. The `ufalign.tex` file contains two commands, `\addtolength{\hoffset}{0pt}` and `\addtolength{\voffset}{0pt}`, that can be used to adjust the placement of the margins.

Use either points (1pt = 1/72nd of an inch) or inches to adjust the

margins. To increase the left margin by a tenth of an inch, change the `\hoffset` command to `\addtolength{\hoffset}{0.1in}`. To decrease the left margin by one-eighth of an inch, change the `\hoffset` command to `\addtolength{\hoffset}{-0.125in}`. Modify the `\voffset` command to adjust the top margin of the page. Modify these parameters, and re-process the `ufalign.tex` until the page margins are 1.5 inches and 1 inch as required. Once you have determined the final values of these parameters, for proper page alignment, copy the `\addtolength{...}` commands into your thesis file. See the example thesis file `ufsample.tex` for an idea of where these commands should be pasted.

3 Usage

An example of how to use this document class is provided in `ufsample.tex`. Details of how to compile the example are provided in a later section.

Use this class file the same way as the `report` class, by putting `\documentclass{ufthesis}` at the beginning of the $\text{\LaTeX} 2_{\epsilon}$ file. There are only a few options available with this document class, which will be described in the following sections. Due to the requirements of the Graduate School, this document class does not support two-sided printing or two-column page layout.

4 The document class options

4.1 Font Size Options: 10pt, 11pt or 12pt

These are the font sizes that are available in the standard $\text{\LaTeX} 2_{\epsilon}$ `report` document class. Most likely, the 12pt option should be used for the final typeset version of the document. Obviously, only use one of these options in the `\documentclass` command. The 12pt option is selected by default if none of these options are specified in the `\documentclass` command.

4.2 Bold

By default, all headings in the document are underlined using the `ulem` and `sectsty` packages. The Graduate School requirements have recently been modified such that a bold typeface may be used instead. By using this option, all of the headings (below the chapter level) are typeset using a bold typeface.

4.3 Page Numbering Option: CPage

By default, on the main text pages, the page number is displayed right-justified at the top of the page. When the *CPage* option is used, the page number is displayed centered at the top of the page.

4.4 Draft

This option has been defined to facilitate switching the page numbering and style for the front matter and main text as appropriate. Using the *Draft* option, the page numbering starts at 1 and increments throughout the document. When the *Draft* option is used, page numbers are displayed using Arabic numerals. However, the page numbers are not displayed in either the abstract or the biographical sketch. This option is useful for general purpose work, and for generating the extra copies of the abstract and biographical sketch that are required by the Graduate School at final submission.

4.5 Justification Option: Justify

By default, the thesis is typeset using ragged right justification. Ragged right justification helps avoid excessive word hyphenations at the end of each line. When this option is used, ragged right justification is disabled, and the thesis is typeset using full justification. According to feedback from the Editorial Office, ragged right is the preferred justification method. The `ragged2e` and `everysel` packages are used to enable the ragged right justification.

4.6 Hanging Indents: NoTocHang

According to the Graduate School requirements, the second line of a heading in the table of contents or list of figures/tables must be indented. This is the default behaviour of the document class, as a hanging indent of width `\RS@TOChdent` (relative to the first line of text) will be present on the second line of any entry in these lists. By using the *NoTocHang* option, then for any headings that are numbered, the second line will be indented such that it aligns with the text of the first line.

4.7 Typesetting Penalties: nopenalties

By default, several \TeX parameters are set such that widows and orphans (single lines starting/ending a paragraph at the top or bottom of the page) do not occur. By using this option, one can easily view the effects of using the default $\LaTeX 2_{\epsilon}$ values for these parameters. Then, if a widow or orphan occurs, a manual page break can be forced

at the appropriate point in the source code to remove the widowed or orphaned line.

5 Setting the title, author's name, degree type, etc.

The document preamble is the part that occurs before the `\begin{document}` statement. Throughout the document, information about the author, the title and such is required. The following commands are used in the document preamble to define all of the required text strings that are used to personalize the document.

<code>\SetTitle</code>	<ul style="list-style-type: none">• <code>\SetTitle{text}</code> This is the title as it appears on both the title page and in the abstract. The title must be entered using all upper-case letters. Line-breaks can be entered in the title by using the <code>\\</code> command.
<code>\SetFullName</code>	<ul style="list-style-type: none">• <code>\SetFullName{text}</code> The author's name, using capital letters where appropriate.
<code>\SetThesisType</code>	<ul style="list-style-type: none">• <code>\SetThesisType{text}</code> This should be the word "Thesis" or "Dissertation".
<code>\SetDegreeType</code>	<ul style="list-style-type: none">• <code>\SetDegreeType{text}</code> Something like "Master of Science" or "Doctor of Philosophy".
<code>\SetGradMonth</code>	<ul style="list-style-type: none">• <code>\SetGradMonth{text}</code> The month in which the degree is conferred. "May" or "December" seem to be popular choices.
<code>\SetGradYear</code>	<ul style="list-style-type: none">• <code>\SetGradYear{text}</code> The year in which the degree is conferred.
<code>\SetDepartment</code>	<ul style="list-style-type: none">• <code>\SetDepartment{text}</code> The author's department name, which appears in in the abstract.
<code>\SetChair</code>	<ul style="list-style-type: none">• <code>\SetChair{text}</code> The chairperson's name.
<code>\Title</code>	Usage of a command, for example, <code>\SetTitle{ABSTRACT GEOMETRY}</code> defines a command without the <code>Set</code> part (in this example <code>\Title</code> printing "ABSTRACT GEOMETRY") that is used internally but can also be used throughout the text.

6 The Thesis "Frontmatter"

In this section, we present the commands used to add all pages prior to the first chapter of the thesis. Some of these commands are required while some of them are optional.

6.1 Initial Page Layout and Numbering

`\frontmatter` This command is required, and should be used immediately after the `\begin{document}` command, to initialize several page numbering and layout parameters.

6.2 Title Page

`\maketitle` The command `\maketitle` formats the title page.

6.3 Copyright Page

`\makecopyright` The optional copyright page can be inserted by using the command `\makecopyright`.

6.4 Dedication

`\dedication` The optional dedication can be inserted by using the command `\dedication{text}`, where *text* is the contents of the dedication.

6.5 Acknowledgments

`\acknowledge` In order to format the optional acknowledgments, use the command `\acknowledge{text}`. The title “ACKNOWLEDGMENTS” is automatically added to the table of contents. This title may be modified by renewing `\acknowledgname`.

6.6 Table of Contents, List of Tables and Figures

`\tableofcontents`
`\listoftables`
`\listoffigures` These lists are generated with the commands `\tableofcontents`, `\listoftables` and `\listoffigures`. The titles of these lists may be changed by renewing the `\contentsname`, `\listtablename`, and the `\listfigurename` macros, respectively.

6.7 Abstract

`\abstract` This command, which actually is an environment, sets up the required text for the abstract. The proper use is : `\begin{abstract}` The actual abstract text `\end{abstract}`.

7 The Thesis “Mainmatter”

In this section, we describe the commands used to format the main chapters of the thesis. Please refer to the sample thesis file `ufsample.tex` for examples of how these commands are used.

7.1 Changing Page Layout and Numbering

`\mainmatter`

Before the main body of the document, use the `\mainmatter` command to control the page numbering. Most likely, this command should be used immediately after the `\abstract` command.

7.2 Chapter Titles

`\chapter`

Use the `\chapter` command to start a new chapter in the document. If the boolean `SetDSpace` is true, then the chapter will be typeset using double-spacing. In general, the class file sets the `SetDSpace` boolean appropriately so that the selection of single-spacing or double-spacing occurs transparent to the user.

Note that the chapter title may extend over more than one line by using the following form:

```
\chapter[Title Line 1 \protect\newline Title Line 2]{%  
Title Line 1 \\ Title Line 2}%
```

7.3 Sectional Headings

`\section`

`\subsection`

`\paragraph`

Use the `\section` command for the first-level subheadings. Use the `\subsection` command for the second-level subheadings. Since it may be difficult to distinguish third-level subheadings from second-level subheadings, it is suggested that the `\paragraph` command is used for all third-level subheadings. Note that the text of the heading may extend over more than one line. In this case, use the command in the same form as what is shown above for the `\chapter` command.

7.4 Captions for Tables and Figures

`\caption`

`\abovefigcaptskip`

`\belowfigcaptskip`

`\abovetabcaptskip`

`\belowtabcaptskip`

According to the Graduate School, captions must be placed above tables and below figures. Normally $\text{\LaTeX} 2_{\epsilon}$ uses the lengths `\abovecaptionskip` and `\belowcaptionskip` to determine the amount of white-space above or below a caption. The figure and table environments have been slightly modified such that the different spacing is defined around the `\caption` command. For figures, the lengths `\abovefigcaptskip` and `\belowfigcaptskip` determine the amount of white-space around the figure caption. Likewise, the lengths `\abovetabcaptskip` and `\belowtabcaptskip` control the spacing around table captions.

8 The Thesis “Backmatter”

The following commands are used to control the appearance and content of the end of the thesis (appendices, signature pages and such).

You might have to tailor some of these commands to suit your college requirements.

8.1 Appendix or Appendices

`\chapter*`

If there is to be only one appendix, then use the `\chapter*` command to typeset the appendix. In order to add the title of the solitary appendix to the table of contents, use the following commands:

```
\appendix
\clearpage
\addcontentsline{toc}{extrachapter}{%
    APPENDIX\protect\hspace{2.0em}TITLE}
\chapter*{APPENDIX \ \ TITLE}
```

If however, multiple appendices are to be included, the following sequence of commands should be used:

```
\appendix
\clearpage
\addcontentsline{toc}{extraentry}{APPENDICES}
\chapter{TITLE OF APPENDIX A}
    Blah Blah Blah .....
\chapter{TITLE OF APPENDIX B}
```

8.2 List of References

`thebibliography`

The *thebibliography* environment has been modified to start a new chapter with a title that defaults to REFERENCES, (see `\bibname`). Entries in the bibliography are typeset single-spaced with a double-space between individual entries. While items may be manually entered into this environment, it is strongly suggested that the `BIBTEX` program [10] be used to maintain the list of references.

If the `BIBTEX` program is used, then a need arises for a style file in order to format the entries of the bibliography environment. This document class comes with two bibliography style files `uffull.bst` and `ufinit.bst` that may be useful. They are just slightly modified versions of the style file used by the IEEE¹ for its transaction papers. The references are numbered and listed in order of citation. Using the `uffull.bst` style, the author's names will be listed as given in the database (.bib) file. Using the `ufinit.bst` style, the author's names will be listed using initials (for first and middle) followed by the surname. These files have been provided as a convenience to users (but have

¹Institute of Electrical and Electronics Engineers, Inc.

not been approved by the Editorial Office). However, other style files are available from CTAN, or custom files may be created by using the custom-bib package [15].

8.3 List of References and the natbib package

The natbib package [16] can be used with the ufthesis documentclass. The natbib package unfortunately modifies some of the commands defined by the ufthesis documentclass. Therefore, an extra step must be included to correct these modifications. A file named ufnatbib.cfg is distributed with the ufthesis documentclass that is used for this purpose. The contents of the ufnatbib.cfg file are just those commands that must be redefined after natbib is loaded. Just rename the ufnatbib.cfg file to natbib.cfg, and place it in the directory with your main thesis file. When the natbib package is loaded, it will automatically read the natbib.cfg file to make the necessary corrections.

8.4 Biographical Sketch

`\biography`

Use the `\biography{text}` command to typeset the text in the required biographical sketch. The title “BIOGRAPHICAL SKETCH” is automatically added to the table of contents, but this may be changed by renewing the `\biographyname` macro.

8.5 Disabling Page Numbering

`\backmatter`

Use the `\backmatter` command to turn off the display of page numbers on the remaining pages in the document. This command should be used before the typesetting of the signature page.

8.6 Signature Page

`\CertPar`
`\SubmitPar`

These commands are used to help simplify the creation of the signature page. Since the number of committee members is different for a thesis and a dissertation, a custom signature page must be created. These commands as given, are set up for a signature page according to the College of Engineering guidelines [1]. You most likely will have to modify the definitions of these commands for your individual requirements. Both commands have two arguments, with the first one being optional.

A typical use of these commands is given below.

```
{\setlength{\parskip}{0.15in}}%  
\CertPar{\Chair, Chair \newline Associate Professor of Electrical and %  
\newline Computer Engineering}%
```

```

\CertPar{Another Name \newline Professor of Electrical and Computer %
\newline Engineering}%
    And so on, until all of the committee members have been listed.
\newpage%
\SubmitPar{Pramod P. Khargonekar \newline Dean, College of Engineering}%
{Winfred M. Phillips \newline Dean, Graduate School}}%

```

Note that the `\parskip` above the first `\CertPar` is used to set the spacing between the individual certification blocks. The spacing between The end of the “I certify that I have read” statement and the actual signature line is controlled by the optional argument of the `\CertPar` command (likewise for the `\SubmitPar` command). Change this spacing as desired by using the following version of the command:

```

\CertPar[0.5in]{Name \newline Department \newline Second Line of Department}

```

8.7 General Audience Abstract

The general audience abstract should be no more than 150 words and should be written to communicate in clear and effective, nonspecialized language the contributions of the work to the state of Florida, the nation, society in general, and/or the discipline. The following structure can be used to typeset the general audience abstract.

```

\begin{simpleenv}{-}{-}{-}%
\pagestyle{empty}
\begin{flushleft}
TITLE OF THE DISSERTATION\*\[\BaseDiff\baselineskip]
\FullName\%
(352) xxx--xxxx\%
Department of \Department \%
Chair: \Chair\%
Degree: \DegreeType\%
Graduation Date: \GradMonth~\GradYear%
\end{flushleft}

\GoDouble%
Enter the text of the general audience abstract here.
\end{simpleenv}

```

9 Special Commands

The commands described in this section are used to aid in the commenting of the source file, and also to do some special formatting. These commands are optional, in that they are not required in order to format the document.

9.1 Adding Margin Notes

`\NOTE`

Use the command `\NOTE{text}` to display the argument *text* in a special box with the word NOTE displayed in the page margin. If the boolean `ShowNotes` is true, then the note will be displayed on the typeset page. Otherwise, the note will be ignored. The idea is to use the `\NOTE` command to write personal notes while working on the draft, that can easily be removed for the final typeset copy.

9.2 Automatically Generated Indices

Several commands have been included in this document class file to facilitate the creation of automatically generated lists with the MakeIndex program [11, 12]. These commands are based on the `multind.sty` package by F. W. Long [3, chapter 12], which allows the creation of multiple indices in the document. For example, two indices may be used to generate a list of abbreviations and a list of mathematical symbols. Please note that \TeX has a limited number of files that can be written to at one time, so an infinite number of indices may not be used. These commands are meant as an alternative for other index packages (like `makeidx.sty` or `showidx.sty`) which only support one index file in the document.

`\makeindex`

Use this command in the document preamble to enable the creation of an index file. If only one index is to be created, then just use the

`\makeindex`

command. However, if there are to be more than one index, or it is desirable to name the index file something besides the default, use the following command

`\makeindex[filename]`

A unique *filename* for each index must be assigned, so a `\makeindex[]` command should exist for each index, in the document preamble.

`\printindex`

Issue this command at the point in the document where the index is to be typeset. Typically, this will be after the lists of figures and tables (if included). The command creates a new chapter and sets up the initial page formatting for the list to be generated. The form of the `\printindex` command directly corresponds to the form of the `\makeindex` command used in the document. The `\printindex` com-

mand has four arguments, with one being optional. The two ways to use this command are:

```
\printindex{INDEX TITLE}{INDEX TITLE}{text}
\printindex[filename]{INDEX TITLE}{INDEX TITLE}{text}
```

The second and third arguments in the `\printindex` command correspond to what is eventually placed into a chapter command `\chapter*[2nd arg]{3rd arg}`. The fourth argument is used if some additional text is to be included between the title of the index and the actual listing of the index. This form of the command may be useful to provide a brief description of the contents/purpose of the index.

`\index`

This is the command that is used to actually define what is going to be added to the index list. As with the other indexing commands there are two forms that can be used, depending on how the `\makeindex` command was issued. For generating only one index file, use the command shown below

```
\index{text to add to index}
```

If there are more than one index file, or if a custom filename was used for the index, then the following form of the command must be used:

```
\index[filename]{text to add to index}
```

Of course, for each index file that is created, a run of the MakeIndex program will be required. How to actually format the index using the MakeIndex program, and customizing MakeIndex style files, is discussed in [3], and is therefore considered to be beyond the scope and intent of this document. However, along with the `ufthesis` document class file there are two MakeIndex style files (`ufpage.ist` and `ufnpage.ist`) created that allow one to typeset an index with/without page numbers in a format that is very similar to what is typeset in the table of contents. Assuming that one has issued the command `\makeindex[filename]` in the document preamble, then after running the document through \LaTeX , one can format the index file by issuing one of the following commands.

```
makeindex -s ufpage.ist filename
makeindex -s ufnpage.ist filename
```

Of course, an extra run of the document through \LaTeX will be required to actually typeset the formatted index.

There is one important point to remember; just like generating the cross-references in a \LaTeX document may require \LaTeX 'ing the document several times, the same might be true for generating the index files. If the table of contents file changes between two runs of \LaTeX on the document, another run of the MakeIndex program may be required (followed by another run of \LaTeX) in order to get the page numbers correct in the typeset index file.

10 Changing the Code . . .

It might be necessary to modify some of the commands defined in the `ufthesis` documentclass. One possible reason for modification would be changing the signature page commands to your specific requirements. However, you do NOT have to (and SHOULD NOT!) edit the `ufthesis.cls` file directly. Create a file called `ufthesis.cfg`, which contains any commands that you want to add to or modify in the `ufthesis` documentclass. Place this file in the same directory as your main thesis file. The `ufthesis` documentclass will automatically load this configuration file. See the sample thesis file, `ufsample.tex`, and the sample configuration file, `ufmod.cfg`, for more details on this subject.

11 An Example Thesis File

In order to typeset the example file, the following files should exist: `ufthesis.cls`, `ufsample.tex`, `ufpage.ist` and `ufnpage.ist`. All of these files are generated from `ufthesis.dtx` so if a file is missing, complain to someone who knows where/how to get/process the `ufthesis.dtx` file. In addition, dependent on the $\text{T}_{\text{E}}\text{X}$ system in use, the files `setspace.sty`, `ulem.sty`, `ragged2e.sty`, `everyisel.sty` and `sectsty.sty` may also be required. These files (and those generated by `ufthesis.dtx`) may have to be placed in certain directories, or certain environment variables defined, such that they are seen by $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ and the `MakeIndex` programs.

Assuming that all of the files listed above exist, the following commands can be used to typeset the example thesis.

```
latex ufsample
makeindex -s ufnpage.ist keylist
makeindex -s ufpage.ist mathlist
latex ufsample
latex ufsample
makeindex -s ufnpage.ist keylist
makeindex -s ufpage.ist mathlist
latex ufsample
latex ufsample
```

12 The docstrip modules

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

class	Produces the uftthesis.cls document class.
example	Produces a sample thesis file.
pnum	Produces a MakeIndex style file for formatting indices with page numbers.
nopnum	Produces a MakeIndex style file for formatting indices without page numbers.
bstfile, initials	Produces a $\text{BIB}\text{T}_{\text{E}}\text{X}$ format file.
bstfile, fullname	Produces a $\text{BIB}\text{T}_{\text{E}}\text{X}$ format file.
truedriver, short	Produces the short documentation driver file.
truedriver, full	Produces the full documentation driver file.
config	Used to produce a local ltxdoc.cfg file.
ufnatbib	Used to produce a file for natbib compatibility.
ufmod	Used to create an example of a possible uftthesis.cfg file.
alignment	Used to create a special document for observing and modifying page alignment.

13 Initial Code

```

1  \(*class)
2  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
3  %%   Defining Class options and loading required   %%
4  %%   packages                                     %%
5  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
6  \RequirePackage{ifthen}
7  [1996/08/02 v1.0m Standard LaTeX ifthen package (DPC)]

```

13.1 Declaring Options & Initializing Flags

In this part of the code, the options are declared and boolean flags are set according to those options. The standard $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} 2_{\epsilon}$ report class is then loaded using these options.

```

8  %% Declaring Options \& Initializing Flags
9  10pt: This option is used to set the normal font size to 10pt.
10  \newcommand{\RS@ptsize}{10pt}
11  \newcounter{RS@ptcnt}
12  \DeclareOption{10pt}{\renewcommand{\RS@ptsize}{10pt}%
13  \setcounter{RS@ptcnt}{10}}%
14  11pt: This option is used to set the normal font size to 11pt.
15  \DeclareOption{11pt}{\renewcommand{\RS@ptsize}{11pt}%
16  \setcounter{RS@ptcnt}{11}}%
17  12pt: This option is used to set the normal font size to 12pt.
18  \DeclareOption{12pt}{\renewcommand{\RS@ptsize}{12pt}%
19  \setcounter{RS@ptcnt}{12}}%

```

NoTocHang: This option is used to disable hanging indents in the TOC, LOF and LOT lists.

```
17 \newboolean{RS@TOCHang}%  
18 \setboolean{RS@TOCHang}{true}%  
19 \DeclareOption{NoTocHang}{\setboolean{RS@TOCHang}{false}}
```

Bold: This option is used to typeset the headings using a bold font. The default is for the headings to be underlined. Use with CAUTION.

```
20 \newboolean{RS@BfSet}%  
21 \setboolean{RS@BfSet}{false}%  
22 \DeclareOption{Bold}{\setboolean{RS@BfSet}{true}}
```

CPage: For those pages where the page number is displayed on the top of the page, this option centers the page number. The default behaviour is to display the page number right justified at the top of the page.

```
23 \newboolean{RS@CPage}%  
24 \setboolean{RS@CPage}{false}%  
25 \DeclareOption{CPage}{\setboolean{RS@CPage}{true}}
```

Draft: For initial drafts, it may be easier to view page numbers in all Arabic styles. The page numbers in the abstract and the biographical sketch are not displayed (may be useful for final submission requirements).

```
26 \newboolean{RS@Draft}%  
27 \setboolean{RS@Draft}{false}%  
28 \DeclareOption{Draft}{\setboolean{RS@Draft}{true}}%
```

Justify: By default, ragged right justification is used. Use this option if full justification is desired.

```
29 \newboolean{RS@Justify}%  
30 \setboolean{RS@Justify}{false}%  
31 \DeclareOption{Justify}{\setboolean{RS@Justify}{true}}%
```

nopenalties: It may be useful to see what happens if the default L^AT_EX 2_ε penalties for widows and orphans are used, instead of forcing them to the infinite values.

```
32 \newboolean{RS@nopenalties}%  
33 \setboolean{RS@nopenalties}{true}%  
34 \DeclareOption{nopenalties}{\setboolean{RS@nopenalties}{false}}%
```

All other undeclared options are handled with the following line.

```
35 \DeclareOption*{\OptionNotUsed}
```

13.2 Executing Options & Loading Required Packages

Based on the flags defined above, the standard L^AT_EX 2_ε report document class is loaded using the appropriate font size. Note that the de-

fault options for the report class are: *letterpaper*, *oneside*, *onecolumn*, *final* and *openany*. Since these meet the requirements of the Editorial Office, no provisions for doing two-sided or two-column printing of the document have been provided in this file.

```

36     %% Executing Options \& Loading Required Packages
37     \ExecuteOptions{12pt}
38     \ProcessOptions\relax
39     \LoadClass[\RS@ptsizes]{report}[2000/05/19 v1.4b Standard LaTeX document class]
40     \typeout{ }
41     \typeout{*****}
42     \typeout{* Updating commands for Thesis Template *}
43     \typeout{*****}
44     \RequirePackage[nodisplayskipstretch]{setspace}[2000/12/01 6.7 Contributed and
45     %% Removing 3 minor commands left-over by the setspace 2000/12/01 6.7 package
46     \providecommand{\filename}{filenametext}%
47     \providecommand{\filedate}{filedatetext}%
48     \providecommand{\fileversion}{filevertext}%
49     \renewcommand{\filename}{}%
50     \renewcommand{\filedate}{}%
51     \renewcommand{\fileversion}{}%
52     \RequirePackage[normalem]{ulem}%
53     \RequirePackage{sectsty}[1999/04/12 v2.0.1 Commands to change all sectional head
54     \ifthenelse{\boolean{RS@Justify}}{}{}%
55     \RequirePackage{ragged2e}[1999/06/08 v1.02 Ragged2e Package (MS)]%
56     \setlength{\RaggedRightRightskip}{0pt plus 4em}%
57     \RaggedRight}%

```

14 Page Layout for Thesis Requirements

In this section, the commands used to satisfy the page layout requirements of the Editorial Office are defined. In order to understand the commands used below, please refer to the sections on page layout found in [3] and [9]. In [9], on page 511, there is a diagram that illustrates all of the page layout parameters.

14.1 Initialization code for page layout

The code listed below just defines some lengths and counters that are used in the following page layout sections.

```

58     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
59     %% Page layout for UF Editorial Office %
60     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
61     \normalfont\small\normalsize% Make sure font size is set to normalsize
62     \newcounter{RS@TmpCnt}% Used to count the number of lines per page

```

```

63     \setcounter{RS@TmpCnt}{1}% and as a counter for handling TOC section spacing.
64     \newlength{RS@TOChdent}% Used to define hanging indents.
65     \setlength{RS@TOChdent}{1.0em}%
66     \newlength{RS@MyHeader}% Used to set space between top of page and
67     \setlength{RS@MyHeader}{0.6in}% page numbers
68     \newlength{RS@NumPoints}%
69     \newlength{RS@StartofHeader}%
70     \newlength{RS@EndofFooter}%
71     \newlength{RS@TempLength}%

```

14.2 Setting the margin reference point

In order to understand how the page margins are created, one must first understand from where on the page the margins are measured. The DVI driver *should* define the page origin as the point one inch down, one inch to the right from the upper left corner of the paper. However, it is possible to shift this point in the DVI driver by defining vertical and horizontal offsets. Therefore if page layout problems exist with the following code, PLEASE verify that the DVI driver isn't the source of the problem.

Assuming that the DVI driver hasn't added any offsets to the origin of the page, the following two commands cause the subsequent L^AT_EX 2_ε page layout commands to be measured from a one inch margin from the top or left edge of the paper.

```

72     %%    Setting the margin reference point
73     \setlength{\hoffset}{0pt}%
74     \setlength{\voffset}{0pt}%

```

14.3 Setting the height of the text page

The height of the text page (excluding headers, footers, and footnotes) is determined by the value of `\textheight`. Since the top page margin will be set to one inch, the value of `\textheight` can be at most 9.5 inches. However in this class file, the value of `\textheight` is set based on the number of single-spaced lines that can fit in a 9.5 inch block. The first line on a page has its baseline set at an amount `\topskip` below the top edge of the text block, and subsequent lines are spaced by the amount `\baselineskip`. Therefore the following code just sets `\textheight` to `\topskip` and then increments `\textheight` by `\baselineskip` until no more lines can be added without exceeding a region of 9.5 inches.

```

75     %%    Setting the height of the text page
76     \setlength{\textheight}{\topskip}%
77     \addtolength{\textheight}{44\baselineskip}%
78     \ifthenelse{\value{RS@ptcnt}=11}{%

```

```

79     \addtolength{\textheight}{3\baselineskip}}{}%
80     \ifthenelse{\value{RS@ptcnt}=10}{%
81     \addtolength{\textheight}{9\baselineskip}}{}%

```

14.4 Setting the width of the text page

The width of the text page (excluding marginal notes) is determined by the value of `\textwidth`. The following code sets the value of `\textwidth` such that there is a 1.5 inch margin on the left edge of the page and a one inch margin on the right edge of the page. In addition to setting the value of `\textwidth`, the parameters that control placement of notes in the margin are defined.

```

82     %%      Setting the width of the text page
83     \setlength{\oddsidemargin}{0.5in}%
84     \@settopoint{\oddsidemargin}%
85     \setlength{\evensidemargin}{\oddsidemargin}%
86     \setlength{\textwidth}{\paperwidth}%
87     \addtolength{\textwidth}{-2in}%
88     \addtolength{\textwidth}{-\oddsidemargin}%
89     \@settopoint{\textwidth}%
90     \setlength{\marginparpush}{8pt}%
91     \setlength{\marginparwidth}{\paperwidth}%
92     \addtolength{\marginparwidth}{-1in}%
93     \addtolength{\marginparwidth}{-\hoffset}%
94     \addtolength{\marginparwidth}{-\evensidemargin}%
95     \addtolength{\marginparwidth}{-\textwidth}%
96     \addtolength{\marginparwidth}{-2\marginparpush}%
97     \@settopoint{\marginparwidth}%
98     \setwidth{\parindent}{\ }%
99     \setlength{\parindent}{6\parindent}%
100    \ifthenelse{\boolean{RS@Justify}}{}{%
101    \setlength{\RaggedRightParindent}{\parindent}}%

```

14.5 Positioning the Header

The page header is used to display the page number on almost all pages in the document. This header must be placed such that the text body defined with `\textheight` begins at one inch below the top edge of the paper. Once again, the figure on page 511 of [9] is very useful when dealing with the page layout parameters.

The `\RS@MyHeader` length variable is used to set where the page header should begin relative to the top edge of the paper. This value is used to determine how to initialize the required lengths so that the header is placed near this desired point.

```

102    %%      Positioning the Header

```

```

103 \ifthenelse{\value{RS@ptcnt} = 10}{\setlength{\headheight}{10.0pt}}{}%
104 \ifthenelse{\value{RS@ptcnt} = 11}{\setlength{\headheight}{11.0pt}}{}%
105 \ifthenelse{\value{RS@ptcnt} = 12}{\setlength{\headheight}{12.0pt}}{}%
106 \@settopoint{\RS@MyHeader}%
107 \setlength{\topmargin}{\RS@MyHeader}%
108 \addtolength{\topmargin}{-1in}%
109 \@settopoint{\topmargin}%
110 \setlength{\headsep}{-\topmargin}%
111 \addtolength{\headsep}{-\headheight}%

```

14.6 Positioning the Footer

The page footer is used to display the page number on certain pages in the document. The following code is used to set the footer such that it is about the same distance from the bottom edge of the paper that the header is from the top edge. The footer placement, relative to the bottom edge of the `\textheight` block, is determined by the parameter `\footskip`. The following code just adjusts the value of `\footskip` until the “white-space” below the footer is approximately equal to the same space above the header.

```

112 %% Positioning the Footer
113 \setlength{\RS@StartofHeader}{\voffset}%
114 \addtolength{\RS@StartofHeader}{1in}%
115 \addtolength{\RS@StartofHeader}{\topmargin}%
116 \setlength{\footskip}{0pt}%
117 \setlength{\RS@EndofFooter}{100pt}%
118 \whiledo{\lengthtest{\RS@EndofFooter > \RS@StartofHeader}}%
119   {\addtolength{\footskip}{0.5pt}%
120    \setlength{\RS@EndofFooter}{-\voffset}%
121    \addtolength{\RS@EndofFooter}{-1in}%
122    \addtolength{\RS@EndofFooter}{-\topmargin}%
123    \addtolength{\RS@EndofFooter}{-\headheight}%
124    \addtolength{\RS@EndofFooter}{-\headsep}%
125    \addtolength{\RS@EndofFooter}{-\textheight}%
126    \addtolength{\RS@EndofFooter}{-\footskip}%
127    \addtolength{\RS@EndofFooter}{\paperheight}}%

```

14.7 Creating a 2 inch margin

`\BigMargin` Certain pages of the document must have a 2 inch margin on the top of the page. The command `\BigMargin` is used to create this margin, if used before any other text is placed on a page. Note the command `\vspace` doesn’t take effect until the end of the current line in which it is issued. Also note that the “(” and “)” characters extend the full height and depth of the current font.

```

128 %%      Creating a 2 inch margin
129 \newlength{\BigLength}%
130 \setlength{\BigLength}{0pt}%
131 \newcommand{\BigMargin}{\hspace*{1in}\normalfont\normalsize%
132 \settoheight{\RS@TempLength}{( )}%
133 \vspace*{-\baselineskip}\vspace*{-\topskip}\vspace*{1in}%
134 \vspace*{\RS@TempLength}\vspace*{\BigLength} \\\%

```

14.8 Widow & Orphan protection

A widow is a single line of text, placed at the top of the page that ends the paragraph that was on the previous page of text. Likewise, an orphan is the last line of text on a page that is the first line in a paragraph that extends onto the next page. The Editorial Office *HIGHLY* discourages these, so the following code should not allow these conditions to occur. In addition, word hyphenation across page boundaries is avoided.

```

135 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
136 %%      Page-breaking penalties and page number %%
137 %%      formatting commands %%
138 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
139 \ifthenelse{\boolean{RS@nopalties}}{%
140 \clubpenalty=10000 % Do not allow orphans
141 \@clubpenalty \clubpenalty
142 \widowpenalty=10000 % Do not allow widows
143 }{}%
144 \brokenpenalty=10000 % Do not allow hyphenation across
145 % page boundaries.
146 \providecommand{\frontmatter}{}%
147 \providecommand{\mainmatter}{}%
148 \providecommand{\backmatter}{}%
149 \ifthenelse{\boolean{RS@Draft}}{%
150 \renewcommand{\frontmatter}{\clearpage\pagenumbering{arabic}%
151 \pagestyle{plain}}%
152 \renewcommand{\mainmatter}{\clearpage%
153 \pagestyle{myheadings}\markboth{}{}}%
154 { \renewcommand{\frontmatter}{\clearpage\pagenumbering{roman}%
155 \pagestyle{plain}}%
156 \renewcommand{\mainmatter}{\clearpage\pagenumbering{arabic}%
157 \pagestyle{myheadings}\markboth{}{}}%
158 \renewcommand{\backmatter}{\clearpage\GoSingle\pagestyle{empty}}%

```

14.9 Switching line-spacing

The commands used to switch between single line-spacing and double line-spacing are defined below. These commands have been embedded in the code for creating special pages, starting chapters, and such. This facilitates handling the line-spacing commands automatically without intervention of the user. (That is, you don't have to remember to switch between modes in your source file.)

```

159 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
160 % Line-spacing commands %
161 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

SetDSpace: This boolean is used to automate the process of switching between single-spacing and double-spacing in the text of the document.

```

162 \newboolean{SetDSpace}%
163 \setboolean{SetDSpace}{true}%
164 \newcommand{\BaseDiff}{0}
```

`\GoSingle` This command switches the typesetting to single-spacing.

```

165 \newcommand{\GoSingle}{\renewcommand{\baselinestretch}{1}}%
166 \normalfont\tiny\normalsize%
```

`\GoDouble` This command switches the typesetting to double-spacing, and also sets the spacing difference between the two spacing commands.

```

167 \ifthenelse{\value{RS@ptcnt} = 10}{%
168 \newcommand{\GoDouble}{\renewcommand{\baselinestretch}{1.667}}%
169 \renewcommand{\BaseDiff}{0.667}\normalfont\tiny\normalsize}}{%
170 \ifthenelse{\value{RS@ptcnt} = 11}{%
171 \newcommand{\GoDouble}{\renewcommand{\baselinestretch}{1.618}}%
172 \renewcommand{\BaseDiff}{0.618}\normalfont\tiny\normalsize}}{%
173 \ifthenelse{\value{RS@ptcnt} = 12}{%
174 \newcommand{\GoDouble}{\renewcommand{\baselinestretch}{1.655}}%
175 \renewcommand{\BaseDiff}{0.655}\normalfont\tiny\normalsize}}{%
176 \GoDouble\GoSingle%
```

15 Document Markup

In this section, the commands from the standard L^AT_EX 2_ε report class that have been modified to meet the Grad School guidelines are defined. The commands described in this section determine how the various level headings are typeset in the body of the thesis. By default, all section and subsection headings are numbered. This can easily be modified by adjusting the value of *secnumdepth* in your document preamble. The following description of the various level

heading formatting macros was obtained from [2], and slightly modified.

15.1 Building blocks

The definitions in this part of the class file make use of two internal macros, `\@startsection` and `\secdef`. To understand what is going on here, we describe their syntax.

The macro `\@startsection` has 6 required arguments, optionally followed by a `*`, an optional argument and a required argument:

```
\@startsection<name><level><indent><beforeskip><afterskip><style>  
optional *  
    [(<altheading>)]<heading>
```

It is a generic command to start a section, the arguments have the following meaning:

- `<name>` The name of the user level command, e.g., ‘section’.
- `<level>` A number, denoting the depth of the section – e.g., chapter=0, section = 1, etc. A section number will be printed if and only if `<level> <=` the value of the `secnumdepth` counter.
- `<indent>` The indentation of the heading from the left margin
- `<beforeskip>` The absolute value of this argument gives the skip to leave above the heading (in addition to the normal paragraph spacing). If it is negative, then the paragraph indent of the text following the heading is suppressed.
- `<afterskip>` If positive, this gives the skip to leave below the heading (in addition to the normal paragraph spacing), else it gives the skip to leave to the right of a run-in heading.
- `<style>` Commands to set the style of the heading.
- `*` When this is missing the heading is numbered and the corresponding counter is incremented.
- `<altheading>` Gives an alternative heading to use in the table of contents and in the running heads. This should be present when the `*` form is used.
- `<heading>` The heading of the new section.

A sectioning command is normally defined to `\@startsection` and its first six arguments.

The macro `\secdef` can be used when a sectioning command is defined without using `\@startsection`. It has two arguments:

```
\secdef<unstarcmds><starcmds>
```

`<unstarcmds>` Used for the normal form of the sectioning command.

`<starcmds>` Used for the *-form of the sectioning command.

You can use `\secdef` as follows:

```
\def\chapter { ... \secdef \CMDA \CMDB }
\def\CMDA    [#1]#2{ ... } % Command to define
                                % \chapter[...]{...}
\def\CMDB    #1{ ... }     % Command to define
                                % \chapter*{...}

177 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
178 % Formatting Chapter Headings %
179 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
180 \setcounter{secnumdepth}{2}%
181 \renewcommand{\chaptername}{CHAPTER}
182 \renewcommand{\appendixname}{APPENDIX}
183 \renewcommand{\@chapapp}{\chaptername}
```

The following two lines of code are from the `indentfirst` package written by David Carlisle. These two lines force a paragraph indent in the text immediately following a heading command.

```
184 \let\@afterindentfalse\@afterindenttrue%
185 \@afterindenttrue%
```

15.2 Chapter Headings

A chapter command starts a new page, and the chapter title is centered on the page. If the boolean `SetDSpace` is true when the chapter command is issued, the text following the chapter title will be typeset double-spaced.

```
\chapter Unlike the other section headings, the \chapter commands uses the
\chapter* \secdef command (see page 28, [3]) to format the chapter heading.
186 \newenvironment{RS@Cent}{\centering}{\par}%
187 \renewcommand{\chapter}{%
188 \clearpage%
189 \thispagestyle{plain}%
190 \GoSingle%
191 \global\@topnum\z@% Keep floats from top of page
192 \@afterindentfalse%
193 \secdef\@chapter\@schapter}%
\@chapter
```

If `secnumdepth` is greater than -1, the chapter is numbered. The title of the chapter is automatically added to the table of contents. In addition, the footnote counter is reset to zero at the start of each chapter.

```

194 \renewcommand{\@chapter}[2][?]{%
195 \ifthenelse{\value{secnumdepth} > -1}{%
196 \refstepcounter{chapter}%
197 \typeout{*****}%
198 \typeout{\@chapapp\space\thechapter.}%
199 \typeout{*****}%
200 \addcontentsline{toc}{chapter}{\protect\numberline{\thechapter}#1}%
201 }{%
202 \addcontentsline{toc}{chapter}{#1}}%
203 \setcounter{footnote}{0}%
204 \@makechapterhead{#2}}%
205 \renewcommand{\@makechapterhead}[1]{%
206 \begin{RS@Cent}%
207 \BigMargin%
208 \ifthenelse{\value{secnumdepth} > -1}{%
209 \@chapapp\space\thechapter\}\}%
210 #1%
211 \end{RS@Cent}}%
212 \@afterheading%
213 \ifthenelse{\boolean{SetDSpace}}{\GoDouble}{}%
214 % \vspace*{\RS@ptsize}}%
215 }%

```

`\@schapter` The formatting of a `\chapter*` command is much simpler. The chapter title is just centered. Note that the chapter title must be manually added to the table of contents.

```

216 \renewcommand{\@schapter}[2][?]{%
217 \@makeschapterhead{#2}}%
218 \renewcommand{\@makeschapterhead}[1]{%
219 \begin{RS@Cent}%
220 \BigMargin%
221 #1\end{RS@Cent}}%
222 \@afterheading%
223 \ifthenelse{\boolean{SetDSpace}}{\GoDouble}%

```

The following code just allows the first line of the chapter text to fall on the same point on the page whether it is set in single-spacing or double-spacing.

```

224 {\addvspace{\BaseDiff\baselineskip}}%
225 % \vspace*{\RS@ptsize}}%
226 }%

```

15.3 Lower Level Headings

The lower level headings may be typeset underlined or with a bold typeface. As messing with the formatting of the sectioning commands

is a bit tricky, the ulem and sectsty packages are used to handle these issues. Note that for a paragraph heading, a trailing period must be added to the heading (done automatically). However, the period shouldn't be underlined (at least that is how it appears in the guidelines). Therefore the paragraph heading format is handled in a special way. Bernd Schandl (Clemson University) was very helpful in implementing this code. All lower level headings may extend over more than a single line.

```

227      %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
228      %%   Formatting Section Headings                               %
229      %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
230      \ifthenelse{\boolean{RS@BfSet}}%
231      {\sectionfont{\normalsize\normalfont\singlespace\centering\bfseries}%
232       \subsectionfont{\normalsize\normalfont\singlespace\bfseries}%
233       \subsubsectionfont{\normalsize\normalfont\singlespace\bfseries}%
234       \paragraphfont{\normalsize\normalfont\bfseries}%
235       \renewcommand{\paragraph}[1]{\@paragraph{#1}.}%
236       \newcommand{\@paragraph}{\@startsection{paragraph}{4}{\parindent}%
237         {0.1ex}%
238         {-1.0em}%
239         {\SS@parafont}}%
240       \subparagraphfont{\normalsize\normalfont\bfseries}}%
241      {\sectionfont{\normalsize\normalfont\singlespace\centering\underline}%
242       \subsectionfont{\normalsize\normalfont\singlespace\underline}%
243       \subsubsectionfont{\normalsize\normalfont\singlespace\underline}%
244       \paragraphfont{\normalsize\normalfont\underline}%
245       \renewcommand{\paragraph}[1]{\@paragraph{#1}.}%
246       \newcommand{\@paragraph}{\@startsection{paragraph}{4}{\parindent}%
247         {0.1ex}%
248         {0pt}%
249         {\SS@parafont}}%
250       \subparagraphfont{\normalsize\normalfont\underline}}%

```

In this section, all of the commands that use the \@startsection command to format the heading are defined. See section 2.3.2, page 24, of [3] for further details on the format of the \@startsection command.

\section The section level headings are centered, in either a bold typeface or are underlined. Note that it is possible for the section heading to extend more than a single line. On page 39, Appendix A of [1], this command should be used for the First-Level headings. The first letter of principal words must be capitalized.

```

251      \renewcommand{\section}{%
252        \@startsection{section}{1}{\z@}%

```

```

253      %   {-0.5\baselineskip}%
254      {-0\baselineskip}%
255      {0.1ex}%
256      {\SS@sectfont}}

\subsection The subsection level headings are left justified. Note the if the head-
ing extends beyond a single line, the second line of the heading is
indented. On page 39, Appendix A of [1], this command should be
used for the Second-Level headings. The first letter of principal words
must be capitalized.

257      \renewcommand{\subsection}{%
258          \@startsection{subsection}{2}{\z@}%
259      %   {-0.5\baselineskip}%
260      {-0\baselineskip}%
261      {0.1ex}%
262      {\SS@subsectfont}}

\subsubsection This command may be used for Third-Level headings. However, see
note on page 39 of [1], it might be more appropriate to use the
\paragraph command for Third-Level headings.

263      \renewcommand{\subsubsection}{%
264          \@startsection{subsubsection}{3}{2.0em}%
265      {-0.1ex}%
266      {0.1ex}%
267      {\SS@subsubsectfont}}

\paragraph Paragraph headings are not listed in the table of contents. Para-
graph headings are indented, underlined or boldfaced, and followed
by periods. Only the first letter of first word and proper nouns are
capitalized. Note that the first line of the text follows the period on
the same line as the heading.

\subparagraph Not sure if this command will ever be used in the document.

268      \renewcommand{\subparagraph}{%
269          \@startsection{subparagraph}{5}{\z@}%
270      {0.1ex}%
271      {-1.0em}%
272      {\SS@subparafont}}

```

16 Formatting Contents Lists

The commands defined in this section deal with formatting the generated lists, the table of contents, the list of figures and the list of tables. The titles of these lists are defined, and then the formatting

of these lists is addressed. The following description was taken from `classes.dtx`.

16.1 Table of Contents, etc.

A `\section` command writes a `\contentsline{section}{<title>}{<page>}` command on the `.toc` file, where `<title>` contains the contents of the entry and `<page>` is the page number. If sections are being numbered, then `<title>` will be of the form `\numberline{<num>}{<heading>}` where `<num>` is the number produced by `\thesection`. Other sectioning commands work similarly.

A `\caption` command in a ‘figure’ environment writes `\contentsline{figure}{\numberline{<num>}{<caption>}}{<page>}` on the `.lof` file, where `<num>` is the number produced by `\thefigure` and `<caption>` is the figure caption. It works similarly for a ‘table’ environment.

The command `\contentsline{<name>}` expands to `\l@<name>`. So, to specify the table of contents, we must define `\l@chapter`, `\l@section`, `\l@subsection`, ... ; to specify the list of figures, we must define `\l@figure`; and so on. Most of these can be defined with the `\@dottedtocline` command, which works as follows.

`\@dottedtocline{<level>}{<indent>}{<numwidth>}{<title>}{<page>}`

`<level>` An entry is produced only if `<level>` \leq value of the `tocdepth` counter. Note, `\chapter` is level 0, `\section` is level 1, etc.

`<indent>` The indentation from the outer left margin of the start of the contents line.

`<numwidth>` The width of a box in which the section number is to go, if `<title>` includes a `\numberline` command.

`\@pnumwidth` This command uses the following three parameters, which are set with a `\newcommand` (so em’s can be used to make them depend upon the font).
`\@tocrmarg`
`\@dotsep`

`\@pnumwidth` The width of a box in which the page number is typeset.

`\@tocrmarg` The right margin for multiple line entries. One wants `\@tocrmarg \geq \@pnumwidth`

`\@dotsep` Separation between dots, in mu units. Should be defined as a number like 2 or 1.7

```
273 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
274 % Formatting Generated Lists -- TOC, LOF and LOT %
275 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
276 \renewcommand{\@dotsep}{4.5}%
```

```

277 \renewcommand{\@pnumwidth}{1.55em}%
278 \ifthenelse{\boolean{RS@Justify}}{%
279 \renewcommand{\@tocrmarg}{2.55em}}{%
280 \renewcommand{\@tocrmarg}{2.55em plus 1.45em}}%
281 \renewcommand*{\l@chapter}[2]{%
282 \setcounter{RS@TmpCnt}{0}%
283 \ifthenelse{\value{tocdepth} > -1}{%
284 \addpenalty{-\@highpenalty}%
285 \vspace{\BaseDiff\baselineskip}%
286 \@dottedtocline{0}{\UFdent}{\RS@chapnumwidth}{#1}{#2}%
287 }{}}%
288 \newcommand*{\l@extrachapter}[2]{%
289 \setcounter{RS@TmpCnt}{0}%
290 \ifthenelse{\value{tocdepth} > -1}{%
291 \addpenalty{-\@highpenalty}%
292 \vspace{\BaseDiff\baselineskip}%
293 \@dottedtocline{0}{0pt}{0pt}{#1}{#2}%
294 }{}}%
295 \newcommand*{\l@extraentry}[2]{%
296 \setcounter{RS@TmpCnt}{0}%
297 \ifthenelse{\value{tocdepth} > -1}{%
298 \addpenalty{-\@highpenalty}%
299 \vspace{\BaseDiff\baselineskip}%
300 \noindent #1\par%
301 }{}}%
302 \renewcommand*{\l@section}{%
303 \ifthenelse{\value{RS@TmpCnt} = 0}{%
304 \setcounter{RS@TmpCnt}{1}%
305 \vspace{\BaseDiff\baselineskip}}{}}%
306 \@dottedtocline{1}{\RS@secindent}{\RS@secnumwidth}}%
307 \renewcommand*{\l@subsection}{\@dottedtocline{2}{\RS@subsecindent}%
308 {\RS@subsecnumwidth}}%
309 \renewcommand*{\l@subsubsection}{\@dottedtocline{3}{7.0em}{4.1em}}%
310 \renewcommand*{\l@paragraph}{\@dottedtocline{4}{10em}{5em}}%
311 \renewcommand*{\l@subparagraph}{\@dottedtocline{5}{12em}{6em}}%
312 \renewcommand*{\l@figure}{\vspace{\BaseDiff\baselineskip}%
313 \@dottedtocline{-5}{\RS@figindent}{\RS@fignumwidth}}%
314 \renewcommand*{\l@table}{\vspace{\BaseDiff\baselineskip}%
315 \@dottedtocline{-5}{\RS@tabindent}{\RS@tabnumwidth}}%

```

16.2 Handling spacing in Lists

In this section, the `\@dottedtocline` command is redefined to use the normal font. In addition, several commands are created to handle

proper line-spacing in the generated lists.

```

316     \newcommand{\leaddots}{%
317         \leaders\hbox{$\m@th
318             \mkern \@dotsep mu\hbox{.}\mkern \@dotsep
319             mu$}\hfill}%

```

`\@dottedtocline` The following code is used to format entries in the TOC, LOF, and LOT and is a slight modification of the standard $\LaTeX 2_{\epsilon}$ code. Specifically, the format for the page number has been changed to the normalfont and hanging indents have been added.

```

320     \renewcommand{\@dottedtocline}[5]{%
321         \ifnum #1>\c@tocdepth \else
322             \vskip \z@ \@plus.2\p@
323             {\leftskip #2\relax \rightskip \@tocrmarg \parfillskip -\rightskip
324              \parindent #2\relax\@afterindenttrue
325              \interlinepenalty\@M
326              \leavevmode
327              \@tempdima #3\relax
328             %% Handling those sections that are included in TOC, but have
329             %% no section numbering. Also including hanging indent when the
330             %% NoToCHang option was not used. Only the following 4 lines added.
331             \ifthenelse{#1 > \value{secnumdepth}}{%
332                 \setlength{\@tempdima}{Opt}}{}%
333             \ifthenelse{#1 > \value{secnumdepth} \or \boolean{RS@TOCHang}}{%
334                 \addtolength{\leftskip}{\RS@TOChdent}}{}%
335             \advance\leftskip \@tempdima \null\nobreak\hskip -\leftskip
336             {#4}\nobreak
337             \leaddots
338             \nobreak
339             \hb@xt@\@pnumwidth{\hfil\normalfont \normalcolor #5}%
340             \par}%
341     \fi}

```

16.3 Setting justification of typeset lists

Section 2.4, page 31, of [3] discusses how the structure of the table of contents (and other lists) is created by the `\l@type` and `\@dottedtocline` commands. Three of the arguments of the `\@dottedtocline` command define how the entries of the list are indented. See Figure 2.11, page 34 of [3] for more details. The following code sets some length parameters so that the *indent* and *numwidth* parameters can be easily modified.

`\UFdent` This length is used to set the initial indent for all elements in the table of contents. This length sets the *indent* for chapter headings,

and all other headings are referenced relative to this length. This allows one to have the numbers of the chapters centered below the word CHAPTERS in the TOC.

```

342      %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
343      %% Indenting Generated Lists -- TOC, LOF and LOT %%
344      %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
345      \newlength{\UFdent}%
346      %\settowidth{\UFdent}{CHA}%
347      \setlength{\UFdent}{Opt}%

```

`\RS@chapnumwidth` This length is used to set the *numwidth* of the chapter headings.

```

348      \newlength{\RS@chapnumwidth}%
349      \setlength{\RS@chapnumwidth}{2.3em}%

```

`\RS@secindent` This length is used to the the *indent* of the section headings. The `\AtBeginDocument` command is used to delay the processing of these commands until the `\begin{document}` command. This way the `\UFdent` length can be redefined in the document preamble and things will be adjusted accordingly.

```

350      \newlength{\RS@secindent}%
351      \setlength{\RS@secindent}{Opt}%
352      \AtBeginDocument{%
353      \addtolength{\RS@secindent}{\UFdent}%
354      %% Verifying that the chapters are numbered.
355      \ifthenelse{\value{secnumdepth} > -1}{%
356      \addtolength{\RS@secindent}{\RS@chapnumwidth}}{}%
357      }

```

`\RS@secnumwidth` This length is used to set the *numwidth* of the section headings.

```

358      \newlength{\RS@secnumwidth}%
359      \setlength{\RS@secnumwidth}{3em}%

```

`\RS@subsecindent` This length is used to the the *indent* of the subsection headings. The `\AtBeginDocument` command is used to delay the processing of these commands until the `\begin{document}` command. Note that if the section headings are not numbered, then this length may have to be adjusted in the document preamble in order to get the desired spacing in the TOC.

```

360      \newlength{\RS@subsecindent}%
361      \setlength{\RS@subsecindent}{Opt}%
362      \AtBeginDocument{%
363      \addtolength{\RS@subsecindent}{\RS@secindent}%
364      %% Verifying that the sections are numbered.
365      \ifthenelse{\value{secnumdepth} > 0}{%
366      \addtolength{\RS@subsecindent}{\RS@secnumwidth}}{}%

```

367 }
368

`\RS@subsecnumwidth` This length is used to set the *numwidth* of the subsection headings.

368 `\newlength{\RS@subsecnumwidth}%`
369 `\setlength{\RS@subsecnumwidth}{3em}%`

The following lengths set up the *indent* and *numwidth* for the list of figures.

370 `\newlength{\RS@figindent}%`
371 `\settowidth{\RS@figindent}{Fig}%`
372 `\newlength{\RS@fignumwidth}%`
373 `\setlength{\RS@fignumwidth}{2.3em}%`

The following lengths set up the *indent* and *numwidth* for the list of tables.

374 `\newlength{\RS@tabindent}%`
375 `\settowidth{\RS@tabindent}{Ta}%`
376 `\newlength{\RS@tabnumwidth}%`
377 `\setlength{\RS@tabnumwidth}{2.3em}%`

`\tableofcontents` Sets up basic formatting for the table of contents.

378 `%%%`
379 `% Table of Contents %`
380 `%%%`
381 `\setcounter{tocdepth}{2}%`
382 `\renewcommand{\contentsname}{TABLE OF CONTENTS}%`
383 `\newenvironment{simpleenv}[4]{\clearpage}{\clearpage}%`
384 `\renewcommand{\tableofcontents}{%`
385 `\setboolean{SetDSpace}{false}%`
386 `\begin{simpleenv}{}{}{}{}%`
387 `\pagestyle{plain}%`
388 `\chapter*{\contentsname}%`
389 `\vspace*{-\RS@ptsize}%`
390 `\noindent\hfill\uline{page}\par%`
391 `\@starttoc{toc}%`
392 `\end{simpleenv}%`
393 `\setboolean{SetDSpace}{true}}%`

`\listoftables` The list of tables is automatically added to the table of contents.

394 `%%%`
395 `% List of Tables %`
396 `%%%`
397 `\renewcommand{\listtablename}{LIST OF TABLES}%`
398 `\renewcommand{\listoftables}{%`
399 `\setboolean{SetDSpace}{false}%`

```

400     \begin{simpleenv}{-}{-}{-}{-}%
401     \pagestyle{plain}%
402     \chapter*{\listtablename}%
403     \vspace*{-\RS@ptsize}%
404     \addcontentsline{toc}{extrachapter}{\listtablename}%
405     \noindent\uline{Table}\hfill\uline{page}\par%
406     \@starttoc{lot}%
407     \end{simpleenv}%
408     \setboolean{SetDSpace}{true}}%

```

`\listoffigures` The list of figures is automatically added to the table of contents.

```

409     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
410     %%          List of Figures          %%
411     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
412     \renewcommand{\listfigurename}{LIST OF FIGURES}%
413     \renewcommand{\listoffigures}{%
414     \setboolean{SetDSpace}{false}%
415     \begin{simpleenv}{-}{-}{-}{-}%
416     \pagestyle{plain}%
417     \chapter*{\listfigurename}%
418     \vspace*{-\RS@ptsize}%
419     \addcontentsline{toc}{extrachapter}{\listfigurename}%
420     \noindent\uline{Figure}\hfill\uline{page}\par%
421     \@starttoc{lof}%
422     \end{simpleenv}%
423     \setboolean{SetDSpace}{true}}%

```

`\appendix` Standard stuff here.

```

424     \renewcommand{\appendix}{\par
425     \setcounter{chapter}{0}%
426     \setcounter{section}{0}%
427     \renewcommand{\@chapapp}{\appendixname}%
428     \renewcommand{\thechapter}{\@Alph\c@chapter}}%

```

`thebibliography` The bibliography heading is set to REFERENCES, and automatically added to the table of contents.

```

429     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
430     %%          List of References          %%
431     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
432     \renewcommand{\bibname}{REFERENCES}%
433     \renewenvironment{thebibliography}[1]%
434     {\clearpage\pagestyle{myheadings}%
435     \markboth{}{}}%
436     \setboolean{SetDSpace}{false}%
437     \chapter*{\bibname}%

```

```

438     \addcontentsline{toc}{extrachapter}{\bibname}%
439     \setboolean{SetDSpace}{true}%
440     \list{\@biblabel{\@arabic\c@enumiv}}%
441         {\settowidth\labelwidth{\@biblabel{#1}}%
442          \setlength{\parsep}{\BaseDiff\baselineskip}%
443          \setlength{\itemsep}{0ex}%
444          \setlength{\leftmargin}{\labelwidth}%
445          \addtolength{\leftmargin}{\labelsep}%
446          \@openbib@code
447          \usecounter{enumiv}%
448          \let\p@enumiv\@empty
449          \renewcommand\theenumiv{\@arabic\c@enumiv}}%
450     \sloppy
451     \clubpenalty10000
452     \@clubpenalty \clubpenalty
453     \widowpenalty10000%
454     \sfcode'\.=1000\relax}
455     {\def\@noitemerr
456      {\@latex@warning{Empty 'thebibliography' environment}}%
457     \endlist\clearpage}

```

17 Special Pages

The following code is used to create the title page, as well as other special pages, for the document. Page formatting such as margins and line-spacing are defined in these macros. In addition, the `\CertPar` macro can be used to somewhat automate the creation of the signature page.

`\maketitle` This macro is used to used to produce the title page. The title of the document is centered, and has a margin of 2 inches from the top of the page. The statement block (graduation year and such) is typeset so that it ends about 1.5 inches from the bottom of the page. The author's name is automatically centered between these two text blocks.

```

458     %% Special Pages
459     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
460     %% Title Page %
461     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
462     \renewcommand{\maketitle}{%
463     \clearpage%
464     \setboolean{SetDSpace}{false}%
465     \thispagestyle{empty}%
466     \GoSingle%

```

```

467     \begin{RS@Cent}%
468     \BigMargin%
469     \Title%
470     \vfill%
471     By \[*[\BaseDiff\baselineskip]%
472     \MakeUppercase{\FullName}%
473     \vfill%
474     A \MakeUppercase{\ThesisType} PRESENTED TO THE GRADUATE SCHOOL \\\%
475     OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT \\\%
476     OF THE REQUIREMENTS FOR THE DEGREE OF \\\%
477     \MakeUppercase{\DegreeType} \[*[\BaseDiff\baselineskip]%
478     UNIVERSITY OF FLORIDA \[*[\BaseDiff\baselineskip]%
479     \GradYear%
480     \end{RS@Cent}%
481     \vspace*{0.5in}
482     \setboolean{SetDSpace}{true}%
483     \clearpage}

```

`\makecopyright` This macro creates the optional copyright page, automatically centering the author's name and the copyright date.

```

484     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
485     %           Copyright Page                               %
486     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
487     \newcommand{\makecopyright}{%
488     \clearpage%
489     \setboolean{SetDSpace}{false}%
490     \thispagestyle{empty}%
491     \GoSingle%
492     \vspace*{\fill}%
493     \begin{RS@Cent}%
494     Copyright \GradYear \[*[\BaseDiff\baselineskip]%
495     by \[*[\BaseDiff\baselineskip]%
496     \FullName%
497     \end{RS@Cent}%
498     \vfill%
499     \setboolean{SetDSpace}{true}%
500     \clearpage}

```

`\dedication` This environment is used to typeset the optional dedication.

```

501     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
502     %           Dedication                                   %
503     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
504     \newcommand{\dedication}[1]{%
505     \begin{simpleenv}{#1}{-}{-}{-}%
506     \pagestyle{empty}%

```

```

507         \GoSingle%
508         \BigMargin\par%
509         \GoDouble%
510         #1%
511     \end{simpleenv}%
512     \setboolean{SetDSpace}{true}}%

```

```

\acknowledge This macro sets up the required text for any acknowledgments.
513     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
514     %           Acknowledgments                               %
515     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
516     \newcommand{\acknowledgname}{ACKNOWLEDGMENTS}%
517     \newcommand{\acknowledge}[1]{%
518         \setboolean{SetDSpace}{true}%
519         \begin{simpleenv}{#1}{-}{-}{-}%
520         \pagestyle{plain}%
521         \chapter*{\acknowledgname}%
522         \addcontentsline{toc}{extrachapter}{\acknowledgname}%
523         #1%
524     \end{simpleenv}}%

```

abstract This macro sets up the required text for the abstract. The contents of the abstract pertaining to the document must be included after this command is used. This command uses three arguments (one is optional). The first argument sets the vertical spacing between the first text block and the document title (spaced in terms of `\baselineskip`). The second argument then sets the spacing between the title and the block reserved for the author's name. The third argument contains the actual text to be typeset in the abstract.

```

525     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
526     %           Abstract                                       %
527     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
528     \renewcommand{\abstractname}{ABSTRACT}%
529     \renewenvironment{abstract}{%
530         \clearpage%
531         \setboolean{SetDSpace}{false}%
532         \ifthenelse{\boolean{RS@Draft}}{\pagestyle{empty}}{\pagestyle{plain}}%
533         \GoSingle%
534         \addcontentsline{toc}{extrachapter}{\abstractname}%
535         \begin{RS@Cent}%
536         \BigMargin%
537         Abstract of \ThesisType\ Presented to the Graduate School \\\
538         of the University of Florida in Partial Fulfillment of the \\\
539         Requirements for the Degree of \DegreeType \\[BaseDiff\baselineskip]%

```

```

540 \Title \*[ \BaseDiff\baselineskip]%
541 By \*[ \BaseDiff\baselineskip]%
542 \FullName \*[ \BaseDiff\baselineskip]%
543 \GradMonth\ \GradYear \*[ \BaseDiff\baselineskip]%
544 \end{RS@Cent}%
545 {\raggedright Chair: \Chair \[%
546 Major Department: \Department} %
547 \setboolean{SetDSpace}{true}%
548 \par%
549 \GoDouble}%
550 {\clearpage}

```

`\biography` This macro sets up the page for the author biography.

```

551 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
552 % Biographical Sketch %
553 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
554 \newcommand{\biographyname}{BIOGRAPHICAL SKETCH}%
555 \newcommand{\biography}[1]{%
556 \setboolean{SetDSpace}{true}%
557 \begin{simpleenv}{#1}{-}{-}%
558 \ifthenelse{\boolean{RS@Draft}}{\pagestyle{empty}%
559 \let\ps@plain\ps@empty}{\pagestyle{myheadings}}%
560 \markboth{}{}%
561 \chapter*{\biographyname}%
562 \addcontentsline{toc}{extrachapter}{\biographyname}%
563 #1%
564 \end{simpleenv}}%

```

`\CertPar` `\SubmitPar` These macros are used to help simplify the creation of the signature page. These macros were defined for the requirements of a signature page for the College of Engineering [1] requirements. Note, these commands were written to specifically handle those instances when a second line is required for departmental information. See the example thesis, for a demonstration of how these commands are used.

```

565 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
566 % Signature Page Stuff %
567 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
568 \newcommand{\CertPar}[2][0.25in]{\par%
569 {\setlength{\parskip}{#1}I certify that I have read this study and that %
570 in my opinion it conforms to acceptable standards of scholarly %
571 presentation and is fully adequate, in scope and quality, as a %
572 \MakeLowercase{\ThesisType} for the degree of %
573 {\DegreeType}.\par%
574 {\setlength{\leftskip}{3in}%
575 \setlength{\parindent}{0pt}%

```

```

576         \setlength{\hangindent}{1em}%
577         \hangafter=3%
578         \hrulefill \newline%
579         #2\par}\vspace{-\parskip}}%
580     \par\vspace{\parskip}
581 }
582 \newcommand{\SubmitPar}[3][0.25in]{\par%
583     {\setlength{\parskip}{#1} This \MakeLowercase{\ThesisType} was %
584     submitted to the Graduate Faculty of the College of Engineering %
585     and to the Graduate School and was accepted as partial fulfillment %
586     of the requirements for the degree of {\DegreeType}.\par%
587     {\setlength{\leftskip}{3in}%
588     \setlength{\parindent}{0pt}%
589     \setlength{\hangindent}{1em}%
590     \hangafter=3%
591     \hspace*{-\leftskip}\makebox[3in][l]{\GradMonth\ \GradYear}%
592     \hrulefill \newline%
593     #2\par}\hrulefill \newline #3\par}\vspace{-\parskip}}%
594 \par\vspace{\parskip}
595 }

```

18 Special Commands

18.1 Personalizing the document

The commands defined in this section are used to set the author's name, the chairman's name, and other relevant information. In order to guarantee that this information is actually defined before it is used in the document, all of the following commands can only be issued in the document preamble (before the `\begin{document}` command).

`\SetTitle` Use this command to define the document title. If the title must extend over several lines, use the following:

```

\SetTitle{Line #1 \ Line #2}
596     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
597     %           Getting personal information and           %
598     %           defining other miscellaneous commands      %
599     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
600     \newcommand*\SetTitle[1]{\renewcommand*\Title{#1}}%
601     \newcommand*\Title{No Title Given}%
602     \@onlypreamble{\SetTitle}%

```

`\SetFullName` Use this command to enter the author's name. For example,

```

\SetFullName{John E. Smith}
603     \newcommand*\SetFullName[1]{\renewcommand*\FullName{#1}}%

```

604	<code>\newcommand*\FullName}{Please Define Your Name}%</code>
605	<code>\@onlypreamble{\SetFullName}%</code>
<code>\SetThesisType</code>	Use the command <code>\SetThesisType{Thesis}</code> or <code>\SetThesisType{Dissertation}</code> as appropriate.
606	<code>\newcommand*\SetThesisType}[1]{\renewcommand*\ThesisType{#1}}%</code>
607	<code>\newcommand*\ThesisType}{THEESIS OR DISSERTATION}%</code>
608	<code>\@onlypreamble{\SetThesisType}%</code>
<code>\SetDegreeType</code>	Use the command <code>\SetDegreeType{Master of Science}</code> or <code>\SetDegreeType{Doctor of Philosophy}</code> as appropriate.
609	<code>\newcommand*\SetDegreeType}[1]{\renewcommand*\DegreeType{#1}}%</code>
610	<code>\newcommand*\DegreeType}{UNDEFINED DEGREE}%</code>
611	<code>\@onlypreamble{\SetDegreeType}%</code>
<code>\SetGradMonth</code>	Use this command to define the month in which the degree will be conferred NOT the month in which you defend.
612	<code>\newcommand*\SetGradMonth}[1]{\renewcommand*\GradMonth{#1}}%</code>
613	<code>\newcommand*\GradMonth}{UNDEFINED MONTH}%</code>
614	<code>\@onlypreamble{\SetGradMonth}%</code>
<code>\SetGradYear</code>	Use this command to define the year in which the degree will be conferred.
615	<code>\newcommand*\SetGradYear}[1]{\renewcommand*\GradYear{#1}}%</code>
616	<code>\newcommand*\GradYear}{UNDEFINED YEAR}%</code>
617	<code>\@onlypreamble{\SetGradYear}%</code>
<code>\SetDepartment</code>	Use this command to define the name of the major department. For example, <code>\SetDepartment{Electrical and Computer Engineering}</code> .
618	<code>\newcommand*\SetDepartment}[1]{\renewcommand*\Department{#1}}%</code>
619	<code>\newcommand*\Department}{UNDEFINED DEPARTMENT}%</code>
620	<code>\@onlypreamble{\SetDepartment}%</code>
<code>\SetChair</code>	Use this command to define the chairman's name. For example, <code>\SetChair{Larry Smartguy}</code> .
621	<code>\newcommand*\SetChair}[1]{\renewcommand*\Chair{#1}}%</code>
622	<code>\newcommand*\Chair}{UNDEFINED Chair}%</code>
623	<code>\@onlypreamble{\SetChair}%</code>

18.2 Adding personal notes to the text

Sometimes it is helpful to have reminders or comments embedded in the $\LaTeX 2_{\epsilon}$ source file that can be conditionally viewed or hidden. The `\NOTE` command was created for this purpose.

`\NOTE` When the boolean `ShowNotes` is true, any of the comments defined by the `\NOTE` command will be included in the $\LaTeX 2_{\epsilon}$ output. A “NOTE” marker will be placed in the margin so that these comments can be readily found. To hide all comments (for the final copy of document), just set the boolean `ShowNotes` to false.

```

624     %%    Adding personal notes to your text
625     \newboolean{ShowNotes}% Used to display private notes.
626     \setboolean{ShowNotes}{false}%
627     \newcommand{\NOTE}[1]{%
628         \ifthenelse{\boolean{ShowNotes}}{%
629             \begin{spacing}{1}%
630             \par\noindent\marginpar{NOTE}%
631             \parbox[t]{\textwidth}{\hrulefill\%
632             #1\*[-0.5\baselineskip]%
633             \hspace*{0.1in}\hspace{-0.1in}\hrulefill\%
634             \vspace{0.25in}\end{spacing}}{}}%
635     }

```

19 Footnotes

Footnotes are to be typed single-spaced, which is handled by the `setspace` package, but must have a double-space between entries. In addition, as suggested by the Editorial Office, the footnote should use the same font as used in the main text. Therefore, the `\footnotesize` command has been redefined to `\normalsize`. In the standard $\LaTeX 2_{\epsilon}$ report document class, footnotes are typeset single-spaced by setting `\footnotesep` equal to `0.7\baselineskip`. Increase `\footnotesep` to get the desired effect of double-spacing between entries.

```

636     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
637     %% Footnotes %
638     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
639     \setlength{\footnotesep}{0.7\baselineskip}%
640     \addtolength{\footnotesep}{\BaseDiff\baselineskip}%
641     \setlength{\skip\footins}{2.5\baselineskip}%
642     \renewcommand{\footnoterule}{%
643         \kern -3\p@
644         \kern +8pt
645         \hrule \@width 2in
646         \kern -8pt
647         \kern +2.6\p@}
648     \renewcommand{\@makefnmark}{%
649         \hbox{\@textsuperscript{\normalfont\@thefnmark}}~}%
650     \renewcommand\@makefntext[1]{%
651         \normalsize%

```

```

652     \parindent 1em%
653     \noindent
654     \hb@xt@1.8em{\hss\@makefnmark}#1}
655     %%%%%%%%%%%
656     %% Figures and Tables %
657     %%%%%%%%%%%
658     \renewcommand{\thefigure}{%
659         {\ifnum \c@chapter>\z@ \thechapter--\fi \@arabic\c@figure}}%
660     \renewcommand{\thetable}{%
661         {\ifnum \c@chapter>\z@ \thechapter--\fi \@arabic\c@table}}%
662     \newlength{\abovefigcaptskip}%
663     \newlength{\belowfigcaptskip}%
664     \newlength{\abovetabcaptskip}%
665     \newlength{\belowtabcaptskip}%
666     \setlength{\abovefigcaptskip}{\abovecaptionskip}%
667     \setlength{\belowfigcaptskip}{\belowcaptionskip}%
668     \setlength{\abovetabcaptskip}{\belowcaptionskip}%
669     \setlength{\belowtabcaptskip}{\abovecaptionskip}%
670     \renewenvironment{table}
671         {\setlength{\abovecaptionskip}{\abovetabcaptskip}%
672          \setlength{\belowcaptionskip}{\belowtabcaptskip}%
673          \@float{table}}
674         {\end@float}
675     \renewenvironment{figure}
676         {\setlength{\abovecaptionskip}{\abovefigcaptskip}%
677          \setlength{\belowcaptionskip}{\belowfigcaptskip}%
678          \@float{figure}}
679         {\end@float}

```

20 Indexing

The following code is used to handle an automatically generated index, with the provision to handle multiple indices. The code is based heavily on the the `multind.sty` package by F. W. Long, described in section 12.5.1 of [3].

`\printindex` Modified `\printindex` command to allow multiple indices. This now
`\see` takes over much of the work of `\theindex`. There are four arguments to this command, with the first one defaulting to `\jobname`. The first argument, when supplied corresponds to the name of the corresponding index file (`.idx`) that is to be typeset. The second and third parameters are passed directly to a `\chapter*[]{}` command, which means they determine how the index title is typeset in the TOC as well as in the actual index. The fourth argument can be used to place some text above the typeset index list.

A new chapter is started with each issue of the `\printindex` command. The `\see` command is similar to the command found in `makeidx.sty`, which discards its second number and just prints *see* together with the entry the reader is pointed to.

```

680  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
681  %% UF Thesis Multiple Index Generation %
682  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
683  \newcommand{\printindex}[4][\jobname]{%
684    \IfFileExists{#1.ind}{%
685      \setboolean{SetDSPACE}{false}%
686      \begin{simpleenv}{#1}{#2}{#3}{#4}%
687        \pagestyle{plain} %
688        \addcontentsline{toc}{extrachapter}{#2}%
689        \chapter*{#3}{\GoDouble{#4}\par\GoSingle}%
690        \input{#1.ind}%
691      \end{simpleenv}%
692      \setboolean{SetDSPACE}{true}}
693    {\typeout{No file #1.ind found.}}}%
694  \newcommand{\see}[2]{\emph{see} #1}%

```

20.1 Handling Multiple Index Files

The following code is based on `multind.sty` by F. W. Long. The code allows multiple index files to be created and formatted independent of each other.

`\makeindex` This command opens a `.idx` file for TeX to write the results of the `\index` commands to, and enables the `\index` commands. If the preamble of the document doesn't contain a `\makeindex` command, then the `\index` commands are just ignored by the L^AT_EX 2_ε process.

```

695  % Special code for handling multiple indices.
696  \renewcommand{\makeindex}[1][\jobname]{\begingroup
697    \makeatletter
698    \if@filesw \expandafter\newwrite\csname #1idxfile\endcsname
699    \expandafter\immediate\openout \csname #1idxfile\endcsname #1.idx\relax
700    \typeout{Writing index file #1.idx }\fi \endgroup}
701  \@onlypreamble{\makeindex}%

```

`\index` This command just calls the `\@wrindex` command to send the the argument of the `\index` command to the corresponding `.idx` file.

```

702  \renewcommand{\index}[2][\jobname]{\@bsphack\begingroup
703    \def\protect##1{\string##1\space}\@sanitize
704    \@wrindex{#1}{#2}}

```

`\@wrindex` This command sends the argument of the `\index` command to an `.idx` file after verifying that the `.idx` file actually exists. Note that in the `\indexentry` command the page number will by default be formatted according to the `\RPset` command. To enable/disable displaying the page number in the typeset index, the `\RPset` command can be renewed to either the `\RSpnum` command (display page numbers) or the `\RSnopnum` command don't display page numbers).

```

705   \renewcommand{\@wrindex}[2]{\let\thepage\relax
706     \xdef\@gtempa{\@ifundefined{#1@idxfile}{}{\expandafter
707       \write\csname #1@idxfile\endcsname{\string
708         \indexentry{#2|\RPset}\thepage}}}\endgroup\@gtempa
709     \if@nobreak \ifvmode\nobreak\fi\fi\@esphack}

```

20.2 Formatting the Index

While the `\printindex` and `\makeindex` commands (and others) address the issues of creating multiple indices, we need to define how the indices are actually formatted. Fortunately with the MakeIndex program, the formatting commands can be created independent of the document class file.

`\IndexSet` In order to simplify the formatting of the indices, the `\IndexSet` command is used to define the parameters of *theindex* environment. This command will be referenced in the MakeIndex style files created with this document class.

```

710   \newcommand{\indxspace}{\par\vspace{\BaseDiff\baselineskip}}
711   \newcommand{\IndexSet}{%
712     \renewcommand{\@idxitem}{\par\setlength{\leftskip}{0pt}%
713       \setlength{\hangindent}{\RS@TOChdent}}%
714     \renewcommand{\subitem}{\par\setlength{\leftskip}{0.25in}%
715       \setlength{\hangindent}{\RS@TOChdent}}%
716     \renewcommand{\subsubitem}{\par\setlength{\leftskip}{0.5in}%
717       \setlength{\hangindent}{\RS@TOChdent}}%
718     \renewcommand{\indexspace}{}
719     \renewcommand{\indxspace}{\par\vspace{\BaseDiff\baselineskip}}
720     \renewenvironment{theindex}{%
721       \setlength{\parindent}{\z@}%
722       \parskip\z@ \@plus .3\p@\relax
723       \setlength{\rightskip}{\@tocrmarg}%
724       \setlength{\parfillskip}{-\rightskip}%
725       \let\item\@idxitem}
726   } %% End of the IndexSet definition

```

`\RSpnum` These macros will be used to format the page number display in the
`\RSnopnum` indices. The `\RSpnum` command is used when the page number is to
`\RPset`

be displayed, otherwise the \RSnopnum command should be used.

```
727 \newcommand{\RSpnum}[1]{\makebox[\@pnumwidth][r]{#1}}
728 \newcommand{\RSnopnum}[1]{\makebox[\@pnumwidth][r]{} }
729 \newcommand{\RSpset}[1]{\RSpnum{#1}}

730 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
731 %% Fixing the enumerate and itemize environments %%
732 %% by updating the general list parameters. %%
733 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
734 \renewcommand*{\@listi}{\leftmargin\leftmargini
735 \setlength{\topsep}{0in}%
736 \setlength{\partopsep}{0in}%
737 \setlength{\parsep}{0in}%
738 \setlength{\itemsep}{0in}}
739 \let\@listI\@listi
740 \@listi
741 \renewcommand*{\@listii}{\leftmargin\leftmarginii
742 \labelwidth\leftmarginii
743 \advance\labelwidth-\labelsep
744 \setlength{\topsep}{0in}%
745 \setlength{\parsep}{0in}%
746 \setlength{\itemsep}{\parsep}}
747 \renewcommand*{\@listiii}{\leftmargin\leftmarginiii
748 \labelwidth\leftmarginiii
749 \advance\labelwidth-\labelsep
750 \setlength{\topsep}{0in}%
751 \setlength{\parsep}{0in}%
752 \setlength{\partopsep}{0in}%
753 \setlength{\itemsep}{\parsep}}
754 \ifthenelse{\boolean{RS@CPage}}{%
755 \renewcommand{\ps@myheadings}{%
756 \let\@oddfont\@empty\let\@evenfoot\@empty
757 \def\@evenhead{\hfil\thepage\hfil}%
758 \def\@oddhead{\hfil\thepage\hfil}%
759 \let\@mkboth\@gobbletwo
760 \let\chaptermark\@gobble
761 \let\sectionmark\@gobble
762 }
763 }{}
764 %% Disabling some unused commands
765 \renewcommand{\author}{}
766 \renewcommand{\date}{}

767 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
768 %% UF Thesis Local Configuration %%
```

```

769      %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
770      \InputIfFileExists{ufthesis.cfg}{%
771      \typeout{*****}
772      \typeout{* Local config file ufthesis.cfg used *}
773      \typeout{*****}}{}
774      \typeout{ }
775      \typeout{*****}
776      \typeout{* \space \space Finished with Thesis Template}
777      \typeout{*****}
778      \typeout{ }
779      \AtBeginDocument{%
780      \typeout{*****}
781      \typeout{* Executing Begin Document Statement *}
782      \typeout{*****}
783      }
784      </class>

```

21 Style files for the MakeIndex Program

Included with this document class are two MakeIndex style files (`ufpage.ist` and `ufnpage.ist`) that may be used to format the generated index files. Please refer to the example thesis file for an example of how these style files are used.

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