Abstract

Starting with the 2014/15 academic year, the Computer Science department at Bangor University have standardised the appearance, layout and formatting of all thesis/dissertation documents for all levels (undergraduate and postgraduate).

This package (containing a \LaTeX document class) is the embodiment of that standard. It includes all of the elements of a thesis, and supports a limited number of customisation options that individual students may choose (or their supervisors may insist upon). It also makes the process of creating a thesis very much simpler with the inclusion of several macros (\LaTeX commands) that streamline the process.

1 Usage - Class Options

The document class is activated (or loaded) using the usual \LaTeX command \documentclass{bangorcsthesis}. The class requires at least one of the following options to be specified, these dictate what type of thesis the document forms;

- \langle \textit{phd} \rangle - Doctor of Philosophy / Doctorate
- \langle \textit{pgcert} \rangle - Postgraduate Certificate
- \langle \textit{mphil} \rangle - Master of Philosophy
- \langle \textit{mscres} \rangle - Master of Science by Research
- \langle \textit{mres} \rangle - Master of Research
- \langle \textit{msc} \rangle - Master of Science (Taught courses)
- \langle \textit{ba} \rangle - Bachelor of Arts (Undergraduate courses)
- \langle \textit{bsc} \rangle - Bachelor of Science (Undergraduate courses)
- \langle \textit{beng} \rangle - Bachelor of Engineering (Undergraduate courses)
- \langle \textit{meng} \rangle - Master of Engineering (Integrated Masters)

For example; an undergraduate dissertation for a Computer Science degree (a B.Sc. course) would start with a document class definition as follows:-
\documentclass[bsc]{bangorcsthesis}.

There are also the following entirely optional modifiers that student’s can elect to use;

- \langle \textit{noindent} \rangle - Suppress indentation of first lines of paragraphs.
- \langle \textit{nohyphen} \rangle - Attempt (as far as possible) to prevent \LaTeX hyphenating words at the ends of lines in the output.
- \langle \textit{draft} \rangle - Mark the document as draft, this includes adding a watermark to all pages. This is highly recommended until the document is final.
- \langle \textit{serif} \rangle - Convert the thesis to use serif fonts for the main body text.
- \langle \textit{serifheadings} \rangle - Convert the thesis to use serif fonts for the headings.
- \langle \textit{twoside} \rangle - Make the output ‘two-sided’, much like a book. This may only be required for the final copy to be deposited in certain libraries.
- \langle \textit{nocentredcaptions} \rangle - Make all captions left-aligned, including one line captions.
2 Usage - Preamble Macros

The class includes several macros that must be used in the preamble, the portion of the document before \begin{document}. These set several important parameters such as the degree scheme, supervisors and author details.

\title{⟨title⟩} The title of the thesis/dissertation. This macro is not provided by this class but is required in the preamble.

\author{⟨author⟩} The author of the document. Not provided by this class, but required in the preamble. It is recommended that the author name is specified as First M.I. Last.

\date{⟨date⟩} The date of the document. It is recommended that the date argument is set to the month and year of submission of the thesis in full, e.g. May, 2014. This macro is not provided by this class but is required in the preamble.

\degreeScheme{⟨scheme name⟩} This macro must be used to set the title of the student’s overall degree scheme. It has a single parameter, the name will be reproduced (verbatim) on the title/cover page of the thesis. Use of this macro is required.

\supervisor{⟨name⟩} The \supervisor macro adds a named supervisor to the student’s thesis. (In theory) an unlimited number of these commands can be used, although L\TeX has internal memory limits. When there is more than one supervisor defined, the title/cover page changes to accommodate them appropriately. At least one supervisor must be included.

\bibliographySetup \[⟨compressed⟩\] This macro configures BibLaTeX, the successor to BibTeX, to departmental standards. The Computer Science department have standardised on IEEE referencing, using Name, Year, Title ordering. This means that the first citation to appear may not be numbered [1] in the thesis. Use of this macro is required. If the compressed option is set the bibliography style will be altered to produce one set of brackets for multiple citations in one command. Please note, this violates the IEEE style guide.

\addbibresource {⟨name.bib⟩} The \addbibresource macro is not provided by this package, but is required in the preamble. The parameter is the name of the BibLaTeX/BibTeX database that should be processed for the document.

3 Usage - Other Items

\acknowledgements \[⟨quote text⟩\] \[⟨person quoted⟩\] \{⟨acknowledgements⟩\} The \acknowledgements macro creates the standard acknowledgments page for the front of the thesis. Use of this macro is optional although highly recommended as there is usually someone to thank for contributing to your work (including your supervisor). You can optionally include an inspirational and/or funny quote for the top of the page. If you do not wish to include the quote, simply omit the optional arguments.

\statements \[⟨signature image filename⟩\] This macro creates the required statements page for the front matter of a thesis. This must be included, failure to do so can result in the thesis being rejected as it cannot be accepted into the University library or other depositories. If the signature image filename parameter is included, this image is included instead of a white space for you to sign manually.

\tables The \tables macro creates the appropriate tables (of contents, of figures and of tables) for the front matter of the thesis. Tables of figures and tables of tables are only included when
figures and tables are included in the document text respectively. If the thesis includes other items (for example code listings), you are responsible for including tables of these items yourself after the use of this macro.

\thesisContent

This macro marks the start of the actual ‘content’ of the thesis, separate from the ‘front matter’ (contents, etc.) and the appendices. Use of this macro is required to maintain correct formatting.

\references

This macro starts the appendices for the thesis and generates an appropriately formatted ‘References’ list. This differs from a Bibliography as it only contains items specifically cited in the thesis text whereas a Bibliography should contain everything that has been read/used during the preparation of the thesis. If the small parameter is included, the font and spacing are altered for the references section to present a more compact form.

\chapterquote

The \chapterquote macro can be used to produce ‘heading’ quotes for the start of chapters, similar to that in the Acknowledgements. All three arguments are required, however they can be supplied with {}, the empty block, to effectively remove them.

4 Document Section Order

The Computer Science Thesis has a very specific section order; this does not prescribe the format of your thesis, just the front and back matter.

1. Title/Cover Page
2. Acknowledgments Page
3. Statements Page
4. Contents
5. Tables
6. Thesis Content
7. References
8. Other Appendices

5 Skeleton Thesis

A very much skeleton document is provided here as a starting point when using this document class.

\documentclass[bsc,noindent,nohyphen]{bangorcsthesis}
\title{Thesis Title}
\author{Just A. Student}
\degreeScheme{Computer Science}
\date{May, 2015}
\supervisor{Dr. S.P.R. Visor}
\bibliographySetup
\addbibresource{file.bib}
\begin{document}
\maketitle
\acknowledgements[Quote][Person Quoted]{Acknowledgements}
\statements
\begin{abstract}
... thesis abstract...
\end{abstract}
\end{abstract}
\begin{document}

\section{The Code}

\begin{verbatim}
\def\version{1.5.5}
\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{bangorcsthesis}[2022/01/28 \version C. Gray]
\% Originally inspired by Clean Thesis
\% - http://cleanthesis.der-ric.de/
\% Developed further by C. Gray
\\def\degreeScheme#1{\def\@scheme{#1}}
\\RequirePackage{fifo-stack}
\\FSCreate{supervisors}{}
\\def\supervisor#1{\FSPush{supervisors}{#1}}
\\RequirePackage{ifthen}
\\RequirePackage{xkeyval}
\\RequirePackage[dvipsnames]{xcolor}
\\RequirePackage[T1]{fontenc} % font types and character verification
\\RequirePackage[UKenglish]{babel}
\\RequirePackage[UKenglish]{isodate}
\\RequirePackage[utf8]{inputenc}
\\RequirePackage{xparse}
\%
\%
\% **************************************************
\%
\% Degree Scheme Options
\%
\% **************************************************
\\DeclareOption{bsc}{\newcommand{\degree}{Bachelor of Science}}
\\DeclareOption{ba}{\newcommand{\degree}{Bachelor of Arts}}
\\DeclareOption{beng}{\newcommand{\degree}{Bachelor of Engineering}}
\\DeclareOption{msc}{\newcommand{\degree}{Master of Science}}
\\DeclareOption{meng}{\newcommand{\degree}{Master of Engineering}}
\\DeclareOption{mscres}{\newcommand{\degree}{Master of Science by Research}}
\\DeclareOption{mres}{\newcommand{\degree}{Master of Research}}
\\DeclareOption{mphil}{\newcommand{\degree}{Master of Philosophy}}
\\DeclareOption{phd}{\newcommand{\degree}{Doctor of Philosophy}}
\end{verbatim}

\end{document}
\DeclareOption{pgcert}{\newcommand{\degree}{Postgraduate Certificate} \newcommand{\pgcert}{\relax}}
\newboolean{@draft}
\setboolean{@draft}{false}
\DeclareOption{draft}{\setboolean{@draft}{true}}
\newboolean{@nohyphen}
\setboolean{@nohyphen}{false}
\DeclareOption{nohyphen}{\setboolean{@nohyphen}{true}}
\newboolean{@noindent}
\setboolean{@noindent}{false}
\DeclareOption{noindent}{\setboolean{@noindent}{true}}
\newboolean{@centredcaptions}
\setboolean{@centredcaptions}{true}
\DeclareOption{nocentredcaptions}{\setboolean{@centredcaptions}{false}}
\define@choicekey*{bangorcs}{figuresep}{none,colon,period,space,quad,newline,endash}{:}{\def\bangorcs@figuresep{#1}}
\setkeys{bangorcs}{figuresep=colon}
% **************************************************
% Font Definitions (see http://www.tug.dk/FontCatalogue/)
% **************************************************
\newboolean{@sansserif}
\setboolean{@sansserif}{true}
\DeclareOption{serif}{\setboolean{@sansserif}{false}}
\newboolean{@sansserifheadings}
\setboolean{@sansserifheadings}{true}
\DeclareOption{serifheadings}{\setboolean{@sansserifheadings}{false}}
\setboolean{@twoside}{false}
\DeclareOption{twoside}{\PassOptionsToClass{\CurrentOption}{report}\setboolean{@twoside}{true}}
\ProcessOptions\relax
\ifx\degree\undefined
\ClassError{bangorcsthesis}{A degree type option has not been defined; use ba, bsc, beng, meng, msc, mscres, mres, mphil or phd in the class options.}
\fi
\LoadClass[12pt]{report}
\RequirePackage{tocloft}
\if@nohyphen
\tolerance=1
\sloppy
\emergencystretch=\maxdimen
\hyphenpenalty=10000
\hbadness=10000
\fi
\RequirePackage{parskip}
\setlength{\parskip}{1.5em}
\if@noindent
\setlength{\parindent}{0in}
\else
\fi
\LoadClass[12pt]{report}
\RequirePackage{tocloft}
\if@nohyphen
\tolerance=1
\sloppy
\emergencystretch=\maxdimen
\hyphenpenalty=10000
\hbadness=10000
\fi
\RequirePackage{parskip}
\setlength{\parindent}{1.5em}
\if@noindent
\setlength{\parindent}{0in}
\else
\fi
\begin{thebibliography}{10}

\begin{footnotesize}
\setlength{\itemsep}{1ex}
\setlength{\bibitemsep}{0.7\itemsep}
\end{footnotesize}
\end{thebibliography}
\end{document}
\RequirePackage{%modify figure and table captions
\textfont{\small}, \% - small font size
\labelfont{\bf, \sf}, \% - label in bold, sans-serif and accessory colour
\labelsep{\bangorcs@figuresep}, \% - separator: none, colon, period, space, quad, newline, endash
\singlelinecheck{false} \% - no centred single-lined captions
\caption{}}
%
% **************************************************
% Sectioning Commands
% **************************************************
%
% own font definitions
\newcommand*{\helv}{\tgherosfontfoot\fontsize{9}{11}\selectfont}
\newcommand*{\book}{\tgherosfontfoot\fontseries{m}\fontsize{11}{13}\selectfont}
\newcommand*{\thesispartlabelfont}{\book\fontsize{60}{60}\selectfont}
\newcommand*{\thesispartfont}{\huge \tgherosfont\selectfont}
\newcommand*{\thesischapterfont}{\huge \tgherosfontfoot\selectfont}
\newcommand*{\thesissubsectionfont}{\Large \tgherosfontfoot}
\newcommand*{\thesisparagraphfont}{\tgherosfont\small\bfseries}
%
% **************************************************
% Sectioning
% **************************************************
%
% -- modifications regarding sectioning (structural) commands,
% i.e. \part, \chapter, \section, \subsection, \subsubsection, \paragraph
% %
% %
% %
% % The package titlesec enables us to modify (style) the sectioning commands
% \titleformat{\chapter}{\display}{\chaptername\ \thechapter}{-4mm}{\Huge}
% \titlespacing*{\chapter}{0pt}{2mm}{10mm}
% %
% %
% %
% % > adjusts the indentation for figure and table entries (lof and lot)
% \cftsetindents{entry}{indent}{numwidth} sets the entry’s indent to
% the length indent and its numwidth to the length numwidth
\path[fill=c231f20,nonzero rule] (3298.9200,8.7812) -- (3029.6400,8.7812) -- (2711.8500,3.9414) -- (2711.8500,3.9414);

controls (3229.6200,341.8710) and (2837.4700,330.5590) .. (2820.6200,286.1290) -- (2712.6200,5.9922) -- (2887.3000,330.5590) -- (2880.9000,8.7812) .. controls (3029.6400,8.7812) and (3029.6400,341.8710) .. controls (3229.6200,341.8710) and (3229.6200,286.1290) .. controls (3220.6200,8.7812) -- (2711.8500,3.9414) -- (2711.8500,3.9414);
The work presented in this thesis/dissertation is entirely from the studies of the individual student, except where otherwise stated. Where derivations are presented and the origin of the work is either wholly or in part from other sources, reference is given to the original author. This work has not been presented for any degree, nor is it at present under consideration by any other degree awarding body.

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