usmthesis LaTeX template

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The usmthesis LATEXtemplate

- Latest version available at
  `https://github.com/wnarifin/usmthesis`
- Started by Lim Lian Tze, a former USM postgraduate student in 2005, until Jan 2023
- The latest version follows USM Thesis version 1.5 from IPS Word Template

How to use usmthesis

Steps in using usmthesis LaTeX:

1. Download from from https://github.com/wnarifin/usmthesis and extract
2. Follow instructions in `quickstart.pdf`
   - Setting up
   - Using the template
   - Compiling your thesis
3. Also follow formatting hints in `usmthesis.pdf`

Setting up

Descriptions of each file, of note are:

- usmthesis.tex – most important, edit sparingly as needed
- usmthesis.cls – important, USM style of the thesis, usually no need to edit, unless you know what you are doing
- other *.tex files – the contents of your thesis, edit as you will

Using the template

Options in usmthesis.tex:

- \documentclass[....]{usmthesis}
- Thesis particulars
- List of ... tables, figures, algorithms, abbreviations etc
- Acknowledgments and abstracts
- Chapters
- Appendix
- Bibliography – thesis and list of publications

documentclass

```
\documentclass[
times / arial, % default is Times New Roman
... and other options, no need to change ...
]{usmthesis}
```

Edit sparingly, latest edition is based on IPS v1.5 format

Thesis particulars

```
%% Enter particulars about your thesis HERE
% Your Name
\author{Lim Lian Tze}
% English title of your thesis
\title{Writing Your Thesis with LaTeX with a Very, Very, Very Long Title}
% Malay title of your thesis
\titlems{Penulisan Tesis dengan LaTeX}
% Year submitted
\submityear{2022}
% Month submitted
\submitmonth{September}
%% Choose only 1 degree type! :-)
\degreetype{Doctor of Philosophy}
% \degreetype{Master of Science}
```

Self explanatory, must be edited accordingly for obvious reasons

List of ...

The options are scattered at several places in the usmthesis.tex

```
\listoftables \clearpage % when you include table as \begin{table}
\listoffigures \clearpage % when you include figure as begin{figure}
...
\listofplates \clearpage % when you include image as \begin{plate}
...
\listofalgorithms \clearpage % when you include algorithm \begin{algorithm}
...
% -- list of symbols, abbreviations, appendix --
\include{lo-sym} % mathematical symbols
\include{lo-abb} % abbreviations
\include{lo-app} % appendix
```

Very important, *uncomment*/comment (i.e. remove the %) to
include/exclude the list of ...

List of Tables, Figures, Images and Algorithms

```
\listoftables \clearpage % when you include table
\listoffigures \clearpage % when you include figure
...
\listofplates \clearpage % when you include image
...
\listofalgorithms \clearpage % when you include algorithm
...
```

The lists are added automatically as you use

```
\begin{table}...\end{table}
\begin{figure}...\end{figure}
\begin{plate}...\end{plate}
\begin{algorithm}...\end{algorithm}
```

List of Symbols

```
\include{lo-sym} % mathematical symbols
```

The list is edited manually for the mathematical symbols used throughout the thesis in `lo-sym.tex`

```
\chapter{List of Symbols}

\begin{acronym}[lim\quad]
\acro{lim}[$\lim{}$]{Limit}
\acro{theta}[$\theta{}$]{Angle in radians}
\end{acronym}
```

List of Abbreviations

```
\include{lo-abb} % abbreviations
```

The list is edited manually for the abbreviations used throughout the thesis in `lo-abb.tex`

```
\chapter{List of Abbreviations}

\begin{acronym}[UTMK\quad]
\acro{IPS}{Institut Pengajian Siswazah}
\acro{PPSK}{Pusat Pengajian Sains Komputer}
\acro{USM}{Universiti Sains Malaysia}
\acro{UTMK}{Unit Terjemahan Melalui Komputer}
\end{acronym}
```

which can be reused in the thesis text as `\ac{IPS}`. The first use will utilize the full name, while the second use and so on will use the abbreviation

List of Appendices + the Appendices

```
\include{lo-app} % appendix
...
\appendix
...
\input{appendices}
```

The list is edited manually in `lo-abb.tex`

```
\chapter{List of Appendices}

\begin{acronym}[APPENDIX A\quad]
\acro{APPENDIX A}{\uppercase{Data Used}}
\acro{APPENDIX B}{\uppercase{UML Diagrams}}
\end{acronym}
```

However, edit `appendices.tex` for the files to be included as appendix

```
\include{app-data}
\include{app-uml}
```

Front Matters

Acknowledgments, the Malay and English abstracts are added by these lines and the respective .tex files

```
\include{acknowledgement} % acknowledgement.tex
...
\input{abs-mal} % abs-mal.tex
\input{abs-eng} % abs-eng.tex
```

Edit the content of each of these .tex files

Thesis Chapters

For the main thesis chapters, open `mainchaps.tex` file. This is actually added by this line

```
\input{mainchaps}
```

By default, the file includes the following files:

```
\include{chap-intro}
\include{chap-review}
\include{chap-design}
\include{chap-implementation}
\include{chap-discussion}
\include{chap-conclusion}
```

Please change the name of the files and edit the \include{<name>} tag accordingly. This will change as different students will have different chapters

Thesis Bibliography and List of Publications

The references and list of publications are added by these lines:

```
\bibliographystyle{apacite}
\bibliographystyleown{apacite}
...
\bibliography{mybib}    % uses mybib.bib
...
\nociteown{lim:2007,lim:latextypesetting}  % bibtex keys
\bibliographyown{mybib} % your publications
```

Change "mybib" to other name e.g. own.bib if you use a separate .bib file

Summary of what to edit

- `acknowledgements.tex, abs-mal.tex` and `abs-eng.tex`
- `mainchaps.tex` – edit according to your chapter file names
- `chap-*.tex` – edit as you please, but make sure edit mainchaps.tex
- `loa-sym.tex, loa-abb.tex, loa-app.tex` – edit accordingly to be reflected in \include{loa-*}
- `appendix.tex` – add file names for the appendices

Compiling your thesis

Four steps (in command line):

1. pdflatex usmthesis
2. bibtex usmthesis
3. bibtex own
4. pdflatex usmthesis

MUST replicate these four steps in your LATEX editor of choice, else just use the command line

Compiling in TEXmaker

TEXmaker specific tips:

- Must follow the four steps to make sure list of publications appear
- Open usmthesis.tex, go to **Options** ▷ **Define** current document as 'Master Document' – then compile according to the four steps: 1. PDFLaTeX, 2. BibTeX, 3. BibTeX Own, 4. PDFLaTeX
- Setup **Options** ▷ **Configure Texmaker** ▷ **Quick Build** – PDFLaTeX + BibTeX + PDFLaTeX + View PDF
- Noted that bibtex own only need to be successful once, only must be run again if you make changes to your list of publications

Happy LaTeXing!