

The uccthesis L^AT_EX 2_ε document class*

Typesetting a UCC thesis with L^AT_EX

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Summary

This is a L^AT_EX document class for typesetting theses at University College Cork, according to the layout rules specified by the Registrar, Academic Council, and the Graduate Studies Office.

These rules (especially the naming of degrees and the disciplines within which they are granted) are subject to change from time to time, so before using this software, please check

<http://research.ucc.ie/latex/> to see if there is an updated version.

This is a late draft for testing. All users at this stage are regarded as testers, and should report any difficulties with the software or the documentation in the first instance to epu@ucc.ie.

You need a copy of the L^AT_EX software and a suitable editor on your computer in order to use this document class. If you are new to L^AT_EX, please ensure that you read the documentation referred to in

<http://research.ucc.ie/latex/> before starting.

*This document corresponds to uccthesis v. 1.19 β , dated 2014/05/30.

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To struggling authors everywhere

Acknowledgements

My thanks go to all the people who have kept me supplied with solutions to formatting problems which I have been able to incorporate into this package.

Thank you also to the inhabitants of the `comp.text.tex` Usenet newsgroup for answering questions, and for their work in writing and maintaining all the packages on which this class depends.

Most of all, thanks to the patient students of UCC who waited for me to finish this.

What's new?

The Change History on page 172 which lists the stages of development, and the Index lists every $\text{T}_{\text{E}}\text{X}$ and $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ command used in the class. Technically-minded authors might want to examine the commented listing in section 9 on page 47: there is much to be gained from understanding how something works.

From version 0.95 this class is distributed in the standard DTX format. Please read the installation instructions in section 1 on page 13.

Main differences from $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$'s default classes

- You MUST start by declaring the document class `uccthesis` instead of `article`, `book`, or `report` (details on page 17)
- You MUST use at least two options in your document class declaration: one for your discipline and one for your degree (details on page 17)
- You MUST specify your Supervisor[s] and Professor (Head of School or Department) using the special commands provided in section 2.2 on page 18. (You give your title, author, and date in the normal way.)
- The Table of Contents, List of Figures (if used), List of Tables (if used), and Declaration are all automated: you SHOULD NOT include commands for these yourself (see section 3 on page 26)
- There are new environments for your Acknowledgements, Dedication, and any preliminary explanatory sections, if you need them, before your first Part or Chapter (see section 3.1 on page 26)
- There is an optional Epigraph (cited quotation) which you can use immediately after a chapter title (see '`epigraph`', the first item in the list in section 3.2.5 on page 30)
- The Quotation environment now has an optional argument for a $\text{BibT}_{\text{E}}\text{X}$ citation key (see '`quotation`', the second item in the list in section 3.2.5 on page 30)
- The default format is draft-mode, 1½-line-spaced, unjustified text, no indentation, and a line-space between paragraphs. These defaults (except draft mode) were set to maximise readability, but can be changed via class options: see the list in section 2.3 on page 23
- Some 30 or so packages are preloaded (according to the options you choose for the document class): see Table 11 on page 42. You

SHOULD NOT re-specify any of these if they have already been loaded

Introduction to L^AT_EX

L^AT_EX is a document preparation system for the T_EX typesetting program. It is designed to automate all the tedious and repetitive tasks of preparing a document, freeing authors to concentrate on their writing.

While it can also be used for almost any typesetting task, it is ideal for long or complex documents (the two are not necessarily synonymous), especially for documents with a well-defined structure such as books, articles, journals, theses, reports, white papers, and manuals.

Although it originally came from the disciplines of mathematics and computing science, it is nowadays equally at home in the Humanities, thanks to the enormous range of add-ons or plug-ins ('document classes' and 'packages'), and the extensive range of typefaces, which extend the basic typesetting capabilities into hundreds of specialist areas and formatting requirements.

What You Got Is What You Gave Me

L^AT_EX is a typesetter, not a wordprocessor. It has no graphical interface of its own — instead, you can choose one of many L^AT_EX editors available, or use your own favourite plaintext editor.

L^AT_EX works by formatting your text according to how you have labelled it. If you label some text as a section title, that is how it will be formatted. If you mislabel it, L^AT_EX cannot guess how you really wanted it: you have to tell it.

Documentation and training

If you haven't used L^AT_EX before, you should read the online beginners' guide, *Formatting Information* (Flynn, 2011) from <http://latex.silmaril.ie/formattinginformation/>, and install the latest version of the software from the T_EX Collection DVD issued by the T_EX Users Group (<http://www.tug.org/>). UCC is a TUG member and the DVD can be obtained from the Computer Centre Electronic Publishing Unit. The software is free in both senses: free of restrictions (it can be copied and given away); and also free of charge.

- Unix and GNU/Linux users do not normally need the DVD: the software can be installed online as `texlive-full` from each distribution's own archive or Software Centre (eg `yum`, `rpm`, `apt`,

Synaptic, etc). A choice of editors and viewers is available the same way.

- Apple Mac users should use the DVD or download the latest MacTeX.mpkg.zip from <http://tug.org/mactex/> (about 1.5Gb);
- Windows users should use the DVD and select the *ProT_EXt* distribution. Details of how to do this are in *Formatting Information* (Flynn, 2011).

The Training Centre holds occasional 1-day beginners' courses in L^AT_EX: contact tcentre@ucc.ie for details.

L^AT_EX support (questions about L^AT_EX itself, not about the uccthesi document class)

T_EX and L^AT_EX are strongly supported by millions of users worldwide, and by the teams of developers organised around the T_EX Users Group and other users groups around the world.

There are therefore lots of places you can ask or search for help, depending on how common or rare your query is. Before you post a question on a web site or mailing list or newsgroup, make sure you are providing enough information for people to understand what you are trying to do. Best of all, have a minimal example that you can upload, that demonstrates what you want, or how what you are trying doesn't work.

1. The T_EX FAQ maintained by the UK T_EX Users Group on behalf of the worldwide T_EX community at <http://www.tex.ac.uk/faq> — always try here first, to make sure you're not asking something that a million people before you have asked
2. The UCC L^AT_EX mailing list tex-users@lists.ucc.ie — this is open to all: those who go on the 1-day course are automatically added; anyone can join at <http://lists.ucc.ie/tex-users.html>
3. The island-wide public mailing list italic-1@listserv.heanet.ie for the Irish T_EX And L^AT_EX In-print Community at <http://listserv.heanet.ie/italic-1.html>
4. The Usenet newsgroup [comp.text.tex](http://www.google.com/search?q=comp.text.tex) (ask your ISP for access, or use the Google Groups interface). This is the principal technical forum, monitored by the designers and developers. High-volume (which is why it's a newsgroup, not a web site or mailing list), but full of information
5. A native Google Group called latexusersgroup@gmail.com

6. Hundreds of web sites, led by the excellent `tex.stackexchange.com`, whose searchable archive and votable answers make it heavily used
7. Online and on paper: *TUGboat*, the quarterly journal of the T_EX Users Group. Reference copies are available in UCC; email `latex@ucc.ie` or check the index at <http://tug.org/tugboat/>.
8. Dozens of languages and cultures have T_EX users groups for communication, development of their own typefaces and resources: see the list at <http://tug.org/usergroups.html>

Terminology

T_EX and L^AT_EX terminology and appearances used in this document are highlighted in the following ways:

- The names of class options and package options are shown in **bold monospace type**;

Example: `phd`

Class options are the ones you use in the `\documentclass` (first) line of your document; package options are the ones you use in `\usepackage` commands in your Preamble. Class and package options always go in [square brackets] between the command and the curly brace of the argument.

- The names of document classes and packages are shown in sans-serif type;

Example: `xcolor`;

- The names of L^AT_EX commands are in monospace type;

Example: `\appendix`;

- Where it is important to demonstrate the arguments that a command may take, they are shown mnemonically in angled brackets; this means you must replace them with meaningful values of your own:

Examples: `\prelim{<title>}`, `\project[<option>]{<name>}`;

- The names of environments are in monospace type;

Example: `dedication`.

Commands and environments are also shown in the margin, if specially relevant, and can be found in the Index.

The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL have a specific meaning when shown in THIS TYPESTYLE, following the specification in RFC 2119 (Bradner, 1997).

1 Installation

Please note

As of June 2012 these instructions have changed. This class is now distributed as a TDS-conformant zip file.

Please remove any earlier copy you may have been using, because the subfolders have changed.

You MUST have a full T_EX system installed before you can use this document class. L^AT_EX is a part of every full T_EX installation. Please see the details on page 9. For further information and a copy of the installation DVD, contact the Electronic Publishing Unit. T_EX is also available online at <http://www.tug.org/interest.html#free> or from the T_EX Users Group or a local user group.

For personal use, this class MUST be installed in the same way as any add-on L^AT_EX package or document class: *in your personal T_EX folder* as described in section 1.1 on the following page, *not*, repeat NOT in the main or local T_EX folders used by your T_EX system installation.

If this is the first time you have installed a package or class like this, or if you haven't yet set up your personal T_EX folder, see section 1.1 on the next page first.

Installation on shared (multiuser) systems is different: see the instructions for systems administrators in section 1.2 on page 15.

Instructions for personal users

1. Download the uccthesi document class zip file from the link in <http://research.ucc.ie/latex/>. This is only accessible from UCC IP addresses
2. Unzip the uccthesi-n.nn.tds.zip file directly into your personal T_EX folder.
3. Users of MiK_T_EX on Windows MUST update the FNDB after installation (see the list 'Updating the FileName DataBase' in section 1.1.2 on page 15), otherwise L^AT_EX will not find the new files.

UCC users must also download and install the ucccrest from <http://research.ucc.ie/latex/#uccclasses> (section 2.4.1). This is only

accessible from UCC IP addresses, as the crest is restricted to UCC students. You unzip this file into your personal T_EX folder in the same way as for the document class above.

1.1 Your personal T_EX folder

If you don't have a personal T_EX folder yet, create one now. The place for your personal T_EX folder is different on Apple Mac, Linux, and Windows systems:

Operating System	Location of your personal T _E X folder
Apple Macintosh OS X	~/Library/texmf
Unix and GNU/Linux	~/texmf
Microsoft Windows	
• 95/98/XP/2003	C:\texmf
• 2007/2010 and up	Computer\System\Users\ <i>your name</i> \texmf

If this folder does not already exist on your computer, create it now.

1.1.1 Unix, GNU/Linux, and Apple Macintosh OS X

You do not need to run *texhash* or *mktexlsr* after installing software into your personal T_EX folder (indeed, you should *not* do so).

1.1.2 MiK_TE_X on Windows

For users of MiK_TE_X on Windows, there is an additional task after you create your personal T_EX folder:

1. Run the MiK_TE_X *Settings* program by clicking on the **Start** | Programs or **Windows** | Programs button, and then click on | MiK_TE_X x.y | Maintenance | *Settings*;
2. Click on the **Roots** tab;
3. Click the **Add** button;
4. Navigate to your new texmf folder;
5. Click **OK**.

On subsequent occasions (when you install software or updates manually) you must update the FileName DataBase (FNDB):

Updating the FileName DataBase

1. Run the *MiKTeX Settings* program as before;
2. In the **Main** tab, click the **Refresh FNDB** button.

You MUST do this after installing or updating software in your personal T_EX folder, otherwise MiKTeX won't find anything.

1.2 Installation on a shared (multiuser) computer

If you need to install the files on a shared (multiuser) system, you need to be root (Administrator). If you are not, ask your local systems administrator to do it for you.

1. Identify where the local shared T_EX directory is. This is conventionally something like `/usr/local/share/texmf/` or `/usr/local/texlive/2012/./texmf-local` but you can find out by typing the command:

```
kpsewhich -expand-var '$TEXMFLOCAL';
```

2. Unzip the `uccthesi-n.nn.tds.zip` and the `ucccrest.zip` files into this folder;
3. Run the T_EX index program *texhash* (some systems call this *mktexlsr*) to update the fast-find (`ls-R`) database. Until you do this, your L^AT_EX users will not be able to find the files.

These instructions are for Unix-based systems, including GNU/Linux and Apple Macintosh OSX. If someone would like to provide me the equivalents for shared Windows systems I would be pleased to include them.

1.3 Manual installation

This is only for older or non-TDS-conformant systems. Do not use this method on modern systems.

1. Download and unzip the `uccthesi-n.nn.tds.zip` file into a temporary directory (eg `/tmp`), *without* preserving all the paths: use the `-j` option to *unzip* to do this
2. Run *pdflatex* on `uccthesi.ins`. This will re-extract the `uccthesi.cls` file (so the program will ask you if you want to overwrite it: answer yes by typing `y` and pressing the Return or Enter key)

3. Move or copy the files into a location where your installation of T_EX will find them. This varies from distribution to distribution: it is sometimes known as ‘the TEXINPUTS directory’, but it is *your responsibility* to know where this is.
4. Repeat the procedure for the `ucccrest.zip` file.
5. Run the T_EX index program `texhash` (some systems call this `mktexlsr`) to update the fast-find (`ls-R`) database. Until you do this, your L^AT_EX users will not be able to find the files.

1.4 Testing the installation

The file `thesis-example.tex` (one-sided) is provided as an example to test the document class with.

Move this file into your `Documents` folder (or somewhere else you keep documents) and open it with your L^AT_EX editor and click Typeset or pdfL^AT_EX to typeset it. This should create a file `thesis-example.pdf` that you can open in your PDF reader or viewer.

MiK_TE_X users please note you CANNOT do this in your personal T_EX folder or any of its subfolders, as MiK_TE_X will not run L^AT_EX in those folders. You must move the document to somewhere else to process it.

2 Author's Guide — How to set up your thesis

The first line of your thesis document MUST say

```
\documentclass[options]{uccthesis}
```

where *options* is a list of options separated by commas. Two options are compulsory (see section 2.1):

1. one option for specifying your discipline or affiliation, taken from the tables in section 4 on page 33;
2. one option for specifying your class of degree, taken from the tables in section 5 on page 37.

In addition, you can also use any of the other options explained in section 2.3 on page 23 that you find relevant.

Apart from the title page (see section 2.2 on the following page) and a few additional structures (see section 3.2.5 on page 29), the remainder of your document SHOULD use standard L^AT_EX commands, environments, and packages which you can find explained in *Formatting Information* (Flynn, 2011) or any book or web site on how to use L^AT_EX.

2.1 Selecting your discipline and class of degree

1. You MUST select one of the options for your College, Faculty, School, Department, or discipline from the first column in the lists in Table 2 to Table 6 on pages 33–36.
2. You MUST select one of the options for the class of degree for which you are submitting from the first column in the lists in Table 7 to Table 10 on pages 37–40.

These options automatically use the official names of the disciplines and degrees granted by UCC: you cannot make up your own. The two options are mutually exclusive within their respective lists: you can only use one of each. Consult your supervisor if you are unsure.

The disciplines and degrees change from time to time, and are updated in this class when they become known. Older names and codes are kept (but undocumented) so that your thesis will remain processable as long as L^AT_EX is around (nearly 30 years so far, and going strong).

2.2 Setting up your title page

The title page of your thesis follows the rules set down by the Registrar's Office and the Graduate Studies Office. This package does the formatting automatically if you provide the right information.

You will have already given your class of degree and your discipline or affiliation in the `\documentclass` options described in section 2.1 on the previous page.

You MUST provide the following (see Figure 1 on the next page for an example):

1. Your thesis title;
2. Your full name;
3. The date of submission;
4. The name[s] of your Supervisor[s];
5. The name of your Professor or Head of Department, School, or Discipline.

These are done with standard L^AT_EX `\title`, `\author`, and `\date` commands, plus two additional commands which are compulsory: `\supervisor` and `\professor`.

The `\title` command has an optional argument where you can supply a short title for use in running headers and footers, eg¹

```
\title[Nucleotide sequence of mitochondrial maxicircle DNA]
  {The nucleotide sequence of a 3.2 kb segment of mitochondrial
  maxicircle DNA from \textit{Crithidia fasciculata} containing
  the gene for cytochrome oxidase subunit III, the N-terminal
  part of the apocytochrome  $\$b\$\$  gene and a possible frameshift
  gene}
\subtitle{Further evidence for the use of unusual initiator triplets
  in trypanosome mitochondria}
```

You MAY also provide any of the following:

6. Your existing postgraduate or professional qualifications, if relevant and permitted (see section 2.2.2 on the following page);
7. A subtitle for your thesis (see section 2.2.3 on page 21);
8. The volume number and total number of volumes² (see section 2.2.4 on page 21);
9. Your Institute, Research Centre, Unit, or Hospital, if appropriate (see section 2.2.5 on page 21);

¹<http://nar.oxfordjournals.org/content/15/1/51.abstract>

²This is compulsory if there is more than one volume to your thesis.

Figure 1: Example title block of a \LaTeX UCC thesis document

```
\documentclass[german,phd]{uccthesi}
\begin{document}
\title{Goethe's political involvement in Italy}
\subtitle{Sturm und Drang in Malcesine}
\author{Wilhelm Werther}
\qualifications{bb}
\date{May 2011}
\professor{Prof NE One}
\supervisors{Dr AN Dere\\Mr AN Other}
\sponsor{The Goethe Institut, Dublin}
\maketitle
...
\end{document}
```

See the output in Figure 2 on the next page.

10. The name of your sponsor or funding organisation or person, if relevant (see section 2.2.6 on page 22).

The title block commands MAY occur in any order, but they MUST be terminated in the normal way with the `\maketitle` command. See the example in Figure 1 and the output in Figure 2 on the following page.

2.2.1 Professor and Supervisor

Give the name of your Professor (or Head of College, School, Department, or Discipline) with the command `\professor`. Give the name of your Supervisor with the command `\supervisor` (but see the note below). These commands are compulsory.

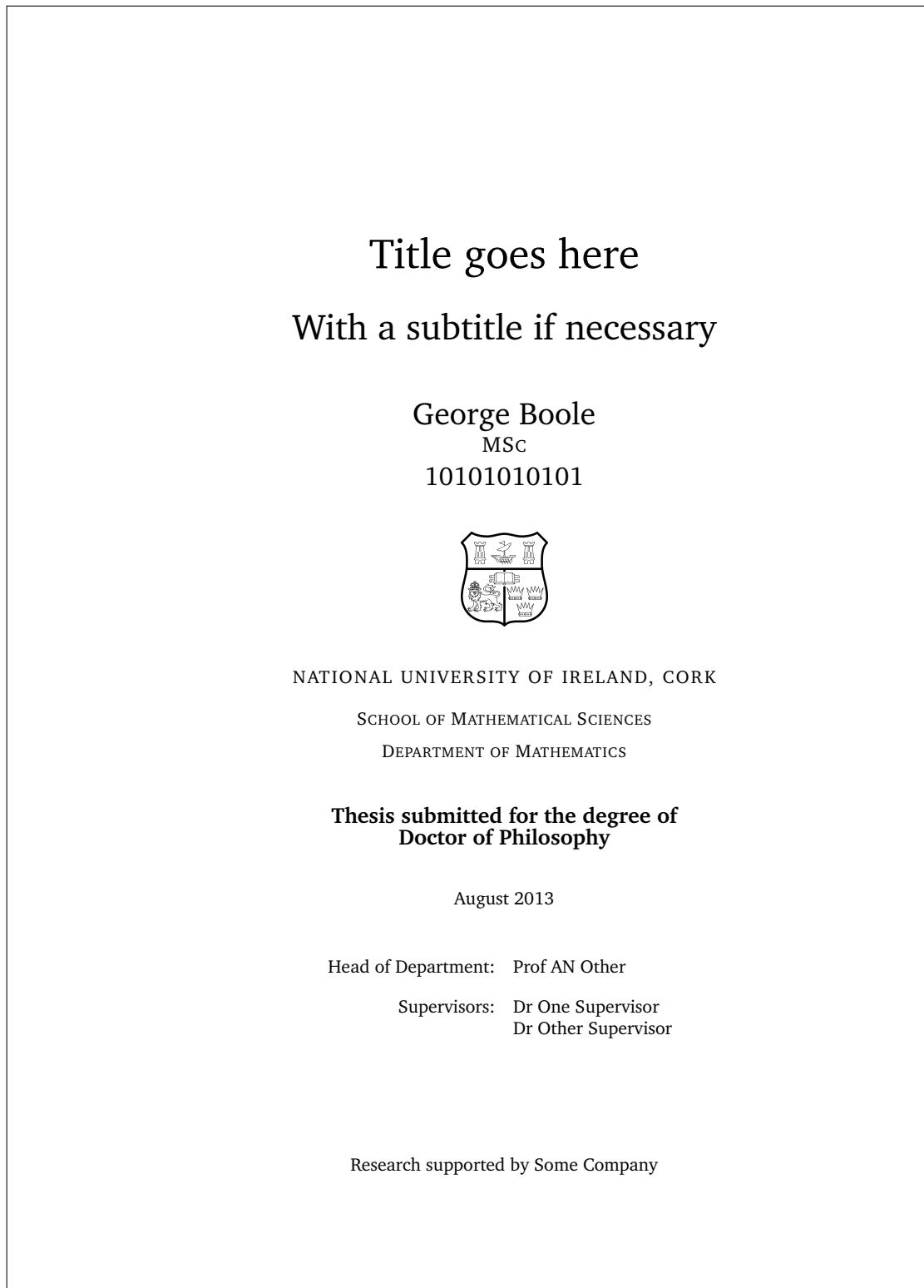
```
\professor{Dr F Händel}
\supervisor{Dr PDQ Bach}
\supervisors{Dr WA Mozart\\Mr L van Beethoven}
```

If you have more than one Supervisor, use the command `\supervisors` (plural) instead, and separate their names with a double backslash (`\\`).

2.2.2 Qualifications

If you have prior postgraduate qualifications or membership of relevant professional bodies, you can specify them with the `\qualifications` command.

Figure 2: Result of the title block in Figure 1 on the preceding page



```
\qualifications{msc miecee}
```

Always use lowercase for qualifications, as they will be typeset in small capitals (which are the lowercase equivalent of all-capitals). A space is better than a comma for separating qualifications, as in the example above.

2.2.3 Subtitle

If your thesis has a subtitle, use the `\subtitle` command: you **MUST NOT** embed the subtitle in the `\title` with a colon.

2.2.4 Multi-volume theses

If your thesis runs to two or more volumes, you **MUST** specify this with the `\volume` command. This has a special format:

```
\volume n of m
```

where n and m are the number of the volume and the total number of volumes respectively, for example `\volume 3 of 5`

2.2.5 Subsidiary affiliations

In addition to the College, Faculty, School, or Department in which you conducted your research, you **MAY** also specify your Institute, Research Centre (Group), Unit, or Hospital with the commands `\institute`, `\centre`, `\unit`, and `\hospital`.

These four commands automatically add the suffix ‘Institute’, ‘Centre’, ‘Unit’, or ‘Hospital’ respectively, so you **MUST** not include it in the curly braces. For example:

```
\institute{Tyndall National}  
\centre{Macrobiotic Research}  
\unit{Linguistic Synthesis}  
\hospital{Mercy University}
```

In some special circumstances this can be circumvented, where the syntax of the name requires it. Details are in section 2.2.7 on the following page

2.2.6 Sponsorship

Where your research has been sponsored by an external organisation, you MAY be required under the terms of your contract to add their name. Use the `\sponsor` command to do this, for example:

```
\sponsor{Silmaril Consultants}
```

2.2.7 Modifying the format of affiliations

Need may occasionally arise for the inclusion of variant forms of names of the affiliations `\institute`, `\hospital`, `\centre`, and `\unit`. These commands therefore all have an optional argument which can be used for three purposes:

Specifying a full name: Supplying the square brackets but *without* a value (ie the optional argument is present but null), will suppress the automatic prefix or suffix that is otherwise added to the name, letting you specify a name that does not fit the conventional pattern, for example:

```
\institute[]{Institute for Advanced Studies}  
\centre[]{Centre of Excellence in Executive Education}  
\unit[]{Isolation Unit for Nervous Diseases}
```

Specifying an acronym: Where an Institute, Hospital, Centre, or Unit (*only*) is normally known by an acronym, this can be given in the optional argument, and the name given in full in the main argument (no prefix or suffix will be added); for example:

```
\institute[IMI]{Irish Management Institute}  
\hospital[CUH]{Cork University Hospital}  
\centre[APC]{Alimentary Pharmabiotic Centre}  
\unit[HFRG]{Human Factors Research Group}
```

This method will print the full name followed by the acronym in parentheses. Note that this only works with the `\institute`, `\hospital`, `\centre`, and `\unit` commands.

Specifying an alternative prefix: Where a School or Department name requires a different prefix from ‘School of’ or ‘Department of’, this can be given in the optional argument, for example:

```
\school[Summer School in]{Irish Studies}  
\department[Roinn an]{Ontolaoiachta}
```

This method will print the full name preceded by the new prefix, and is useful for the Irish forms of names pending the integration of an

Table 1: Summary of title block commands

\command{...}	Usage
Compulsory	
<code>\title{...}</code>	Title of your thesis
<code>\author{...}</code>	Your name
<code>\date{...}</code>	Date of submission
<code>\professor{...}</code>	Name of your Professor or Head of Department
<code>\supervisor{...}</code>	} Supervisor's name[s]. With the plural form, separate the names with \\
<code>\supervisors{...}</code>	
<code>\\maketitle</code>	Finishes the title block: must come last
Optional	
<code>\subtitle{...}</code>	Subtitle
<code>\qualifications{...}</code>	Your existing qualifications
<code>\institute[...]{...}</code>	} Your institute, hospital, centre, or unit, if relevant (section 2.2.5 on page 21 for details)
<code>\hospital[...]{...}</code>	
<code>\centre[...]{...}</code>	
<code>\unit[...]{...}</code>	
<code>\\vol <i>n</i> of <i>m</i></code>	For multi-volume theses
<code>\sponsor{...}</code>	Sponsor or funding agency name, if relevant
Pre-specified	
<code>\school{...}</code>	} Not normally used: these are automatically specified by using the relevant class options (see section 2.1 on page 17)
<code>\department{...}</code>	
<code>\degree{...}</code>	

Irish-language option for titling. Note that this only works with the `\school` and `\department` commands.

2.2.8 Specifying your degree manually

In very rare circumstances you may need to specify your degree manually. Details are in the commented code in section 9 on page 47, and the usage may be examined in the `.dtx` and `.cls` files.

2.3 Additional class options

There are some additional options that can be specified in the `\documentclass` command at the start of the document. These are all optional: use them if you need them.

CJK: As indicated in a footnote to Table 3 on page 34, this option loads the CJK package for typesetting Chinese, Japanese, and Korean. You MUST ensure that you have suitable fonts installed (eg wadalab for Japanese: consult with the local users group for the relevant language or culture — there is a list of these at <http://www.tug.org/lugs>). The CJK environment can then be used for blocks of text, and the `\cjktex` command can be used for words and short phrases.

The babel package enables culture-specific typesetting options, including hyphenation, and SHOULD be used in any document where another language is used for more than the odd word or phrase. Read the package documentation for more information.

Because it is not possible to know which of the many language[s] provided you need to use, you MUST add them as options to the babel package yourself, in your Preamble, with the main language of the document as the last option, eg

```
\documentclass[msc,zeps,CJK]{ucthesis}
\usepackage[japanese,english]{babel}
```

draft: Draft mode is the default: this allows a draft to be printed with a frame replacing the images, saving toner or ink, and speeding up the printout. It also highlights hyphenation and justification problems like overlong lines and unbreakable words with a black rectangle in the right margin. ■

In draft mode, the running head shows the current section on the left and the current subsection on the right. The running foot shows the name of the file on the left and the date and time on the right.

final: Final mode prints all images and removes the black rectangles (it doesn't solve the hyphenation and justification problems: you have to fix those yourself).

In final mode, the running head is the same as in draft mode, but the running foot shows the title of the thesis on the left and the author's name on the right.

gaelge: This option does for Irish what the `CJK` option does for CJK languages: it loads the Irish-language options for a thesis written in Irish, and adds the `eiad` package for typesetting with a `FEAN-CLÓ` typeface (you will still need to install the `eiad` font package yourself, if it is not already on your computer). Unlike `CJK`, however, the `gaelge` option *does* preload the babel package, with `[english,irish]` as the options.

noLot: Disables the automatic List of Tables.

no1of: Disables the automatic List of Figures.

justified: Text in this document class is set *unjustified* (ragged right margin) by default. This option turns justification back on. See section 3.2.1 on page 28. This option does *not* restore indentation and remove paragraph-spacing: use the **indented** option for that.

indented: Text in this document class is set *unindented* by default. This option turns indentation back on. See section 3.2.1 on page 28. This option does *not* restore justification: use the **justified** option for that.

termpaper: This is an experimental option for typesetting term papers. Feedback on useful features would be welcomed.

essay: This is an experimental option for typesetting undergraduate essays. Feedback on useful features would be welcomed.

wp: This is an experimental option for making the document look as if it was done with a wordprocessor. This may be useful for drafts if your supervisor is accustomed to seeing theses done with systems such as *OpenOffice*, *Libre Office*, or *Microsoft Word*.

plainheaders: This disables the automated running headers described in section 3.2.2 on page 28 and reverts to L^AT_EX's defaults.

3 Document structure

After the title page, which is created by the `\maketitle` command at the end of the title block, the UCC rules specify that there must be a Table of Contents, followed by the formal statement that this research is your own work. Both of these are inserted automatically: you do not need to add anything.

If you have used tables or figures, a List of Tables and List of Figures will also be printed automatically after the Table of Contents. If you have only a very small number of tables or figures, you can disable the List of Tables or List of Figures independently with the `no1ot` and `no1of` class options (see ‘`no1ot`’, the fifth item in the list in section 2.3 on page 24).

Addition in 1.11: self-controlled lists or tables of ancillary matter

For glossaries, lists of symbols or acronyms, and similar terminological lists, you SHOULD use the relevant packages, and include the `\ListOf...` command (provided by the package) *after* the `\maketitle` and *before* the preliminaries.

If you create these lists by hand, you MUST include them in the same place using the starred form of the preliminaries command `\prelim*`. This is necessary to avoid the Declaration being triggered prematurely.

3.1 Preliminaries (front matter)

Before the text begins, there are usually some preliminary sections together referred to as ‘front matter’ or ‘prelims’. This class provides the following environments and commands for these:

dedication: The `dedication` environment is for you to add a dedication.

```
\begin{dedication}
...
\end{dedication}
```

acknowledgements: The `acknowledgements` environment is for you to add your acknowledgements.

```
\begin{acknowledgements}
...
\end{acknowledgements}
```

abstract: This is the normal L^AT_EX `abstract` environment except that the heading starts a new page and is in the same format as all the other preliminary sections.

```
\begin{abstract}  
...  
\end{abstract}
```

The UCC thesis rules state that an Abstract must be limited to 300 words.

\prelim: The `\prelim{<title>}` command is available for starting any other preliminary sections you may need, such as explanations of terminology or lists of equipment. It works exactly like an unnumbered section heading, but it starts a new page, and *is* included in the Table of Contents (see the example on page 12).

There is a special starred form of this command, `\prelim*` which can be used before any of the above commands or environments to create preliminary sections that do not trigger the Declaration prematurely. Use with caution!

Declaration

The UCC Declaration (that this is your own work) is automatically inserted by the *first use* of any of the following:

- a `dedication` environment;
- an `acknowledgements` environment;
- a `\prelim` *without* the star;
- a `\part`;
- a `\chapter`.

The `\prelim*` command can be used to add material *before* these without triggering the Declaration.

3.2 Text body (main matter)

For the body of your text, a thesis is usually divided into chapters, containing sections and subsections (and perhaps subsubsections). For a very long thesis you may use the standard L^AT_EX `\part` command to divide the chapters into parts.

Some changes, listed below, have been made to the default appearance to improve readability and consistency.

3.2.1 Size, spacing, justification, indentation, and paragraph spacing

The default typesetting in this class is

- 11pt type;
- 1½ line spacing;
- unjustified (ragged-right margin);
- no indentation;
- white-space between paragraphs.

This makes it easier for your supervisor and Extern to read, and avoids most problems with hyphenation and justification, which are more frequent in technical and academic work because of the high incidence of specialist terms.

Unless you are very skilled at typographic production, it is probably better not to try to typeset a thesis as if it were a book for publication.

However, there are two class options available if you want to return to the book-style with indented paragraphs and no space between them:

justified: this option sets the text justified. It does not affect the indentation or the space between paragraphs.

indented: this option indents paragraphs *and* removes the space between paragraphs. It does not affect justification.

Be aware that justified text in the rather long lines used in theses makes your work harder to read.

3.2.2 Running headers and footers

Running headers and footers are printed on all pages except chapter openings. This is so that photocopies or page-extracts of your thesis will show what it is and who wrote it; otherwise the eventual reader of a fragment would not know whose work it was. Details of what appears in draft and final mode are in ‘**draft**’, the second item in the list in section 2.3 on page 24.

If you want the original (L^AT_EX) default of page number at the bottom, you can use the **plainheaders** class option, and you can then use L^AT_EX’s own

headings commands.

3.2.3 Page numbering

The title page is not numbered (internally it is numbered zero).

All the preliminary pages from the Table of Contents up to (but not including) the first page of the first Part or Chapter are numbered in lowercase Roman numerals.

All remaining pages are numbered in Arabic numerals, starting at 1 for the first page of the first Part or Chapter.

You should use the standard \LaTeX `\label` and `\pageref` commands for making cross-references to pages. For more complex cross-referencing, use the `varioref` package.

3.2.4 Typefaces and fonts

The default typeface is Computer Modern (based on Monotype Series 8), using the updated version from the `lmodern` package. The default boldface font has been changed to normal bold from bold extended, but you can still use the `\textbf` and `\bfseries` commands normally.

The default type size is 11pt, but the `12pt` option can be used if you need larger type. The 10pt option is not recommended, as it makes the lines harder to read.

You MAY use additional font or typeface packages, but you MUST NOT use display (decorative) fonts for the text of a thesis.

3.2.5 Structure

The basic structure is handled by the standard \LaTeX commands `\part`, `\chapter`, `\section`, `\subsection`, and `\subsubsection`.

\LaTeX also provides the commands `\paragraph` and `\subparagraph` for numbered, headed paragraphs and subparagraphs, but you should avoid them if possible because they make it harder for your readers (your Professor and your External Examiner).

Within the sectional divisions, separate your paragraphs by a blank line in the normal way. All the standard \LaTeX environments can be used for tables and figures, lists, quotations, equations, theorems, etc.

A few small changes have been made to the formatting and features of the following environments:

epigraph: The `epigraph{<citekey>}` environment is a specialised format of short quotation that comes immediately after a chapter or section title. It typesets the contents centred and italicised, with the source cited underneath, right-aligned. The one (compulsory) argument SHOULD contain a Bib \TeX citation key for the source of the quotation.

(This is the same principle as for the `quotation` environment described in ‘**quotation**’, the second item in the list in section 3.2.5, except that this argument in `epigraph` is compulsory, so it goes in curly braces.)

However, if you want an indirect citation to your epigraph, as at the start of this section, you MAY put it in an optional argument in square brackets, and leave the normal argument empty:

```
\begin{epigraph}[GBS, writing in 1940]{}

```

quotation: There is a new, optional, argument to the `quotation[<citekey>]` environment which is for the Bib \TeX citation key of the source, eg `\begin{quotation}[shaw]`.

When used, the quotation is followed by a right-aligned short-form citation. The quotation is set in the `\small` type size and the first line is *not* indented.

The argument is optional because quotations may also be cited indirectly in the preceding or following text, and may therefore not always need direct citation.

If you need to give a page number or other qualifier to such a reference (as the page range in the example above), which would usually go in square brackets before a normal `\cite` command, you MUST embed the whole thing in curly braces inside the optional argument, otherwise \LaTeX will not be able to distinguish the square brackets of the citation modifier from those which surround the argument. For example: `\begin{quotation}[[pp.80--81]{shaw}]`

table and figure: The standard parameters in \LaTeX for the proportions of a page which can be occupied by tables and figures are too small for theses, which typically have many floats. In this class, they have been increased to the value suggested in the \TeX FAQ at <http://www.tex.ac.uk/cgi-bin/texfaq2html?label=floats>; and additionally, the overall proportion of the page that can be occupied by floats has been increased from 66% to 75%. See the detailed code description at section 9.10.1 on page 129 for the exact values used.

3.3 Back matter

The final sections are your Appendices, References, and possibly an Index or Glossary.

3.3.1 Appendices

Appendices are done in the standard way, using the `\appendix` command to signal the change from chapters to appendices, and continuing to use the `\chapter` command to create the appendix headings.

3.3.2 References (Bibliography)

Until the new biblatex package is fully implemented, you should continue to use BibT_EX for your references and citations. The correct package[s] and styles for citation in your discipline are pre-loaded on the basis of the package option for your College, Faculty, School, or Department that you selected in the `\documentclass` line. The format which is pre-loaded is listed in the final column of Table 2 to Table 6 on pages 33–36. You should read the documentation on the reference style package used, because many of them provide useful and time-saving commands for citing your references correctly.

To get your References section printed, you MUST give the `\bibliography{<bibdbname>}` command at the place where you want the references printed (usually near the end of your thesis). The argument is the name of your BibT_EX database file, *without* the `.bib` on the end, eg

```
\bibliography{myrefs}
```

Citation and Reference formats

In the current version, not all Schools and Departments have provided information on their preferred format. These have been set to a default by guesswork, usually the Kluwer variant of Harvard.

If you have concrete information about the preferred format for your discipline, please let me know.

Peter Flynn
pflynn@ucc.ie

The pre-loaded formats were specified by staff in your College, Faculty, School, or Department, and are presumed to be correct. If you have been asked to use a different format (for example, by your Extern, or because you are doing multidisciplinary research), you should add the special command `\resetbibstyle{<stylename>}` to your Preamble, followed by the name of the alternate BibT_EX style name *without* the .bst on the end.³

3.3.3 Indexes and Glossaries

If you need to produce an Index or Glossary, you can use the normal L^AT_EX commands and procedures.

For Glossaries, note that you **MUST** use the glossaries package (the old glossary package has been superseded).

³One reason for varying the style is that the popular American Psychological Association (apacite) style affixes an author's initials to citations where there is more than one author by the same name; and some Externs may require this to be elided. There is a web page describing the problem, and providing a solution at <http://tex.stackexchange.com/questions/18954/apacite-suppress-initials-intext>, but it involves hand-editing a BibT_EX style file. To avoid this, a copy of the suggested file `bpacite.bst` is available for download at <http://epu.ucc.ie/latex/> (put it in `~/texmf/bibtex/bst/`) and then use the command `\resetbibstyle{bpacite}` in your Preamble.

4 Options for college, department, and school affiliation

Table 2: Class options for the College of Science, Engineering and Food Science

Option	School / Department / Institute	Reference Format
appmaths	Department of Applied Mathematics	Default
bees	School of Biological, Earth and Environmental Sciences	Oxford
chem	Faculty of Science; Department of Chemistry	ACS
chemeng	Department of Process and Chemical Engineering	Harvard
civil	School of Engineering; Department of Civil and Environmental Engineering	Harvard
cs	Faculty of Science; Department of Computer Science	Default
elec	School of Engineering; Department of Electrical and Electronic Engineering	Harvard
engineering	School of Engineering	Harvard
food	School of Food and Nutritional Sciences	Default
foodbus	School of Food and Nutritional Sciences; Department of Food Business and Development	Harvard
geol	Faculty of Science; Department of Geology	Default
maths	School of Mathematical Sciences; Department of Mathematics	Default
microbio	Department of Microbiology	Default
microelec	School of Engineering; Department of Microelectronic Engineering	Harvard
physics	Faculty of Science; Department of Physics	Transactions of the IEEE
physio	Department of Physiology	Vancouver
scifac	Faculty of Science	Default
stats	Department of Statistics	Harvard
zeps	School of Zoology, Ecology and Plant Science	Oxford

Table 3: Class options for the College of Arts, Celtic Studies and Social Sciences

Option	School / Department / Institute	Reference Format
apsoc	School of Applied Social Studies	Harvard
apsych	School of Applied Psychology	APA
arch	Department of Archaeology	Harvard
arthist	School of History; Department of History of Art	Oxford
^{a)} asian	School of Asian Studies	Harvard
bealoideas	Béaloideas / Folklore	Harvard
classics	Department of Classics	Oxford
educ	School of Education	Harvard
emi	Department of Early and Medieval Irish	Harvard
eng	School of English	Harvard
folketh	Department of Folklore and Ethnology	Harvard
french	School of Languages, Literatures and Cultures; Department of French	Harvard
geog	Department of Geography	Harvard
german	School of Languages, Literatures and Cultures; Department of German	MLA
hisp	School of Languages, Literatures and Cultures; Department of Hispanic Studies	Harvard
hist	School of History	Harvard
italian	School of Languages, Literatures and Cultures; Department of Italian	Harvard
llc	School of Languages, Literatures and Cultures	Harvard
^{b)} lnag	School of Scoil Léann na Gaeilge / School of Irish Learning	Harvard
modirish	Department of Modern Irish	Harvard
music	School of Music and Theatre; Department of Music	Harvard
nuag	Department of Nua-Ghaeilge	Harvard
phil	Department of Philosophy	Harvard
planning	School of Geography and Archaeology: The Human Environment	Harvard
politics	Department of Politics	Harvard
relig	Department of Study of Religions	Harvard
smg	Department of Sean- agus Meán-Ghaeilge	Harvard
socio	Department of Sociology	Harvard
sociophil	School of Sociology and Philosophy	Harvard
theatre	School of Music and Theatre; Department of Drama and Theatre Studies	Harvard

a) The `asian` option preloads the CJK package (Chinese/Japanese/Korean)

b) The `lnag` option may require the `gaeilge` option

Table 4: Class options for the College of Medicine and Health

Option	School / Department / Institute	Reference Format
anat	Department of Anatomy	Vancouver
biochem	Department of Biochemistry	Vancouver
clinther	School of Clinical Therapies	Harvard
cuh	Hospital Cork University	Vancouver
denthosp	University Dental School and Hospital	Vancouver
dentrest	University Dental School and Hospital; School of Dental Hygiene; Department of Restorative Dentistry	Vancouver
dentsurg	University Dental School and Hospital; Department of Dental Surgery	Vancouver
epipub	School of Medicine; Department of Epidemiology and Public Health	Vancouver
gp	School of Medicine; Department of General Practice	Vancouver
hearing	School of Clinical Therapies; Department of Speech and Hearing Sciences	APA
life	School of Life Sciences	Harvard
medicine	School of Medicine; Department of Medicine	Vancouver
medsch	School of Medicine	Vancouver
mercy	Hospital Mercy University	Vancouver
midwifery	School of Nursing and Midwifery	Harvard
nursing	School of Nursing and Midwifery	Harvard
obsgyn	School of Medicine; Department of Obstetrics and Gynaecology	Vancouver
occther	School of Clinical Therapies; Department of Occupational Therapy	Harvard
oralhealth	University Dental School and Hospital; Department of Oral Health and Development	Vancouver
path	School of Medicine; Department of Pathology	Vancouver
pch	School of Medicine; Department of Paediatrics and Child Health	Vancouver
pharm	School of Pharmacy	Harvard
pharmthera	School of Medicine; Department of Pharmacology and Therapeutics	Vancouver
physio	Department of Physiology	Vancouver
psychiatry	School of Medicine; Department of Psychiatry	Vancouver
radio	School of Medicine; Department of Radiology	Harvard
speech	School of Clinical Therapies; Department of Speech and Hearing Sciences	APA
surg	School of Medicine; Department of Surgery	Vancouver

Table 5: Class options for the College of Business and Law

Option	School / Department / Institute	Reference Format
afis	Faculty of Commerce; Department of Accounting and Finance	Harvard
bis	Faculty of Commerce; Department of Business Information Systems	Harvard
commerce	Faculty of Commerce	Harvard
coop	Faculty of Commerce; Centre for Co-operative Studies	Harvard
cps	Faculty of Commerce; Centre for Policy Studies	Harvard
econ	Faculty of Commerce; Department of Economics	Harvard
foodbus	School of Food and Nutritional Sciences; Department of Food Business and Development	Harvard
govt	Faculty of Commerce; Department of Government	Harvard
law	Faculty of Law	Legal
mgt	Faculty of Commerce; Department of Management and Marketing	Harvard
^{a)} mktg	Faculty of Commerce; Department of Management and Marketing	Harvard
stats	Department of Statistics	Harvard

a) The mktg option is an alternative for mgt

Table 6: Class options for selecting Institutes

Option	School / Department / Institute	Reference Format
imi	Irish Management Institute	Harvard
tyndall	Tyndall National Institute	Alpha

5 Options for class of degree

Table 7: Degree options for the College of Arts, Celtic Studies and Social Sciences

Option	Degree
dlitt	Doctor of Literature
dlittcelt	Doctor of Celtic Literature
dmus	Doctor of Music
dsocsci	Doctor of Social Science
ma	Master of Arts
mbsasian	Master of Business Systems (Asian Business)
med	Master of Education
mphil	Master of Philosophy
mplan	Master of Planning and Sustainable Development
msocsc	Master of Social Science
msw	Master of Social Work
phd	Doctor of Philosophy
phded	Doctor of Philosophy in Education — Structured
phdss	Doctor of Philosophy in Social Sciences
phdtcc	Doctor of Philosophy in Texts, Contexts and Cultures

Table 8: Degree options for the College of Medicine and Health

Option	Degree
dclindent	Doctor of Clinical Dentistry
dmed	Doctor of Medicine
dnp	Doctor of Nursing Practice
docct	Doctor of Occupational Therapy
mao	Master of Obstetrics
mch	Master of Surgery
md	Doctor of Medicine
mdph	Master in Dental Public Health
mds	Master of Dental Science
mmedsc	Master in Sport and Exercise Medicine
mph	Master in Public Health
msccp	Master of Science (Clinical Pharmacy)
mscebtpr	Master of Science (Evidence-Based Therapy Practice)
mscm	Master of Science (Midwifery)
mscog	Master of Science (Obstetrics and Gynaecology)
mscoh	Master of Science (Occupational Health)
mscptqs	Master of Science (Pharmaceutical Technology and Quality Systems)
phd	Doctor of Philosophy
phdcb	Doctor of Philosophy in Cancer Biology
phdhsr	Doctor of Philosophy in Health Services Research

Table 9: Degree options for the College of Business and Law

Option	Degree
dbe	Doctor of Business Economics
deconsc	Doctor of Economic Science
lld	Doctor of Law
llm	Master of Law
llmcj	Master of Law (Criminal Justice)
llme	Master of Law (e-Law)
llmp	Master of Law (Practitioner)
mba	Master of Business Administration
mbs	Master of Business Systems
mbsasian	Master of Business Systems (Asian Business)
mbsbe	Master of Business Systems (Business Economics)
mbsbis	Master of Business Systems (Business Information Systems)
mbsbp	Master of Business Systems (Economics of Business Practice)
mbscse	Master of Business Systems (Co-operative and Social Enterprise)
mbseb	Master of Business Systems (Electronic Business)
mbsfm	Master of Business Systems (Food Marketing)
mbsg	Master of Business Systems (Government)
mbshtm	Master of Business Systems (Health Services Management)
mbsieb	Master of Business Systems (Innovation in European Business)
mbsippd	Master of Business Systems (International Public Policy and Diplomacy)
mbsisbp	Master of Business Systems (Information Systems for Business Performance)
mbsmimas	Master of Business Systems (Management Information and Managerial Accounting Systems)
mbsmm	Master of Business Systems (Management and Marketing)
mcomm	Master of Commerce
mcommbb	Master of Commerce (Supply Chain Management — Lean SCM Black Belt)
mcommbe	Master of Commerce (Business Economics)
mcommgpp	Master of Commerce (Government and Public Policy)
mcommscm	Master of Commerce (Supply Chain Management)
meconsc	Master of Economic Science
msccf	Master of Science (Corporate Finance)
mscfe	Master of Science (Financial Economics)
msche	Master of Science (Health Economics)
phd	Doctor of Philosophy
phdbis	Doctor of Philosophy in Business Information Systems

Table 10: Degree options for the College of Science, Engineering and Food Science

Option	Degree
dsc	Doctor of Science
me	Master of Engineering
mengsc	Master of Engineering Science
mengscit	Master of Engineering Science (Information Technology in Architecture, Engineering and Construction)
mengscm	Master of Engineering Science (Microelectronics)
mengscmd	Master of Engineering Science (Microelectronic Design)
mengscme	Master of Engineering Science in Mechanical Engineering (Manufacturing, Process and Automation Systems)
mengscpbe	Master of Engineering Science (Pharmaceutical and Biopharmaceutical Engineering)
mengscse	Master of Engineering Science (Sustainable Energy)
mplan	Master of Planning and Sustainable Development
msc	Master of Science
mscac	Master of Applied Science (Analytical Chemistry)
mscapc	Master of Applied Science (Analysis of Pharmaceutical Compounds)
mscb	Master of Applied Science (Biotechnology)
mschsb	Master of Applied Science (Bioinformatics with Systems Biology)
msccoop	Master of Science (Co-operative Organisation/Food Marketing/Rural Development)
mscea	Master of Applied Science (Ecological Assessment)
msceac	Master of Applied Science (Environmental Analytical Chemistry)
mscfb	Master of Science (Food Business)
mscfm	Master of Applied Science (Food Microbiology)
mscfs	Master of Applied Science (Food Science)
mscgis	Master of Applied Science (Geographical Information Systems and Remote Sensing)
mscmb	Master of Applied Science (Marine Biology)
mscmmsc	Master of Applied Science (Mathematical Modelling and Scientific Computing)
mscns	Master of Applied Science (Nutritional Sciences)
mscrd	Master of Science (Rural Development)
mscssmn	Master of Applied Science (Software and Systems for Mobile Networks)
msctm	Master of Science (Technology Management)
phd	Doctor of Philosophy

6 Packages preloaded

To make this document class work, several packages are preloaded. If your own work needs one of these, you **MUST NOT** use the `\usepackage` command for it, as it is already defined. These preloaded packages are listed in Table 11 on the next page.

Be aware that some packages may influence others. In particular, if you use the `hyperref` package that implements hyperlinks in PDF output, it **MUST** be loaded last, after all other packages.

Table 11: Standard packages preloaded

Package	Options used	Usage
Packages active in all cases		
* CJK		enables Chinese, Japanese, and Korean texts
array		allows paragraph formatting within table cells
calc		dimension arguments accepted in infix notation
ccaption		restyle captions (used to get <code>\raggedright</code>)
fancyhdr		adds running headers and footers
float		allows H ('here') position for non-floating floats
fontenc	T1	use the T1 font encoding for Unicode
footmisc		ensure footnotes stay at the bottom of short pages
geometry		set the margins (see section 9.6 on page 113)
graphicx		enable graphics
ifthen		used for if...then...else internally
inputenc	utf8x	specify UTF-8 (Unicode) to allow all languages
lmodern		extended Computer Modern (default) typeface
parskip		no indentation, paragraph gap is one line-space
setspace		set 1½ line-spacing
soul		enable letterspacing for title page
† textcomp		support for special characters including <code>\texteuro</code> (€)
‡ ucccrest		UCC crest
ulem		Support for underlining
url		Improved line-breaking of long web addresses
xcolor		Colour
Packages active only with the <code>gaelige</code> class option		
babel	english, irish	Irish-language typesetting options
eiad		<code>rean-cló</code> typeface
Packages active only with the <code>wp</code> class option		
pslatex		Times, Helvetica, and Courier only
ragged2e		hyphenation even in ragged right setting
Packages and BibTeX .bst files loaded for bibliographic support		
apacite	apacite	} Loaded according to your School or Department settings.
natbib		
har2nat	dcu, agsm, kluwer	
jurabib	jurabib	
mla	chicago	
oxford	oxford_en	
-	vancouver	

* only with the `cjk` class option

† support for the official € symbol requires the `marvosym` package (`\EUR`)

‡ you must ensure that the `ucccrest` package is installed if you work in UCC.

7 Thesis Regulations

These rules were taken from the Graduate Studies web site at <http://www.ucc.ie/en/graduatestudies/current/thesis/> on 24 March 2011.

7.1 Layout of Thesis

7.1.1 Title Page

There must be a title page which shall give the following information:

1. The full title⁴ of the thesis and the subtitle, if any.
2. The total number of volumes if more than one, and the number of the particular volume.
3. The full name of the author, followed, if desired, by any qualifications and distinctions.
4. The qualification for which the thesis is submitted.
5. The name of the institution to which the thesis is submitted — National University of Ireland, Cork.
6. The department, Faculty or organisation in which research was conducted.
7. The Month and Year of submission.
8. Name of the head of the department concerned.
9. Name of the supervisor of the research.

7.1.2 Table of Contents

The table of contents shall immediately follow the title page.

7.2 Style

The text must be either, printed, typewritten or otherwise reproduced on good quality size A4 paper, with a left-hand margin 4 cm. Double or one and a half spacing is recommended. Copies must be bound or otherwise

⁴The title should describe the content of the thesis accurately and concisely.

securely fastened and numbered consecutively, page numbers to be located centrally at the bottom of the page.

References

- Bradner, S. (1997, Mar). *Key words for use in RFCs to Indicate Requirement Levels* (Tech. Rep. No. RFC 2119). Fremont, CA: Internet Engineering Task Force. Retrieved 21 August 2011, from <http://www.ietf.org/rfc/rfc2119.txt>
- Flynn, P. (2011). *Formatting Information* (5th ed.). Cork: Silmaril Consultants. Retrieved 21 August 2011, from <http://latex.silmaril.ie/formattinginformation>

8 Auto-initialisation

This section is added automatically by *ClassPack* as a preamble to all classes and packages. See the documentation to the `fixltx2e` package for details of why these have to be loaded *before* anything else.

`fixltx2e` Additional L^AT_EX features omitted from the kernel for backward compatibility.

```
1 \RequirePackage{fixltx2e}
```

`fix-cm` Preloaded functions to overcome the default L^AT_EX step-size font sizes (which can still be used, but are no longer restrictions).

```
2 \RequirePackage{fix-cm}
```

`svgnames` Pass the option **svgnames** to the `hyperref` package if that gets loaded later. This avoids a conflict with whatever `hyperref`'s own default is.

```
3 \PassOptionsToPackage{hyperref}{svgnames}
```

9 Implementation

The uccthesi document class is based on the standard L^AT_EX report class, with additions to handle the title page and some extra formatting options, in particular the automation of selecting discipline (affiliation) and class of degree with the relevant BibT_EX style.

9.1 Preliminary declarations

The ifthen package is required to make the options work.

```
4 \RequirePackage{ifthen}
```

9.2 Option management for affiliations and classes of degrees

The current design provides an option for every degree-granting discipline (aka College, Faculty, School, or Department); for identifying Institutes, Hospitals, Centres, and Units where relevant; and for every class of degree.⁵

The data for the affiliations, disciplines, and degrees is held in a structure in the master XML document for this class, where it can be updated annually with changes as determined by UCC. All related options are then generated directly from this data.

9.2.1 Preliminary setup for affiliations and disciplines

To manage the specification of the options, for each division, we create three control sequences:

⁵It would probably be better for a future version to use the keyval package to minimise the number of options declared.

1. a 'handle' which acts as a way to standardise the prefix or suffix applied to each division;
2. a default value of `\relax` to enable recognition of the specified value of each division's name;
3. a command to allow the assignment of each name.

Each command that identifies a division takes one optional argument and one compulsory argument: the compulsory argument is the value to assign, subject to the three rules:

1. if there is no optional argument, then the value is assigned with the declared handle prefixed or suffixed: `\centre{Computer}` produces 'Computer Centre';
2. if the optional argument brackets are present but with no value supplied, the compulsory value is assigned *without* the handle:
`\centre[]{Centre for Excellence in Design}` produces 'Centre for Excellence in Design';
3. if an optional argument is supplied, then its value is assigned as-is (no handle), and the compulsory argument is taken to be an acronym:
`\centre[Alimentary Pharmabiotic Centre]{APC}` produces 'Alimentary Pharmabiotic Centre (APC)'.

The last rule applies only to Institutes, Hospitals, Centres, and Units, where acronyms are common. For Schools and Departments, the third format currently ignores any specified optional argument.

UCC organisation

The UCC organisational model is currently non-functional. Colleges have not yet fully replaced Faculties, as was planned, but added to them; and Schools have likewise not replaced Departments. There is no longer a strict hierarchy, as some Schools and Departments belong to more than one College or Faculty, so there is no clear identity. Arguably some of the present Departments are really Disciplines, where the oversight role has been taken over by their School or Department.

`\@schoolhandle` The handles (prefixes/suffixes) all follow this pattern.

```
5 \def\@schoolhandle{School of}
```

`\@unittype` Define a value for school or department

```
6 \def\@unittype{\relax}
```

`\@school` Define the default-value macro for Schools. The others follow the same pattern.

```
7 \def\@school{\relax}
```

`\school` Define the user-level command to handle Schools.

```
8 \newcommand{\school}[2][\relax]{%
```

If the optional argument is present but null, use the main argument as given.

```
9 \ifthenelse{\equal{#1}{}}{%  
10   {\gdef\@school{#2}}%
```

If the optional argument absent, prepend the handle to the main argument. In the case of Institutes, Hospitals, Centres, and Units below, the handle is appended instead.

```
11   {\if#1\relax\gdef\@school{\@schoolhandle\ #2}}%
```

Otherwise (optional argument supplied) treat the optional argument as a replacement handle.

```
12     \else\gdef\@school{#1 #2}%
13     \fi
14 }%
15 \gdef\@unitttype{School}%
16 }%
```

`\@departmenthandle` **Departments...**

```
17 \def\@departmenthandle{Department of}
```

`\@department`

```
18 \def\@department{\relax}
```

`\department`

```
19 \newcommand{\department}[2][\relax]{%
20   \ifthenelse{\equal{#1}{}}{\gdef\@department{#2}}{%
21     \if#1\relax
22       \gdef\@department{\@departmenthandle\ #2}%
23     \else\gdef\@department{#1 #2}\fi
24   }%
25   \def\@unitttype{Department}%
26 }%
```

`\@institutehandle` **Institutes...**

```
27 \def\@institutehandle{Institute}
```

`\@institute`

```
28 \def\@institute{\relax}
```

`\institute` **In this case the handle is appended, not prepended, and an optional argument is taken to be an acronym in parentheses.**

```
29 \newcommand{\institute}[2][\relax]{%
30   \ifthenelse{\equal{#1}{}}{\gdef\@institute{#2}}{%
31     \if#1\relax
```

```

32     \gdef\@institute{#2 \@institutehandle}%
33     \else\gdef\@institute{#2 (#1)}\fi}}

```

\@hospitalhandle **Hospitals...**

```

34 \def\@hospitalhandle{Hospital}

```

\@hospital

```

35 \def\@hospital{\relax}

```

\hospital **In this case the handle is appended, not prepended, and an optional argument is taken to be an acronym in parentheses.**

```

36 \newcommand{\hospital}[2][\relax]{%
37   \ifthenelse{\equal{#1}{}}{\gdef\@hospital{#2}}{%
38     \if#1\relax
39       \gdef\@hospital{#2 \@hospitalhandle}%
40     \else\gdef\@hospital{#2 (#1)}\fi}}

```

\@centrehandle **Centres...**

```

41 \def\@centrehandle{Centre}

```

\@centre

```

42 \def\@centre{\relax}

```

\centre **In this case the handle is appended, not prepended, and an optional argument is taken to be an acronym in parentheses.**

```

43 \newcommand{\centre}[2][\relax]{%
44   \ifthenelse{\equal{#1}{}}{\gdef\@centre{#2}}{%
45     \if#1\relax
46       \gdef\@centre{#2 \@centrehandle}%
47     \else\gdef\@centre{#2 (#1)}\fi}}

```

\@unithandle **Units...**

```

48 \def\@unithandle{Unit}

```

`\@unit`

```
49 \def\@unit{\relax}
```

`\unit` In this case the handle is appended, not prepended, and an optional argument is taken to be an acronym in parentheses.

```
50 \newcommand{\unit}[2][\relax]{%
51   \ifthenelse{\equal{#1}{}}{\gdef\@unit{#2}}{%
52     \if#1\relax
53       \gdef\@unit{#2 \@unithandle}%
54     \else\gdef\@unit{#2 (#1)}\fi}}
```

`\@usebib` Before doing the actual divisional options, we create a command to record the bibliographic reference format that will be required for each College/Faculty/School/Department option. This holds the name of the .bst file appropriate for each discipline and [optional argument] the package name[s] needed to implement it. The bibliographic style is not issued directly, but uses the value of the `\@userbibstyle` command set by `\@usebib`. This allows the use of the `\resetbibstyle` user command to vary the bibliographic style from the default.

The fourth argument, which was unused, is now taken over by a flag which indicates if the related style packages need to be deferred until after the use of `hyperref`. This is currently the case for only one style `apacite`.

```
55 \def\@userbibstyle{plain}
56 \newcommand{\@usebib}[4][\relax]{%
57   \if#1\relax\else
```

The `\ifthenelse` command should detect a fourth argument and use it to defer the package loading until the beginning of the document environment. Otherwise it can load at the end of the package.

```
58   \ifthenelse{\equal{#4}{}}{%null#4
59     \AtEndOfClass{% ie maybe before user customisations
60       \message{Loading #1 package for #2 citations}%
61     \RequirePackage{#1}}{%live#4
```

```

62     \AtBeginDocument{% ie after *everything*
63         \message{Loading #1 package for #2 citations}%
64         \RequirePackage{#1}}}%
65     \fi
66 \gdef\@userbibstyle{#2}%
67 \AtEndDocument{%
68     \message{Setting bibliography style to \@userbibstyle}%
69     \bibliographystyle{\@userbibstyle}}%
70 }
71 \newcommand{\resetbibstyle}[2][\relax]{%
72     \gdef\@userbibstyle{#2}%
73     \ifx\relax#1\else
74         \message{Loading #1 package for #2 citations}%
75         \usepackage{#1}\fi
76 }
77 \newcommand{\@usebabel}[2][\relax]{%
78     \if\relax#1
79         \RequirePackage{#2}
80     \else
81         \RequirePackage[#1]{#2}
82     \fi
83 }

```

The third argument holds the human-readable name of the bibliographic style, and the fourth argument is reserved to hold the command required for a full citation in a block quotation. These arguments are currently unused.

9.3 Divisional options

These are the class options for the various academic divisions within UCC. They are sorted alphabetically.

9.3.1 ACSSS

9.3.1.1 Applied Social Studies

`apsoc` Applied Social Studies (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and

har2nat packages (unconfirmed).

```
84 \DeclareOption{apsoc}{%
85   \school{Applied Social Studies}
86   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
87 }
```

9.3.1.2 Applied Psychology

apsych Applied Psychology (school); using the APA citation format from the `apacite.bst` Bib_TE_X style with the `apacite` package (confirmed by `pflynn@ucc.ie`).

```
88 \DeclareOption{apsych}{%
89   \school{Applied Psychology}
90   \@usebib[apacite]{apacite}{APA}{ }
91 }
```

9.3.1.3 Archaeology

arch Archaeology (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
92 \DeclareOption{arch}{%
93   \department{Archaeology}
94   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
95 }
```

9.3.1.4 History of Art

arthist History of Art (department) in History (school); using the Oxford citation format from the `oxford_en.bst` Bib_TE_X style with the `oxford` package (confirmed by `F.Boggi@ucc.ie`).

```
96 \DeclareOption{arthist}{%
97   \school{History}
98   \department{History of Art}
99   \@usebib[oxford]{oxford_en}{Oxford}{ }
100 }
```

9.3.1.5 Asian Studies

asian Asian Studies (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
101 \DeclareOption{asian}{%
102   \school{Asian Studies}
103   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
104 }
```

9.3.1.6 Béaloideas / Folklore

bealoideas Béaloideas / Folklore (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
105 \DeclareOption{bealoideas}{%
106   \department[] {Béaloideas~/ Folklore}
107   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
108 }
```

9.3.1.7 Classics

classics Classics (department); using the Oxford citation format from the `oxford_en.bst` Bib_TE_X style with the `oxford` package (confirmed by D.Woods@ucc.ie).

```
109 \DeclareOption{classics}{%
110   \department{Classics}
111   \@usebib[oxford]{oxford_en}{Oxford}{}
112 }
```

9.3.1.8 Education

educ Education (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

113 \DeclareOption{educ}{%
114   \school{Education}
115   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
116 }

```

9.3.1.9 Early and Medieval Irish

emi Early and Medieval Irish (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

117 \DeclareOption{emi}{%
118   \department{Early and Medieval Irish}
119   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
120 }

```

9.3.1.10 English

eng English (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

121 \DeclareOption{eng}{%
122   \school{English}
123   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
124 }

```

9.3.1.11 Folklore and Ethnology

folketh Folklore and Ethnology (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

125 \DeclareOption{folketh}{%
126   \department{Folklore and Ethnology}
127   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
128 }

```


9.3.1.12 French

french French (department) in Languages, Literatures and Cultures (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
129 \DeclareOption{french}{%
130   \school{Languages, Literatures and Cultures}
131   \department{French}
132   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
133 }
```

9.3.1.13 Geography

geog Geography (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
134 \DeclareOption{geog}{%
135   \department{Geography}
136   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
137 }
```

9.3.1.14 German

german German (department) in Languages, Literatures and Cultures (school); using the MLA citation format from the `m1aa.bst` Bib_TE_X style with the `chicago` package (confirmed by G.Hofmann@ucc.ie).

```
138 \DeclareOption{german}{%
139   \school{Languages, Literatures and Cultures}
140   \department{German}
141   \@usebib[chicago]{m1aa}{MLA}{ }
142 }
```

9.3.1.15 Hispanic Studies

hisp Hispanic Studies (department) in Languages, Literatures and Cultures (school); using the Harvard citation format from the `agsm-mod.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
143 \DeclareOption{hisp}{%
144   \school{Languages, Literatures and Cultures}
145   \department{Hispanic Studies}
146   \@usebib[natbib,har2nat]{agsm-mod}{Harvard}{ }
147 }
```

9.3.1.16 History

hist History (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
148 \DeclareOption{hist}{%
149   \school{History}
150   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
151 }
```

9.3.1.17 Italian

italian Italian (department) in Languages, Literatures and Cultures (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
152 \DeclareOption{italian}{%
153   \school{Languages, Literatures and Cultures}
154   \department{Italian}
155   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
156 }
```

9.3.1.18 Languages, Literatures and Cultures

llc Languages, Literatures and Cultures (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
157 \DeclareOption{llc}{%
158   \school{Languages, Literatures and Cultures}
159   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
160 }
```

9.3.1.19 Scoil Léann na Gaeilge / School of Irish Learning

lnag Scoil Léann na Gaeilge / School of Irish Learning (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
161 \DeclareOption{lnag}{%
162   \school{Scoil Léann na Gaeilge~/ School of Irish Learning}
163   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
164 }
```

9.3.1.20 Modern Irish

modirish Modern Irish (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
165 \DeclareOption{modirish}{%
166   \department{Modern Irish}
167   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
168 }
```

9.3.1.21 Music

music Music (department) in Music and Theatre (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

169 \DeclareOption{music}{%
170   \school{Music and Theatre}
171   \department{Music}
172   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
173 }

```

9.3.1.22 Nua-Ghaeilge

nuag Nua-Ghaeilge (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

174 \DeclareOption{nuag}{%
175   \department{Nua-Ghaeilge}
176   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
177 }

```

9.3.1.23 Philosophy

phil Philosophy (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

178 \DeclareOption{phil}{%
179   \department{Philosophy}
180   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
181 }

```

9.3.1.24 Geography and Archaeology: The Human Environment

planning Geography and Archaeology: The Human Environment (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

182 \DeclareOption{planning}{%
183   \school{Geography and Archaeology: The Human Environment}
184   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
185 }

```

9.3.1.25 Politics

politics Politics (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
186 \DeclareOption{politics}{%
187   \department{Politics}
188   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
189 }
```

9.3.1.26 Study of Religions

relig Study of Religions (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
190 \DeclareOption{relig}{%
191   \department{Study of Religions}
192   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
193 }
```

9.3.1.27 Sean- agus Meán-Ghaeilge

smg Sean- agus Meán-Ghaeilge (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
194 \DeclareOption{smg}{%
195   \department{Sean- agus Meán-Ghaeilge}
196   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
197 }
```

9.3.1.28 Sociology

socio Sociology (department); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

198 \DeclareOption{socio}{%
199   \department{Sociology}
200   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
201 }

```

9.3.1.29 Sociology and Philosophy

sociophil Sociology and Philosophy (school); using the Harvard citation format from the `dcu.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (confirmed by `a.szakolczai@ucc.ie`).

```

202 \DeclareOption{sociophil}{%
203   \school{Sociology and Philosophy}
204   \@usebib[natbib,har2nat]{dcu}{Harvard}{ }
205 }

```

9.3.1.30 Drama and Theatre Studies

theatre Drama and Theatre Studies (department) in Music and Theatre (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

206 \DeclareOption{theatre}{%
207   \school{Music and Theatre}
208   \department{Drama and Theatre Studies}
209   \@usebib[natbib,har2nat]{kluwer}{Harvard}{ }
210 }

```

9.3.2 BUSLAW

9.3.2.1 Accounting and Finance

afis Accounting and Finance (department) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

211 \DeclareOption{afis}{%
212   \school[] {Faculty of Commerce}
213   \department {Accounting and Finance}
214   \@usebib[natbib,har2nat]{apsr}{Harvard}{}
215 }

```

9.3.2.2 Business Information Systems

bis Business Information Systems (department) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_T_EX style with the `natbib` and `har2nat` packages (unconfirmed).

```

216 \DeclareOption{bis}{%
217   \school[] {Faculty of Commerce}
218   \department {Business Information Systems}
219   \@usebib[natbib,har2nat]{apsr}{Harvard}{}
220 }

```

9.3.2.3 Faculty of Commerce

commerce Faculty of Commerce (school); using the Harvard citation format from the `kluwer.bst` Bib_T_EX style with the `natbib` and `har2nat` packages (unconfirmed).

```

221 \DeclareOption{commerce}{%
222   \school[] {Faculty of Commerce}
223   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
224 }

```

9.3.2.4 Centre for Co-operative Studies

coop Centre for Co-operative Studies (centre) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_T_EX style with the `natbib` and `har2nat` packages (unconfirmed).

```

225 \DeclareOption{coop}{%
226   \school[] {Faculty of Commerce}

```

```

227 \centre[] {Centre for Co-operative Studies}
228 \@usebib[natbib,har2nat]{apsr}{Harvard}{}
229 }

```

9.3.2.5 Centre for Policy Studies

cps Centre for Policy Studies (centre) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

230 \DeclareOption{cps}{%
231 \school[] {Faculty of Commerce}
232 \centre[] {Centre for Policy Studies}
233 \@usebib[natbib,har2nat]{apsr}{Harvard}{}
234 }

```

9.3.2.6 Economics

econ Economics (department) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (confirmed by `niall.osullivan@ucc.ie`).

```

235 \DeclareOption{econ}{%
236 \school[] {Faculty of Commerce}
237 \department {Economics}
238 \@usebib[natbib,har2nat]{apsr}{Harvard}{}
239 }

```

9.3.2.7 Food Business and Development

foodbus Food Business and Development (department) in Food and Nutritional Sciences (school); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

240 \DeclareOption{foodbus}{%
241 \school {Food and Nutritional Sciences}

```



```

242 \department{Food Business and Development}
243 \@usebib[natbib,har2nat]{agsm}{Harvard}{}
244 }

```

9.3.2.8 Government

govt Government (department) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

245 \DeclareOption{govt}{%
246 \school[]{Faculty of Commerce}
247 \department{Government}
248 \@usebib[natbib,har2nat]{apsr}{Harvard}{}
249 }

```

9.3.2.9 Faculty of Law

law Faculty of Law (school); using the Legal citation format from the `jurabib.bst` Bib_TE_X style with the `jurabib` package (confirmed by `pflynn@ucc.ie`).

```

250 \DeclareOption{law}{%
251 \school[]{Faculty of Law}
252 \@usebib[jurabib]{jurabib}{Legal}{}
253 }

```

9.3.2.10 Management and Marketing

mgt Management and Marketing (department) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

254 \DeclareOption{mgt}{%
255 \school[]{Faculty of Commerce}
256 \department{Management and Marketing}
257 \@usebib[natbib,har2nat]{apsr}{Harvard}{}
258 }

```

9.3.2.11 Management and Marketing

mktg Management and Marketing (department) in Faculty of Commerce (school); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
259 \DeclareOption{mktg}{%
260   \school[] {Faculty of Commerce}
261   \department {Management and Marketing}
262   \@usebib[natbib,har2nat]{apsr}{Harvard}{}
263 }
```

9.3.2.12 Statistics

stats Statistics (department); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
264 \DeclareOption{stats}{%
265   \department {Statistics}
266   \@usebib[natbib,har2nat]{apsr}{Harvard}{}
267 }
```

9.3.3 MED

9.3.3.1 Anatomy

anat Anatomy (department); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
268 \DeclareOption{anat}{%
269   \department {Anatomy}
270   \@usebib{vancouver}{Vancouver}{}
271 }
```

9.3.3.2 Biochemistry

biochem Biochemistry (department); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
272 \DeclareOption{biochem}{%
273   \department{Biochemistry}
274   \@usebib{vancouver}{Vancouver}{}
275 }
```

9.3.3.3 Clinical Therapies

clinther Clinical Therapies (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
276 \DeclareOption{clinther}{%
277   \school{Clinical Therapies}
278   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
279 }
```

9.3.3.4 Cork University

cuh Cork University (hospital); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (unconfirmed).

```
280 \DeclareOption{cuh}{%
281   \hospital{Cork University}
282   \@usebib{vancouver}{Vancouver}{}
283 }
```

9.3.3.5 University Dental School and Hospital

denthosp University Dental School and Hospital (hospital); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `f.allen@ucc.ie`).

```
284 \DeclareOption{denthosp}{%
285   \hospital[]{}{University Dental School and Hospital}
```

```
286 \@usebib{vancouver}{Vancouver}{}
287 }
```

9.3.3.6 Restorative Dentistry

dentrest Restorative Dentistry (department) in Dental Hygiene (school) in University Dental School and Hospital (hospital); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `f.allen@ucc.ie`).

```
288 \DeclareOption{dentrest}{%
289   \hospital[] {University Dental School and Hospital}
290   \school {Dental Hygiene}
291   \department {Restorative Dentistry}
292   \@usebib{vancouver}{Vancouver}{}
293 }
```

9.3.3.7 Dental Surgery

dentsurg Dental Surgery (department) in University Dental School and Hospital (hospital); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `f.allen@ucc.ie`).

```
294 \DeclareOption{dentsurg}{%
295   \hospital[] {University Dental School and Hospital}
296   \department {Dental Surgery}
297   \@usebib{vancouver}{Vancouver}{}
298 }
```

9.3.3.8 Epidemiology and Public Health

epipub Epidemiology and Public Health (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `i.perry@ucc.ie`).

```
299 \DeclareOption{epipub}{%
300   \school {Medicine}
301   \department {Epidemiology and Public Health}
```

```
302 \@usebib{vancouver}{Vancouver}{}
303 }
```

9.3.3.9 General Practice

gp General Practice (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
304 \DeclareOption{gp}{%
305   \school{Medicine}
306   \department{General Practice}
307   \@usebib{vancouver}{Vancouver}{}
308 }
```

9.3.3.10 Speech and Hearing Sciences

hearing Speech and Hearing Sciences (department) in Clinical Therapies (school); using the APA citation format from the `apacite.bst` Bib_TE_X style with the `apacite` package (confirmed by `F.Gibbon@ucc.ie`).

```
309 \DeclareOption{hearing}{%
310   \school{Clinical Therapies}
311   \department{Speech and Hearing Sciences}
312   \@usebib[apacite]{apacite}{APA}{}
313 }
```

9.3.3.11 Life Sciences

life Life Sciences (school); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
314 \DeclareOption{life}{%
315   \school{Life Sciences}
316   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
317 }
```

9.3.3.12 Medicine

medsch Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
318 \DeclareOption{medsch}{%
319   \school{Medicine}
320   \@usebib{vancouver}{Vancouver}{}
321 }
```

9.3.3.13 Medicine

medicine Medicine (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
322 \DeclareOption{medicine}{%
323   \school{Medicine}
324   \department{Medicine}
325   \@usebib{vancouver}{Vancouver}{}
326 }
```

9.3.3.14 Mercy University

mercy Mercy University (hospital); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (unconfirmed).

```
327 \DeclareOption{mercy}{%
328   \hospital{Mercy University}
329   \@usebib{vancouver}{Vancouver}{}
330 }
```

9.3.3.15 Nursing and Midwifery

midwifery Nursing and Midwifery (school); using the Harvard citation format from the `dcu.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (confirmed by `J.Hegarty@ucc.ie`).

```

331 \DeclareOption{midwifery}{%
332   \school{Nursing and Midwifery}
333   \@usebib[natbib,har2nat]{dcu}{Harvard}{}
334 }

```

9.3.3.16 Nursing and Midwifery

nursing Nursing and Midwifery (school); using the Harvard citation format from the `dcu.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (confirmed by J.Hegarty@ucc.ie).

```

335 \DeclareOption{nursing}{%
336   \school{Nursing and Midwifery}
337   \@usebib[natbib,har2nat]{dcu}{Harvard}{}
338 }

```

9.3.3.17 Obstetrics and Gynaecology

obsgyn Obstetrics and Gynaecology (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by siun.oflynn@ucc.ie).

```

339 \DeclareOption{obsgyn}{%
340   \school{Medicine}
341   \department{Obstetrics and Gynaecology}
342   \@usebib{vancouver}{Vancouver}{}
343 }

```

9.3.3.18 Occupational Therapy

occther Occupational Therapy (department) in Clinical Therapies (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

344 \DeclareOption{occther}{%
345   \school{Clinical Therapies}
346   \department{Occupational Therapy}

```

```
347 \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
348 }
```

9.3.3.19 Oral Health and Development

oralhealth Oral Health and Development (department) in University Dental School and Hospital (hospital); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `f.allen@ucc.ie`).

```
349 \DeclareOption{oralhealth}{%
350   \hospital[]{University Dental School and Hospital}
351   \department{Oral Health and Development}
352   \@usebib{vancouver}{Vancouver}{}
353 }
```

9.3.3.20 Pathology

path Pathology (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
354 \DeclareOption{path}{%
355   \school{Medicine}
356   \department{Pathology}
357   \@usebib{vancouver}{Vancouver}{}
358 }
```

9.3.3.21 Paediatrics and Child Health

pch Paediatrics and Child Health (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
359 \DeclareOption{pch}{%
360   \school{Medicine}
361   \department{Paediatrics and Child Health}
362   \@usebib{vancouver}{Vancouver}{}
363 }
```


9.3.3.22 Pharmacy

pharm Pharmacy (school); using the Harvard citation format from the `kluwer.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
364 \DeclareOption{pharm}{%
365   \school{Pharmacy}
366   \@usebib[natbib,har2nat]{kluwer}{Harvard}{}
367 }
```

9.3.3.23 Pharmacology and Therapeutics

pharmthera Pharmacology and Therapeutics (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
368 \DeclareOption{pharmthera}{%
369   \school{Medicine}
370   \department{Pharmacology and Therapeutics}
371   \@usebib{vancouver}{Vancouver}{}
372 }
```

9.3.3.24 Physiology

physio Physiology (department); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
373 \DeclareOption{physio}{%
374   \department{Physiology}
375   \@usebib{vancouver}{Vancouver}{}
376 }
```

9.3.3.25 Psychiatry

psychiatry Psychiatry (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by T.Dinan@ucc.ie).

```
377 \DeclareOption{psychiatry}{%
378   \school{Medicine}
379   \department{Psychiatry}
380   \@usebib{vancouver}{Vancouver}{}
381 }
```

9.3.3.26 Radiology

radio Radiology (department) in Medicine (school); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
382 \DeclareOption{radio}{%
383   \school{Medicine}
384   \department{Radiology}
385   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
386 }
```

9.3.3.27 Speech and Hearing Sciences

speech Speech and Hearing Sciences (department) in Clinical Therapies (school); using the APA citation format from the `apacite.bst` Bib_TE_X style with the `apacite` package (confirmed by F.Gibbon@ucc.ie).

```
387 \DeclareOption{speech}{%
388   \school{Clinical Therapies}
389   \department{Speech and Hearing Sciences}
390   \@usebib[apacite]{apacite}{APA}{}
391 }
```

9.3.3.28 Surgery

surg Surgery (department) in Medicine (school); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
392 \DeclareOption{surg}{%
393   \school{Medicine}
394   \department{Surgery}
395   \@usebib{vancouver}{Vancouver}{}
396 }
```

9.3.4 SEFS

9.3.4.1 Food Business and Development

foodbus Food Business and Development (department) in Food and Nutritional Sciences (school); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
397 \DeclareOption{foodbus}{%
398   \school{Food and Nutritional Sciences}
399   \department{Food Business and Development}
400   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
401 }
```

9.3.4.2 Statistics

stats Statistics (department); using the Harvard citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
402 \DeclareOption{stats}{%
403   \department{Statistics}
404   \@usebib[natbib,har2nat]{apsr}{Harvard}{}
405 }
```

9.3.4.3 Physiology

physio Physiology (department); using the Vancouver citation format from the `vancouver.bst` Bib_TE_X style (confirmed by `siun.oflynn@ucc.ie`).

```
406 \DeclareOption{physio}{%
407   \department{Physiology}
408   \@usebib{vancouver}{Vancouver}{}
409 }
```

9.3.4.4 Applied Mathematics

appmaths Applied Mathematics (department); using the Default citation format from the `alpha.bst` Bib_TE_X style (unconfirmed).

```
410 \DeclareOption{appmaths}{%
411   \department{Applied Mathematics}
412   \@usebib{alpha}{Default}{}
413 }
```

9.3.4.5 Biological, Earth and Environmental Sciences

bees Biological, Earth and Environmental Sciences (school); using the Oxford citation format from the `apsr.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (confirmed by `108117781@umail.ucc.ie`).

```
414 \DeclareOption{bees}{%
415   \school{Biological, Earth and Environmental Sciences}
416   \@usebib[natbib,har2nat]{apsr}{Oxford}{}
417 }
```

9.3.4.6 Chemistry

chem Chemistry (department) in Faculty of Science (school); using the ACS citation format from the `achemso.bst` Bib_TE_X style with the `natbib` package (confirmed by `j.sodeau@ucc.ie`).

```

418 \DeclareOption{chem}{%
419   \school[] {Faculty of Science}
420   \department {Chemistry}
421   \@usebib[natbib]{achemso}{ACS}{}
422 }

```

9.3.4.7 Process and Chemical Engineering

chemeng Process and Chemical Engineering (department); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

423 \DeclareOption{chemeng}{%
424   \department {Process and Chemical Engineering}
425   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
426 }

```

9.3.4.8 Civil and Environmental Engineering

civil Civil and Environmental Engineering (department) in Engineering (school); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```

427 \DeclareOption{civil}{%
428   \school {Engineering}
429   \department {Civil and Environmental Engineering}
430   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
431 }

```

9.3.4.9 Computer Science

cs Computer Science (department) in Faculty of Science (school); using the Default citation format from the `alpha.bst` Bib_TE_X style (unconfirmed).

```

432 \DeclareOption{cs}{%
433   \school[] {Faculty of Science}
434   \department {Computer Science}

```

```
435 \@usebib{alpha}{Default}{}
436 }
```

9.3.4.10 Electrical and Electronic Engineering

elec Electrical and Electronic Engineering (department) in Engineering (school); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
437 \DeclareOption{elec}{%
438   \school{Engineering}
439   \department{Electrical and Electronic Engineering}
440   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
441 }
```

9.3.4.11 Engineering

engineering Engineering (school); using the Harvard citation format from the `agsm.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
442 \DeclareOption{engineering}{%
443   \school{Engineering}
444   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
445 }
```

9.3.4.12 Food and Nutritional Sciences

food Food and Nutritional Sciences (school); using the Default citation format from the `alpha.bst` Bib_TE_X style (unconfirmed).

```
446 \DeclareOption{food}{%
447   \school{Food and Nutritional Sciences}
448   \@usebib{alpha}{Default}{}
449 }
```

9.3.4.13 Geology

geol Geology (department) in Faculty of Science (school); using the Default citation format from the `alpha.bst` Bib_TE_X style (unconfirmed).

```
450 \DeclareOption{geol}{%
451   \school[] {Faculty of Science}
452   \department {Geology}
453   \@usebib{alpha}{Default}{}
454 }
```

9.3.4.14 Mathematics

maths Mathematics (department) in Mathematical Sciences (school); using the Default citation format from the `alpha.bst` Bib_TE_X style (unconfirmed).

```
455 \DeclareOption{maths}{%
456   \school {Mathematical Sciences}
457   \department {Mathematics}
458   \@usebib{alpha}{Default}{}
459 }
```

9.3.4.15 Microbiology

microbio Microbiology (department); using the Default citation format from the `alpha.bst` Bib_TE_X style (unconfirmed).

```
460 \DeclareOption{microbio}{%
461   \department {Microbiology}
462   \@usebib{alpha}{Default}{}
463 }
```

9.3.4.16 Microelectronic Engineering

microelec Microelectronic Engineering (department) in Engineering (school); using the Harvard citation format from the

agsm.bst Bib_TE_X style with the natbib and har2nat packages (unconfirmed).

```
464 \DeclareOption{microelec}{%
465   \school{Engineering}
466   \department{Microelectronic Engineering}
467   \@usebib[natbib,har2nat]{agsm}{Harvard}{}
468 }
```

9.3.4.17 Physics

physics Physics (department) in Science (school); using the Transactions of the IEEE citation format from the ieeeetr.bst Bib_TE_X style (confirmed by pjm@ucc.ie).

```
469 \DeclareOption{physics}{%
470   \school{Science}
471   \department{Physics}
472   \@usebib{ieeeetr}{Transactions of the IEEE}{}
473 }
```

9.3.4.18 Faculty of Science

scifac Faculty of Science (school); using the Default citation format from the alpha.bst Bib_TE_X style (unconfirmed).

```
474 \DeclareOption{scifac}{%
475   \school[] {Faculty of Science}
476   \@usebib{alpha}{Default}{}
477 }
```

9.3.4.19 Zoology, Ecology and Plant Science

zeps Zoology, Ecology and Plant Science (school); using the Oxford citation format from the oxford_en.bst Bib_TE_X style with the oxford package (confirmed by j.ohalloran@ucc.ie).

```
478 \DeclareOption{zeps}{%
479   \school{Zoology, Ecology and Plant Science}
480   \@usebib[oxford]{oxford_en}{Oxford}{}

```



```
481 }
```

9.3.5 INST

9.3.5.1 Irish Management

`imi` Irish Management (institute); using the Harvard citation format from the `dcu.bst` Bib_TE_X style with the `natbib` and `har2nat` packages (unconfirmed).

```
482 \DeclareOption{imi}{%
483   \institute{Irish Management}
484   \@usebib[natbib,har2nat]{dcu}{Harvard}{}
485 }
```

9.3.5.2 Tyndall National

`tyndall` Tyndall National (institute); using the Alpha citation format from the `alpha.bst` Bib_TE_X style (unconfirmed).

```
486 \DeclareOption{tyndall}{%
487   \institute{Tyndall National}
488   \@usebib{alpha}{Alpha}{}
489 }
```

9.4 Degree options

These are the degree options: these are static and require three ancillary commands to define them in a similar manner to those for the divisions. These declarations are generated from an XML structure in the master document.

`\@degreehandle` A handle for the degree title.

```
490 \def\@degreehandle{Degree of \@degree}
```

`\@degree` A default value.

```
491 \def\@degree{[Unspecified]}
```

`\degree` The switch `\ifthesis` is used to detect non-thesis use (for example when the document class is used for its own documentation, or for a term paper or essay).

```
492 \newif\ifthesis
493 \newcommand{\degree}[1]{\gdef\@degree{#1}\thesistrue}
```

9.4.1 ACSSS

9.4.1.1 Doctor of Literature

`dlitt` Doctor of Literature; .

```
494 \DeclareOption{dlitt}{%
495   \degree{Doctor of Literature}
496 }
```

9.4.1.2 Doctor of Celtic Literature

`dlittcelt` Doctor of Celtic Literature; .

```
497 \DeclareOption{dlittcelt}{%
498   \degree{Doctor of Celtic Literature}
499 }
```

9.4.1.3 Doctor of Music

`dmus` Doctor of Music; .

```
500 \DeclareOption{dmus}{%
501   \degree{Doctor of Music}
502 }
```

9.4.1.4 Doctor of Social Science

`dsocsci` Doctor of Social Science; .

```
503 \DeclareOption{dsocsci}{%
504   \degree{Doctor of Social Science}
505 }
```

9.4.1.5 Doctor of Philosophy

`phd` Doctor of Philosophy; .

```
506 \DeclareOption{phd}{%  
507   \degree{Doctor of Philosophy}  
508 }
```

9.4.1.6 Doctor of Philosophy in Education — Structured

`phded` Doctor of Philosophy in Education — Structured; .

```
509 \DeclareOption{phded}{%  
510   \degree{Doctor of Philosophy in Education~--- Structured}  
511 }
```

9.4.1.7 Doctor of Philosophy in Social Sciences

`phdss` Doctor of Philosophy in Social Sciences; .

```
512 \DeclareOption{phdss}{%  
513   \degree{Doctor of Philosophy in Social Sciences}  
514 }
```

9.4.1.8 Doctor of Philosophy in Texts, Contexts and Cultures

`phdtcc` Doctor of Philosophy in Texts, Contexts and Cultures; .

```
515 \DeclareOption{phdtcc}{%  
516   \degree{Doctor of Philosophy in Texts, Contexts and Cultures}  
517 }
```

9.4.1.9 Master of Arts

ma Master of Arts; .

```
518 \DeclareOption{ma}{%
519   \degree{Master of Arts}
520 }
```

9.4.1.10 Master of Business Systems (Asian Business)

mbsasian Master of Business Systems (Asian Business); .

```
521 \DeclareOption{mbsasian}{%
522   \degree{Master of Business Systems
523           (Asian Business)}
524 }
```

9.4.1.11 Master of Education

med Master of Education; .

```
525 \DeclareOption{med}{%
526   \degree{Master of Education}
527 }
```

9.4.1.12 Master of Philosophy

mphil Master of Philosophy; .

```
528 \DeclareOption{mphil}{%
529   \degree{Master of Philosophy}
530 }
```

9.4.1.13 Master of Planning and Sustainable Development

mplan Master of Planning and Sustainable Development; .

```
531 \DeclareOption{mplan}{%
532   \degree{Master of Planning and Sustainable Development}
533 }
```

9.4.1.14 Master of Social Science

`msocsc` Master of Social Science; .

```
534 \DeclareOption{msocsc}{%
535   \degree{Master of Social Science}
536 }
```

9.4.1.15 Master of Social Work

`msw` Master of Social Work; .

```
537 \DeclareOption{msw}{%
538   \degree{Master of Social Work}
539 }
```

9.4.2 BUSLAW

9.4.2.1 Doctor of Philosophy

`phd` Doctor of Philosophy; .

```
540 \DeclareOption{phd}{%
541   \degree{Doctor of Philosophy}
542 }
```

9.4.2.2 Master of Business Systems (Asian Business)

`mbsasian` Master of Business Systems (Asian Business); .

```
543 \DeclareOption{mbsasian}{%
544   \degree{Master of Business Systems
545           (Asian Business)}
546 }
```

9.4.2.3 Doctor of Business Economics

dbe Doctor of Business Economics; .

```
547 \DeclareOption{dbe}{%
548   \degree{Doctor of Business Economics}
549 }
```

9.4.2.4 Doctor of Economic Science

deconsc Doctor of Economic Science; .

```
550 \DeclareOption{deconsc}{%
551   \degree{Doctor of Economic Science}
552 }
```

9.4.2.5 Doctor of Law

lld Doctor of Law; .

```
553 \DeclareOption{lld}{%
554   \degree{Doctor of Law}
555 }
```

9.4.2.6 Doctor of Philosophy in Business Information Systems

phdbis Doctor of Philosophy in Business Information Systems; .

```
556 \DeclareOption{phdbis}{%
557   \degree{Doctor of Philosophy in Business Information Systems}
558 }
```

9.4.2.7 Master of Law

llm Master of Law; .

```
559 \DeclareOption{llm}{%
560   \degree{Master of Law}
561 }
```

9.4.2.8 Master of Law (Criminal Justice)

llmcj Master of Law (Criminal Justice); .

```
562 \DeclareOption{llmcj}{%
563   \degree{Master of Law
564           (Criminal Justice)}
565 }
```

9.4.2.9 Master of Law (e-Law)

llme Master of Law (e-Law); .

```
566 \DeclareOption{llme}{%
567   \degree{Master of Law
568           (e-Law)}
569 }
```

9.4.2.10 Master of Law (Practitioner)

llmp Master of Law (Practitioner); .

```
570 \DeclareOption{llmp}{%
571   \degree{Master of Law
572           (Practitioner)}
573 }
```

9.4.2.11 Master of Business Administration

mba Master of Business Administration; .

```
574 \DeclareOption{mba}{%
575   \degree{Master of Business Administration}
576 }
```

9.4.2.12 Master of Business Systems

mbs Master of Business Systems; .

```
577 \DeclareOption{mbs}{%
578   \degree{Master of Business Systems}
579 }
```

9.4.2.13 Master of Business Systems (Business Economics)

mbsbe Master of Business Systems (Business Economics); .

```
580 \DeclareOption{mbsbe}{%
581   \degree{Master of Business Systems
582           (Business Economics)}
583 }
```

9.4.2.14 Master of Business Systems (Business Information Systems)

mbsbis Master of Business Systems (Business Information Systems); .

```
584 \DeclareOption{mbsbis}{%
585   \degree{Master of Business Systems
586           (Business Information Systems)}
587 }
```

9.4.2.15 Master of Business Systems (Economics of Business Practice)

mbsbp Master of Business Systems (Economics of Business Practice); .

```
588 \DeclareOption{mbsbp}{%
589   \degree{Master of Business Systems
590           (Economics of Business Practice)}
591 }
```


9.4.2.16 Master of Business Systems (Co-operative and Social Enterprise)

mbscse Master of Business Systems (Co-operative and Social Enterprise); .

```
592 \DeclareOption{mbscse}{%
593   \degree{Master of Business Systems
594           (Co-operative and Social Enterprise)}
595 }
```

9.4.2.17 Master of Business Systems (Electronic Business)

mbseb Master of Business Systems (Electronic Business); .

```
596 \DeclareOption{mbseb}{%
597   \degree{Master of Business Systems
598           (Electronic Business)}
599 }
```

9.4.2.18 Master of Business Systems (Food Marketing)

mbsfm Master of Business Systems (Food Marketing); .

```
600 \DeclareOption{mbsfm}{%
601   \degree{Master of Business Systems
602           (Food Marketing)}
603 }
```

9.4.2.19 Master of Business Systems (Government)

mbsg Master of Business Systems (Government); .

```
604 \DeclareOption{mbsg}{%
605   \degree{Master of Business Systems
606           (Government)}
607 }
```

9.4.2.20 Master of Business Systems (Health Services Management)

`mbsshm` Master of Business Systems (Health Services Management); .

```
608 \DeclareOption{mbsshm}{%
609   \degree{Master of Business Systems
610           (Health Services Management)}
611 }
```

9.4.2.21 Master of Business Systems (Innovation in European Business)

`mbsieb` Master of Business Systems (Innovation in European Business); .

```
612 \DeclareOption{mbsieb}{%
613   \degree{Master of Business Systems
614           (Innovation in European Business)}
615 }
```

9.4.2.22 Master of Business Systems (International Public Policy and Diplomacy)

`mbsippd` Master of Business Systems (International Public Policy and Diplomacy); .

```
616 \DeclareOption{mbsippd}{%
617   \degree{Master of Business Systems
618           (International Public Policy and Diplomacy)}
619 }
```

9.4.2.23 Master of Business Systems (Information Systems for Business Performance)

`mbsisbp` Master of Business Systems (Information Systems for Business Performance); .

```

620 \DeclareOption{mbsisbp}{%
621   \degree{Master of Business Systems
622     (Information Systems for Business Performance)}
623 }

```

9.4.2.24 Master of Business Systems (Management Information and Managerial Accounting Systems)

mbsmimas Master of Business Systems (Management Information and Managerial Accounting Systems); .

```

624 \DeclareOption{mbsmimas}{%
625   \degree{Master of Business Systems
626     (Management Information and Managerial Accounting Systems)}
627 }

```

9.4.2.25 Master of Business Systems (Management and Marketing)

mbsmm Master of Business Systems (Management and Marketing); .

```

628 \DeclareOption{mbsmm}{%
629   \degree{Master of Business Systems
630     (Management and Marketing)}
631 }

```

9.4.2.26 Master of Commerce

mcomm Master of Commerce; .

```

632 \DeclareOption{mcomm}{%
633   \degree{Master of Commerce}
634 }

```

9.4.2.27 Master of Commerce (Supply Chain Management — Lean SCM Black Belt)

mcommbb Master of Commerce (Supply Chain Management — Lean SCM Black Belt); .

```
635 \DeclareOption{mcommbb}{%
636   \degree{Master of Commerce
637           (Supply Chain Management~--- Lean SCM Black Belt)}
638 }
```

9.4.2.28 Master of Commerce (Business Economics)

mcommbe Master of Commerce (Business Economics); .

```
639 \DeclareOption{mcommbe}{%
640   \degree{Master of Commerce
641           (Business Economics)}
642 }
```

9.4.2.29 Master of Commerce (Government and Public Policy)

mcommgpp Master of Commerce (Government and Public Policy); .

```
643 \DeclareOption{mcommgpp}{%
644   \degree{Master of Commerce
645           (Government and Public Policy)}
646 }
```

9.4.2.30 Master of Commerce (Supply Chain Management)

mcommscm Master of Commerce (Supply Chain Management); .

```
647 \DeclareOption{mcommscm}{%
648   \degree{Master of Commerce
649           (Supply Chain Management)}
650 }
```

9.4.2.31 Master of Economic Science

`meconsc` Master of Economic Science; .

```
651 \DeclareOption{meconsc}{%
652   \degree{Master of Economic Science}
653 }
```

9.4.2.32 Master of Science (Corporate Finance)

`mccf` Master of Science (Corporate Finance); .

```
654 \DeclareOption{mccf}{%
655   \degree{Master of Science
656           (Corporate Finance)}
657 }
```

9.4.2.33 Master of Science (Financial Economics)

`mscfe` Master of Science (Financial Economics); .

```
658 \DeclareOption{mscfe}{%
659   \degree{Master of Science
660           (Financial Economics)}
661 }
```

9.4.2.34 Master of Science (Health Economics)

`msche` Master of Science (Health Economics); .

```
662 \DeclareOption{msche}{%
663   \degree{Master of Science
664           (Health Economics)}
665 }
```

9.4.3 MED

9.4.3.1 Doctor of Philosophy

phd Doctor of Philosophy; .

```
666 \DeclareOption{phd}{%  
667   \degree{Doctor of Philosophy}  
668 }
```

9.4.3.2 Doctor of Clinical Dentistry

dclindent Doctor of Clinical Dentistry; .

```
669 \DeclareOption{dclindent}{%  
670   \degree{Doctor of Clinical Dentistry}  
671 }
```

9.4.3.3 Doctor of Medicine

dmed Doctor of Medicine; .

```
672 \DeclareOption{dmed}{%  
673   \degree{Doctor of Medicine}  
674 }
```

9.4.3.4 Doctor of Nursing Practice

dnp Doctor of Nursing Practice; .

```
675 \DeclareOption{dnp}{%  
676   \degree{Doctor of Nursing Practice}  
677 }
```

9.4.3.5 Doctor of Occupational Therapy

docct Doctor of Occupational Therapy; .

```
678 \DeclareOption{docct}{%  
679   \degree{Doctor of Occupational Therapy}  
680 }
```

9.4.3.6 Doctor of Medicine

md Doctor of Medicine; .

```
681 \DeclareOption{md}{%
682   \degree{Doctor of Medicine}
683 }
```

9.4.3.7 Doctor of Philosophy in Cancer Biology

phdcb Doctor of Philosophy in Cancer Biology; .

```
684 \DeclareOption{phdcb}{%
685   \degree{Doctor of Philosophy in Cancer Biology}
686 }
```

9.4.3.8 Doctor of Philosophy in Health Services Research

phdhsr Doctor of Philosophy in Health Services Research; .

```
687 \DeclareOption{phdhsr}{%
688   \degree{Doctor of Philosophy in Health Services Research}
689 }
```

9.4.3.9 Master of Obstetrics

mao Master of Obstetrics; .

```
690 \DeclareOption{mao}{%
691   \degree{Master of Obstetrics}
692 }
```

9.4.3.10 Master of Surgery

mch Master of Surgery; .

```
693 \DeclareOption{mch}{%
694   \degree{Master of Surgery}
695 }
```

9.4.3.11 Master in Dental Public Health

`mdph` Master in Dental Public Health; .

```
696 \DeclareOption{mdph}{%
697   \degree{Master in Dental Public Health}
698 }
```

9.4.3.12 Master of Dental Science

`mds` Master of Dental Science; .

```
699 \DeclareOption{mds}{%
700   \degree{Master of Dental Science}
701 }
```

9.4.3.13 Master in Sport and Exercise Medicine

`mmedsc` Master in Sport and Exercise Medicine; .

```
702 \DeclareOption{mmedsc}{%
703   \degree{Master in Sport and Exercise Medicine}
704 }
```

9.4.3.14 Master in Public Health

`mph` Master in Public Health; .

```
705 \DeclareOption{mph}{%
706   \degree{Master in Public Health}
707 }
```

9.4.3.15 Master of Science (Clinical Pharmacy)

`mscpp` Master of Science (Clinical Pharmacy); .

```
708 \DeclareOption{mscpc}{%
709   \degree{Master of Science
710           (Clinical Pharmacy)}
711 }
```


9.4.3.16 Master of Science (Evidence-Based Therapy Practice)

`mscebt` Master of Science (Evidence-Based Therapy Practice); .

```
712 \DeclareOption{mscebt}{%
713   \degree{Master of Science
714             (Evidence-Based Therapy Practice)}
715 }
```

9.4.3.17 Master of Science (Midwifery)

`mscm` Master of Science (Midwifery); .

```
716 \DeclareOption{mscm}{%
717   \degree{Master of Science
718             (Midwifery)}
719 }
```

9.4.3.18 Master of Science (Obstetrics and Gynaecology)

`mscog` Master of Science (Obstetrics and Gynaecology); .

```
720 \DeclareOption{mscog}{%
721   \degree{Master of Science
722             (Obstetrics and Gynaecology)}
723 }
```

9.4.3.19 Master of Science (Occupational Health)

`mscoh` Master of Science (Occupational Health); .

```
724 \DeclareOption{mscoh}{%
725   \degree{Master of Science
726             (Occupational Health)}
727 }
```

9.4.3.20 Master of Science (Pharmaceutical Technology and Quality Systems)

`mscptqs` Master of Science (Pharmaceutical Technology and Quality Systems); .

```
728 \DeclareOption{mscptqs}{%
729   \degree{Master of Science
730           (Pharmaceutical Technology and Quality Systems)}
731 }
```

9.4.4 SEFS

9.4.4.1 Doctor of Philosophy

`phd` Doctor of Philosophy; .

```
732 \DeclareOption{phd}{%
733   \degree{Doctor of Philosophy}
734 }
```

9.4.4.2 Master of Planning and Sustainable Development

`mplan` Master of Planning and Sustainable Development; .

```
735 \DeclareOption{mplan}{%
736   \degree{Master of Planning and Sustainable Development}
737 }
```

9.4.4.3 Doctor of Science

`dsc` Doctor of Science; .

```
738 \DeclareOption{dsc}{%
739   \degree{Doctor of Science}
740 }
```

9.4.4.4 Master of Engineering

`me` Master of Engineering; .

```
741 \DeclareOption{me}{%
742   \degree{Master of Engineering}
743 }
```

9.4.4.5 Master of Engineering Science

`mengsc` Master of Engineering Science; .

```
744 \DeclareOption{mengsc}{%
745   \degree{Master of Engineering Science}
746 }
```

9.4.4.6 Master of Engineering Science (Information Technology in Architecture, Engineering and Construction)

`mengscit` Master of Engineering Science (Information Technology in Architecture, Engineering and Construction); .

```
747 \DeclareOption{mengscit}{%
748   \degree{Master of Engineering Science
749           (Information Technology in Architecture, Engineering and Construction)
750 }
```

9.4.4.7 Master of Engineering Science (Microelectronics)

`mengscm` Master of Engineering Science (Microelectronics); .

```
751 \DeclareOption{mengscm}{%
752   \degree{Master of Engineering Science
753           (Microelectronics)}
754 }
```

9.4.4.8 Master of Engineering Science (Microelectronic Design)

mengscmd Master of Engineering Science (Microelectronic Design); .

```
755 \DeclareOption{mengscmd}{%
756   \degree{Master of Engineering Science
757           (Microelectronic Design)}
758 }
```

9.4.4.9 Master of Engineering Science in Mechanical Engineering (Manufacturing, Process and Automation Systems)

mengscme Master of Engineering Science in Mechanical Engineering
(Manufacturing, Process and Automation Systems); .

```
759 \DeclareOption{mengscme}{%
760   \degree{Master of Engineering Science in Mechanical Engineering
761           (Manufacturing, Process and Automation Systems)}
762 }
```

9.4.4.10 Master of Engineering Science (Pharmaceutical and Biopharmaceutical Engineering)

mengscpbe Master of Engineering Science (Pharmaceutical and
Biopharmaceutical Engineering); .

```
763 \DeclareOption{mengscpbe}{%
764   \degree{Master of Engineering Science
765           (Pharmaceutical and Biopharmaceutical Engineering)}
766 }
```

9.4.4.11 Master of Engineering Science (Sustainable Energy)

mengscse Master of Engineering Science (Sustainable Energy); .

```
767 \DeclareOption{mengscse}{%
768   \degree{Master of Engineering Science
```

```
769         (Sustainable Energy)}  
770 }
```

9.4.4.12 Master of Science

msc Master of Science; .

```
771 \DeclareOption{msc}{%  
772   \degree{Master of Science}  
773 }
```

9.4.4.13 Master of Applied Science (Analytical Chemistry)

mscac Master of Applied Science (Analytical Chemistry); .

```
774 \DeclareOption{mscac}{%  
775   \degree{Master of Applied Science  
776           (Analytical Chemistry)}  
777 }
```

9.4.4.14 Master of Applied Science (Analysis of Pharmaceutical Compounds)

mscapc Master of Applied Science (Analysis of Pharmaceutical Compounds); .

```
778 \DeclareOption{mscapc}{%  
779   \degree{Master of Applied Science  
780           (Analysis of Pharmaceutical Compounds)}  
781 }
```

9.4.4.15 Master of Applied Science (Biotechnology)

mscb Master of Applied Science (Biotechnology); .

```
782 \DeclareOption{mscb}{%  
783   \degree{Master of Applied Science  
784           (Biotechnology)}  
785 }
```

9.4.4.16 Master of Applied Science (Bioinformatics with Systems Biology)

`mscbsb` Master of Applied Science (Bioinformatics with Systems Biology); .

```
786 \DeclareOption{mscbsb}{%
787   \degree{Master of Applied Science
788           (Bioinformatics with Systems Biology)}
789 }
```

9.4.4.17 Master of Science (Co-operative Organisation/Food Marketing/Rural Development)

`msccoop` Master of Science (Co-operative Organisation/Food Marketing/Rural Development); .

```
790 \DeclareOption{msccoop}{%
791   \degree{Master of Science
792           (Co-operative Organisation/Food Marketing/Rural Development)}
793 }
```

9.4.4.18 Master of Applied Science (Ecological Assessment)

`mscea` Master of Applied Science (Ecological Assessment); .

```
794 \DeclareOption{mscea}{%
795   \degree{Master of Applied Science
796           (Ecological Assessment)}
797 }
```

9.4.4.19 Master of Applied Science (Environmental Analytical Chemistry)

`msceac` Master of Applied Science (Environmental Analytical Chemistry); .

```
798 \DeclareOption{msceac}{%
799   \degree{Master of Applied Science
```

```
800         (Environmental Analytical Chemistry)}
801 }
```

9.4.4.20 Master of Science (Food Business)

mscfb Master of Science (Food Business); .

```
802 \DeclareOption{mscfb}{%
803   \degree{Master of Science
804           (Food Business)}
805 }
```

9.4.4.21 Master of Applied Science (Food Microbiology)

mscfm Master of Applied Science (Food Microbiology); .

```
806 \DeclareOption{mscfm}{%
807   \degree{Master of Applied Science
808           (Food Microbiology)}
809 }
```

9.4.4.22 Master of Applied Science (Food Science)

mscfs Master of Applied Science (Food Science); .

```
810 \DeclareOption{mscfs}{%
811   \degree{Master of Applied Science
812           (Food Science)}
813 }
```

9.4.4.23 Master of Applied Science (Geographical Information Systems and Remote Sensing)

mscgis Master of Applied Science (Geographical Information Systems and Remote Sensing); .

```
814 \DeclareOption{mscgis}{%
```

```

815 \degree{Master of Applied Science
816           (Geographical Information Systems and Remote Sensing)}
817 }

```

9.4.4.24 Master of Applied Science (Marine Biology)

mscmb Master of Applied Science (Marine Biology); .

```

818 \DeclareOption{mscmb}{%
819 \degree{Master of Applied Science
820           (Marine Biology)}
821 }

```

9.4.4.25 Master of Applied Science (Mathematical Modelling and Scientific Computing)

mscmssc Master of Applied Science (Mathematical Modelling and Scientific Computing); .

```

822 \DeclareOption{mscmssc}{%
823 \degree{Master of Applied Science
824           (Mathematical Modelling and Scientific Computing)}
825 }

```

9.4.4.26 Master of Applied Science (Nutritional Sciences)

mscns Master of Applied Science (Nutritional Sciences); .

```

826 \DeclareOption{mscns}{%
827 \degree{Master of Applied Science
828           (Nutritional Sciences)}
829 }

```

9.4.4.27 Master of Science (Rural Development)

mscrd Master of Science (Rural Development); .


```

830 \DeclareOption{mscrd}{%
831   \degree{Master of Science
832     (Rural Development)}
833 }

```

9.4.4.28 Master of Applied Science (Software and Systems for Mobile Networks)

`msscsmn` Master of Applied Science (Software and Systems for Mobile Networks); .

```

834 \DeclareOption{msscsmn}{%
835   \degree{Master of Applied Science
836     (Software and Systems for Mobile Networks)}
837 }

```

9.4.4.29 Master of Science (Technology Management)

`msctm` Master of Science (Technology Management); .

```

838 \DeclareOption{msctm}{%
839   \degree{Master of Science
840     (Technology Management)}
841 }

```

9.5 Other options

The remaining options mainly affect formatting.

9.5.1 Draft and final modes

`\class@mode` Draft mode is the default, but we define a macro to allow it to be passed through to the report class as a default.

```

842 \def\class@mode{draft}

```

`draft` We set the overfull rule as normal for draft mode, and set the running footer to indicate draft mode for activation at the end of processing, once the fancyhdr package has been loaded. It also sets `\sloppy` and `\raggedbottom`, as these are likely to prove useful in complex texts with substantial amounts of mixed formatting (mathematics, figures, tables, long words, etc).

```
843 \def\@revdate{\relax}
844 \DeclareOption{draft}{\setlength\overfullrule{5pt}%
845   \def\class@mode{draft}%
846   \sloppy\raggedbottom
847   \AtEndOfClass{%
848     \lfoot{\scriptsize\ttfamily Draft: \jobname}%
849     \rfoot{\scriptsize\ttfamily
850       \if\relax\@revdate
851         \TODAY T\now:00\else\@revdate\fi}}%
852   \typeout{DRAFT MODE}}
853 \newcommand{\revdate}[1]{\gdef\@revdate{#1}}
```

`final` The final-mode setting sets the overfull rule to nothing, records the status in `\class@mode`, and sets the same tolerances as for draft mode.

```
854 \DeclareOption{final}{\setlength\overfullrule{0pt}%
855   \def\class@mode{final}%
856   \sloppy\raggedbottom
857   \typeout{Final mode}}
```

9.5.2 Type size and paper size

`\class@size` Provide a similar recording feature to pass the size option through to the report class. The default is 11pt.

```
858 \def\class@size{11pt}
859 \DeclareOption{10pt}{\def\class@size{10pt}}
860 \DeclareOption{11pt}{\def\class@size{11pt}}
861 \DeclareOption{12pt}{\def\class@size{12pt}}
```

`\class@paper` The same applies to passing the paper size. Only A4 and Letter are relevant here.

```

862 \def\class@paper{a4paper}
863 \DeclareOption{a4paper}{\def\class@paper{a4paper}}
864 \DeclareOption{letterpaper}{\def\class@paper{letterpaper}}

```

9.5.3 Turning off the Lists of Tables and Figures

Production of a List of Tables and a List of Figures is automated: if no figure or table is used, then no list is produced.

no1ot Allow thesis not to have any List of Tables with the **no1ot** option and the `\if1ot` switch.

```

865 \newif\if1ot\lottrue
866 \DeclareOption{no1ot}{\lotfalse}

```

no1of Allow thesis not to have any List of Figures with the **no1of** option and the `\if1of` switch.

```

867 \newif\if1of\loftrue
868 \DeclareOption{no1of}{\loffalse}

```

At the end of the document, the counters for figures and tables are tested, and the false value written to the auxiliary file, where it will be detected on the next pass.

```

869 \newcounter{UCC@totfig}
870 \newcounter{UCC@tottab}
871 \AtBeginDocument{%
872   \let\UCC@end@figure\endfigure
873   \newcommand{\UCC@endfigure}{\UCC@endfigure\global\advance\c@UCC@totfig by1}
874   \let\endfigure\UCC@endfigure
875   \let\UCC@end@table\endtable
876   \newcommand{\UCC@endtable}{\UCC@end@table\global\advance\c@UCC@tottab by1}
877   \let\endtable\UCC@endtable
878 }
879 \AtEndDocument{%
880   \ifnum\c@UCC@totfig=0 \write\@mainaux{%
881     \string\global\string\loffalse}\fi
882   \ifnum\c@UCC@tottab=0 \write\@mainaux{%
883     \string\global\string\lotfalse}\fi
884 }

```

`shorttoc` Allow the Table of Contents to be limited to subsections

```
885 \newif\ifshorttoc\shorttocfalse
886 \DeclareOption{shorttoc}{\shorttoctrue}
```

9.5.4 Irish-language theses

`gaeilge` Provide for theses in Irish. This option loads the `babel` package with the `english` and `irish` options, with `irish` in the last place as the default language for the document. It also loads the `eiad` font package for sean-chló type.

```
887 \DeclareOption{gaeilge}{%
```

At the end of the package processing, it makes some changes to tokens which are not handled by the `babel` package (`\institution` [defined in this package], `\ackname` [defined in the package], and `\today` [defined by `LATEX`]).

```
888 \AtEndOfClass{%
889 \RequirePackage[english,irish]{babel}%
890 \RequirePackage{eiad}%
891 \institution{\textsc{\large
892 Col\'aiste Naisi\'unta na h\'Eireann, Corcaigh}}
893 \renewcommand\ackname{Bu\'i ochas}
894 \def\today{\number\day\space\ifcase\month\or
895 Ean\'a\'i r\'or Feabhra\'or M\'arta\'or A\'i bre\'an\'or
896 Bealta\'i ne\'or Me\'i theamh\'or U\'u\'i l\'or L\'unasa\'or
897 Me\'an F\'omha\'i r\'or De\'i readh F\'omha\'i r\'or
898 Samha\'i n\'or M\'i\ na Nollag\fi\space
899 \number\year}%
```

Finally, we change the tokens for the handles previously defined for the division and degree options above; and we `preset \raggedright` because the hyphenation of Irish is widely regarded as problematic.

```
900 \def\@schoolhandle{Scoil an}
901 \def\@departmenthandle{Roinn an}
902 \def\@institutehandle{Institúid }
903 \def\@hospitalhandle{Spidéal }
904 \def\@centrehandle{Lárionad}
```

```

905 \def\@unithandle{???}
906 \def\@degreehandle{???}
907 \raggedright
908 }}

```

9.5.5 Chinese, Japanese, and Korean

`cjk` CJK setting needs the CJK package preloaded, so we flag it with an option in order to activate it later via the `\ifcjk` switch.

```

909 \newif\ifcjk\cjkfalse
910 \DeclareOption{cjk}{\cjktrue}

```

9.5.6 Wordprocessor emulation

`wp` This enables the formatting to resemble the *Word* defaults. This too is experimental.

```

911 \DeclareOption{wp}{%
912 \AtBeginDocument{%
913 \everypar{\vrule depth.2ex width0pt}%
914 \RequirePackage{pslatex,ragged2e}%
915 \RaggedRight
916 \hyphenpenalty=99999 \exhyphenpenalty=99999
917 \def\@makechapterhead#1{%
918 \begin{center}\normalfont
919 \ifnum \c@secnumdepth >\m@ne
920 \if@mainmatter
921 \LARGE{\sffamily{\@chapapp}\space
922 \LARGE\thechapter}%
923 \par\nobreak
924 \vspace*{2\baselineskip}%
925 \fi
926 \fi
927 \interlinepenalty\@M
928 \Huge\sffamily #1\par\nobreak
929 \vspace*{3\baselineskip}%
930 \end{center}}%
931 \renewcommand\section{%

```

```

932     \@startsection{section}{1}{\z@}%
933         {-2\baselineskip}%
934         {\baselineskip}%
935         {\normalfont\sffamily\LARGE\bfseries}}%
936 \renewcommand\subsection{%
937     \@startsection{subsection}{2}{\z@}%
938         {-2\baselineskip}%
939         {\baselineskip}%
940         {\normalfont\sffamily\Large\bfseries}}%
941 \renewcommand\subsubsection{%
942     \@startsection{subsubsection}{3}{\z@}%
943         {-\baselineskip}%
944         {\baselineskip}%
945         {\normalfont\sffamily\large\bfseries}}%
946 \renewcommand\paragraph{%
947     \@startsection{paragraph}{4}{\z@}%
948         {\baselineskip}%
949         {-.5\baselineskip}%
950         {\normalfont\sffamily\normalsize}}%
951 \let\subsubsubsection\paragraph
952 \renewcommand\subparagraph{%
953     \@startsection{subparagraph}{5}{\parindent}%
954         {\baselineskip}%
955         {-.1pt}%
956         {\normalfont\sffamily\normalsize\itshape}}%
957 \let\subsubsubsubsection\subparagraph
958 \setcounter{secnumdepth}{-1}
959 \let\@makefn\oldfn\text
960 \renewcommand{\footnoterule}{\par\vspace*{1pc}}%
961 \pagestyle{fancy}%
962 \lhead{}\rhead{}\chead{}%
963 \lfoot{}\cfoot{\thepage}\rfoot{}%
964 \renewcommand{\headrulewidth}{0pt}%
965 \def\TeX{TeX}\def\LaTeX{LaTeX}\def\BIBTeX{BibTeX}
966 \doublespacing\raggedbottom
967 \typeout{Wordprocessor-style formatting}}%

```

9.5.7 Justification, indentation, and paragraph-spacing

This is a much-argued area.

`\ifjustified` Documents printed on office-size paper do not read easily when justified with long line-lengths such as those effective when the Registrar’s Rules are applied to A4 or Letter paper. The default is therefore for justification to be turned off, but the **justified** option is provided to allow it to be turned back on by setting the `\ifjustified` switch.

```
968 \newif\ifjustified
969 \DeclareOption{justified}{\justifiedtrue}
```

`\ifindented` However, it is also easier to read long structured documents when the paragraphs are *not* set snug with indentation, like a book, but spaced out (and therefore unindented, as you never use indentation when using paragraph-space in Anglo-American printing). We therefore flag indentation in an option which sets the `\ifindented` switch, so that it can be set or unset later, along with paragraph-spacing using the `parskip` package.

```
970 \newif\ifindented\indentedfalse
971 \DeclareOption{indented}{\indentedtrue}
```

9.5.8 Running headers and footers

`\iffancy` Because theses are long documents, and because parts or all of them are likely to be reprinted or even photocopied at some stage, it is important that every page should be identifiable in isolation. The `fancyhdr` package is used to do this, but some users were insistent that they did not want running headers and footers, so the **plainheaders** allows it to be turned off via the `\iffancy` switch.

```
972 \newif\iffancy
973 \fancytrue
974 \DeclareOption{plainheaders}{\fancyfalse}
```

9.5.9 Dissertations, term papers, and essays

WARNING: EXPERIMENTAL

mdiss This is for minor dissertations.

```
975 \newif\ifdiss
976 \DeclareOption{mdiss}{%
977   \disstrue
978   \fancyfalse
979 }
```

termpaper This is for term papers.

```
980 \newif\iftermpaper
981 \DeclareOption{termpaper}{%
982   \AtEndOfClass{%
983     \degree{}%
984     \def\@degree{\relax}%
985     \degreefalse}%
986   \typeout{Term paper}}
```

essay This is for undergraduate essays.

```
987 \newif\ifessay
988 \DeclareOption{essay}{%
989   \AtEndOfClass{%
990     \degree{}%
991     \def\@degree{\relax}%
992     \degreefalse}%
993   \typeout{Essay}}
```

9.5.10 Two-sided output

These are normally printed on one side of the paper for submission, especially for externs to read.

The **twoside** is available for when a very long thesis needs to economise on paper, or when the thesis is being bound as a book.

```
994 \newif\ifUCC@oneside
995 \UCC@onesidetrue
996 \def\UCC@sided{oneside}
997 \DeclareOption{oneside}{
998   \UCC@onesidetrue
```



```

999 \gdef\UCC@sided{oneside}
1000 }
1001 \DeclareOption{twoside}{
1002   \UCC@onesidefalse
1003   \gdef\UCC@sided{twoside,openright}
1004 }
1005 %% added openright for Ethan Soudi (untested)

```

9.5.11 Applying the options

At last, issue an error message for any bogus or unsupported options:

```

1006 \DeclareOption*{%
1007   \PackageWarning{uccthesis}{Unknown option '\CurrentOption';
1008     please Read The Fine Manual}%
1009 }

```

and process those we support, and then load the report document class with the values we have gathered above.

```

1010 \ProcessOptions\relax
1011 \LoadClass[\class@mode,titlepage,\UCC@sided,\class@size,
1012           \class@paper]{report}

```

9.6 Packages required for the class

`inputenc` UTF-8 is the default character set, to allow for use of any character in any writing system. Some characters are not specified for all fonts, so may have to be specified manually.

```

1013 \RequirePackage[utf8x]{inputenc}[2008/03/30]
1014 \PrerenderUnicode{-}
1015 \PrerenderUnicode{š}
1016 \PrerenderUnicode{ć}
1017 \PrerenderUnicode{Å}

```

`fontenc` Extended font encoding to handle UTF-8.

```

1018 \RequirePackage[T1]{fontenc}

```

geometry Package for establishing margins and text area. Sets the page size to values within the Registrar's specification. This has the effect of making the textwidth 6¼" (16cm) and the textheight 9" (23cm) on an A4 page. The headheight is set to accommodate the default running headers.

```
1019 \RequirePackage[right=2.5cm,top=3cm,bottom=3cm,  
1020 left=4cm,headheight=22pt]{geometry}
```

lmodern The updated Computer Modern typeface as the default.

```
1021 \RequirePackage{lmodern}
```

url Handling of URI formatting. This is required in some bibliographic formats.

```
1022 \RequirePackage[obeyspaces,hyphens,spaces,  
1023 lowtilde]{url}
```

graphicx Provide for graphics (PNG, JPG, or PDF format (only) for pdflatex; EPS format (only) for standard L^AT_EX).

```
1024 \RequirePackage{graphicx}
```

array Additional column formatting for tables.

```
1025 \RequirePackage{array}
```

calc Required for the calculation of extra widths for margin adjustment.

```
1026 \RequirePackage{calc}
```

soul Provides letter-spacing, strikeout, and underlining. Used for letter-spacing in the title page.

```
1027 \RequirePackage{soul}
```

textcomp Additional commands for common symbols and punctuation.

```
1028 \RequirePackage{textcomp}
```

ucccrest University College Cork crest (restricted). Required for the title page.

```
1029 \RequirePackage{ucccrest}
```

setspace Provide 1½ or double line spacing.

```
1030 \RequirePackage{setspace}
```

float Allows redesigning of floats and creation of new float types.

```
1031 \RequirePackage{float}
```

9.7 Modifications to the report class and packages

Now that the report class and the packages are loaded, we can start making the necessary changes.

`\geometry` Fix the geometry for two-sided work.

```
1032 \ifUCC@oneside\else
1033   \newgeometry{inner=4cm,outer=2.5cm,top=3cm,bottom=3cm,
1034               headheight=22pt,twoside}
1035 \fi
```

`\cjktxt` Here we use the flagged setting specified earlier to ensure UTF-8 character encoding is used to invoke the CJK package and the `cjk` option with the `\ifcjk` switch.

```
1036 \ifcjk
1037   \RequirePackage[encapsulated]{CJK}
1038   \newcommand{\cjktxt}[1]{\begin{CJK}{UTF8}{min}#1\end{CJK}}
1039 \fi
```

`\bibname` Call the references References, not Bibliography.

```
1040 \renewcommand{\bibname}{References}
```

natbib Test dissertations with natbib.

```
1041 \ifdiss
1042   \RequirePackage{natbib}
1043   \renewcommand{\thesection}{\arabic{section}}
1044   \bibpunct[: ]{({})}{;}{a}{,}{,}
1045   \setlength{\parskip}{.666\baselineskip pluslex minuslex}
1046   \renewenvironment{thebibliography}[1]
1047     {\ifUCC@oneside\clearpage\else\cleardoublepage\fi
1048     \section*{References}%
1049     \list{\@biblabel{\@arabic\c@enumiv}}%
1050       {\settowidth\labelwidth{\@biblabel{#1}}%
1051       \leftmargin\labelwidth
1052       \advance\leftmargin\labelsep
1053       \@openbib@code
1054       \usecounter{enumiv}%
1055       \let\p@enumiv\@empty
1056       \renewcommand\theenumiv{\@arabic\c@enumiv}}%
1057     \sloppy
1058     \clubpenalty4000
1059     \@clubpenalty \clubpenalty
1060     \widowpenalty4000%
1061     \sfcode'\.\@m}
1062   {\def\@noitemerr
1063     {\@latex@warning{Empty 'thebibliography' environment}}%
1064     \endlist}
1065 \fi
```

`\ifjustified` The flags implementing [re-]justification and [re-]indentation explained above are used here to control loading of the `parskip`, `ccaption`, and `footmisc` packages.

Justified text, signalled with `\ifjustified` requires only `footmisc`, and only with the **bottom**, **stable** options, because L^AT_EX's default is to justify everything.

```
1066 \ifjustified
1067   \RequirePackage[bottom,stable]{footmisc}
```

On the other hand, unjustified text (the default) requires the `ccaption` package and its re-setting of the captioning to be unjustified; and the **ragged** option to the `footmisc` package.

```

1068 \else
1069   \RequirePackage{ccaption}
1070   \captionstyle{\raggedright}%
1071   \RequirePackage[bottom,ragged,stable]{footmisc}
1072   \raggedright
1073 \fi

```

`\ifindented` Unindented text is the default, so it gets turned on here, along with paragraph-spacing, unless the **indented** option has been specified, which sets the `\ifindented`.

```

1074 \ifindented
1075   \parindent1.5em
1076 \else
1077   \RequirePackage{parskip}
1078 \fi

```

`\UCC@textbodywidth` The default running headers and footers can be defeated by using the **plainheaders** option, so the loading of the fancyhdr package is controlled by the `\iffancy` switch.

```

1079 \newlength{\UCC@textbodywidth}
1080 \setlength{\UCC@textbodywidth}{\textwidth}
1081 \iffancy
1082   \message{Fancy mode }%
1083   \RequirePackage{fancyhdr}
1084   \pagestyle{fancy}

```

We set the default page style to fancy. Bear in mind here that although we are using the report class as our basis, it is single-sided by default, but we need to accommodate twosided usage.

```

1085   \ifUCC@oneside
1086     \message{One-sided plain}%
1087     \fancypagestyle{plain}{%
1088       \fancyhf{}
1089       \cfoot{\thepage}%
1090       \renewcommand{\headrulewidth}{0pt}
1091       \renewcommand{\footrulewidth}{0pt}}
1092   \else
1093     \message{Two-sided plain}%
1094     \fancypagestyle{plain}{%

```

```

1095     \fancyhf{}
1096     \fancyfoot[CO,CE]{\thepage}%
1097     \renewcommand{\headrulewidth}{0pt}
1098     \renewcommand{\footrulewidth}{0pt}}
1099 \fi

```

The left-hand running header checks to see if the right and left marks are the same: if so, do nothing (ie, leave the header as it is); otherwise, use the left mark (the chapter title). As chapter titles can be quite long, we set them in a `\parbox` just under half a page-width wide, so they will wrap and not interfere with the right-hand running header...

```

1100 \fancyhf{}
1101 \newlength{\rheadhang}
1102 \settowidth{\rheadhang}{\footnotesize\thechapter.\space}
1103 \ifUCC@oneside
1104   \message{One-sided fancy headers}%
1105   \lhead{\ifthenelse{\equal{\leftmark}{\rightmark}}{\}%
1106     \footnotesize\scshape\parbox[b]{.475\UCC@textbodywidth}{%
1107       \hangindent\rheadhang\hangafter1\raggedright
1108       {\let\\\space\leftmark}}}}

```

... which contains the section title in the right mark, which we typeset exactly the same way, except that it is made flush right for symmetry. There is no centre running header.

```

1109   \rhead{\footnotesize\itshape\parbox[b]{.475\UCC@textbodywidth}{%
1110     \flushright{\let\\\space\rightmark}}}
1111   \chead{}
1112 \else
1113   \message{Two-sided fancy headers}%
1114   \fancyhead[LE]{\ifthenelse{\equal{\leftmark}{\rightmark}}{\}%
1115     \footnotesize\scshape\parbox[b]{\UCC@textbodywidth}{%
1116       \hangindent\rheadhang\hangafter1\raggedright
1117       {\let\\\space\leftmark}}}}
1118   \fancyhead[RO]{\footnotesize\itshape
1119     \parbox[b]{\UCC@textbodywidth}{%
1120       \flushright{\let\\\space\rightmark}}}
1121 \fi

```

The running footers are different on fancy and plain pages: on the left goes the title; on the right goes the author; but

on plain pages they are left empty. The centre running footer always contains the page number, as required by the Registrar's Rules.

```

1122 \ifUCC@oneside
1123   \message{One-sided fancy footers}%
1124   \lfoot{\fancyplain{}{\footnotesize
1125     \parbox[t]{.475\UCC@textbodywidth}{%
1126       \itshape\raggedright{\@@title}}}}%
1127   \rfoot{\fancyplain{}{\footnotesize\@author}}
1128   \cfoot{\fancyplain{\small\thepage}{\small\thepage}}
1129 \else
1130   \message{Two-sided fancy footers}%
1131   \fancyfoot[LE]{\fancyplain{}{\footnotesize
1132     \parbox[t]{.475\UCC@textbodywidth}{%
1133       \itshape\raggedright{\@@title}}}}
1134   \fancyfoot[RO]{\fancyplain{}{\footnotesize\@author}}
1135   \fancyfoot[CE,CO]{\fancyplain{\small\thepage}{\small\thepage}}
1136 \fi

```

Finally, we set the header and footer rules to null, and we implement the chapter and section marking to gather the current titling in `\chaptermark` and `\sectionmark`, and ensure that the default headers do not perform any uppercasing by setting the `\ps@headings` command to null.

```

1137 \addtolength{\headheight}{10pt}
1138 \renewcommand{\headrulewidth}{0pt}
1139 \else
1140 \message{^MPlain (non-fancy) mode }%
1141 \fi
1142 \renewcommand{\chaptermark}[1]{\markboth{\thechapter.\ #1}{}}
1143 \renewcommand{\sectionmark}[1]{\markright{\thesection\ #1}{}}
1144 \def\ps@headings{}

```

`\now` Calculate the time of day and provide for a timestamp to identify draft versions.

```

1145 \newcounter{hours}
1146 \newcounter{minutes}
1147 \newcounter{temp}
1148 \setcounter{hours}{\time}%
1149 \setcounter{minutes}{\value{hours}}%
1150 \divide\c@hours by60 % hours is now right

```

```

1151 \setcounter{temp}{\value{hours}}%
1152 \multiply\c@temp by60 % integer part to deduct
1153 \addtocounter{minutes}{-\value{temp}}% make deduction
1154 \newcommand{\now}{% \time is in minutes since midnight
1155   \ifnum\c@hours>9\else0\fi\thehours:%
1156   \ifnum\c@minutes>9\else0\fi\theminutes}
1157 \def\adobedate{D:\number\year
1158   \ifnum\month>9\else0\fi\number\month
1159   \ifnum\day>9\else0\fi\number\day\now00}

```

`\TODAY` **Redefine today the European way round, and provide an ISO-format version for the footers.**

```

1160 \def\today{\number\day\space\ifcase\month\or
1161   January\or February\or March\or
1162   April\or May\or June\or
1163   July\or August\or September\or
1164   October\or November\or December\fi
1165   \space\number\year}
1166 \def\TODAY{\number\year{-}%
1167   \ifnum\month<10 0\fi\number\month{-}%
1168   \ifnum\day<10 0\fi\number\day}

```

9.8 Metadata

Define the metadata (title, author, and date are already given by \LaTeX in the report class). These are all done the same way, with a default value that gets overridden when an authorial value is given.

`\institution` **Institution (nominally still the NUI?).**

```

1169 \def\@institution{\so{NATIONAL UNIVERSITY OF IRELAND, CORK}}
1170 \newcommand{\institution}[1]{\gdef\@institution{\so{#1}}}

```

`\author` **Provide an optional first argument on the `\author` command for giving the student number.**

```

1171 \def\@studno{\relax}
1172 \renewcommand{\author}[2][\relax]{%
1173   \gdef\@author{#2}
1174   \if\relax#1 \else\gdef\@studno{#1}\fi}

```


`\subtitle` **Optional subtitle.**

```
1175 \def\@subtitle{\relax}
1176 \newcommand{\subtitle}[1]{\gdef\@subtitle{#1}}
```

`\sponsor` **Sponsor or funding agency.**

```
1177 \def\@sponsor{\relax}
1178 \newcommand{\sponsor}[1]{\gdef\@sponsor{#1}}
```

`\supervisor` **Supervisor, but syntactically this needed a plural value for the string label used in formatting, so we define `\supervisors` as well.**

```
1179 \def\@supervisor{[Name not supplied]}
1180 \def\@supervisorname{Supervisor}
1181 \newcommand{\supervisor}[1]{\gdef\@supervisor{#1}}
1182 \newcommand{\supervisors}[1]{\gdef\@supervisor{#1}%
1183 \def\@supervisorname{Supervisors}}
```

`\module` **Only for dissertations and essays.**

```
1184 \def\@module{\relax}
1185 \newcommand{\module}[1]{\gdef\@module{#1}}
```

`\professor` **Professor. There is some debate about identifying the Discipline instead...**

```
1186 \def\@prof{\relax}
1187 \newcommand{\professor}[1]{\gdef\@prof{#1}}
```

`\quals` **Prior qualifications.**

```
1188 \def\@quals{\relax}
1189 \newcommand{\qualifications}[1]{\gdef\@quals{#1}}%
```

`\volume` **Optional volume number.**

```
1190 \def\@volume{\relax}
1191 \def\@maxvolumes{\relax}
1192 \def\volume #1 of #2 {\gdef\@volume{#1}%
1193 \gdef\@maxvolumes{#2}}
```

`\@submission` This is the formal prioritising of the order in which the various divisional identifiers are given, if used: each one is enclosed in a test to ensure it is only used if it has been specified.

```
1194 \def\@submission{%
1195   \if\@hospital\relax
1196   \else\par\textsc{\@hospital}%
1197   \fi
1198   \if\@school\relax
1199   \else\par\textsc{\@school}%
1200   \fi
1201   \if\@department\relax
1202   \else\par\textsc{\@department}%
1203   \fi
1204   \if\@institute\relax
1205   \else\par\textsc{\@institute}%
1206   \fi
1207   \if\@centre\relax
1208   \else\par\textsc{\@centre}%
1209   \fi
1210   \if\@unit\relax
1211   \else\par\textsc{\@unit}%
1212   \fi
1213 }
```

Two final commands record the metadata needed to complete the PDF Properties, which is needed for electronic submission.

`\subject` This specifies the subject of the thesis.

```
1214 \def\@subject{Unspecified}
1215 \newcommand{\subject}[1]{\gdef\@subject{#1}}
```

`\keywords` This specifies a comma-separated list of keywords for use when indexing your thesis.

```
1216 \def\@keywords{Unspecified}
1217 \newcommand{\keywords}[1]{\gdef\@keywords{#1}}
```

9.9 Title page

Create the title page as per Registrar's Rules. This includes the Table of Contents, List of Figures, List of Tables, and the Declaration.

`\ifmadetitle` First, define a switch that can be used if `\maketitle` is forgotten.

```
1218 \newif\ifmadetitle
```

`\title` Allow for an optional short (or unformatted) title

```
1219 \def\@@title{\relax}
1220 \renewcommand{\title}[2][\relax]{%
1221   \gdef\@title{#2}%
1222   \ifthenelse{\equal{#1}{\relax}}{%
1223     \gdef\@@title{#2}%
1224     \message{No short title}%
1225   }{%
1226     \gdef\@@title{#1}%
1227     \message{Short title: #1}%
1228   }%
1229 }
```

`\maketitle` The order is: title, subtitle, volume, author, qualifications, institution, college, faculty, department, degree, date, professor, supervisor, sponsor.

```
1230 \renewcommand\maketitle{%
```

We want this on a page by itself, centered both vertically and horizontally.

```
1231 \begin{titlepage}%
1232   \null
1233   \ifthesis\vfill\fi
1234   \begin{center}%
```

Title is compulsory: subtitle is optional.

```
1235   {\ifthesis\fontsize{28}{32}\selectfont
1236    \else\LARGE\bfseries\fi\@title \par}%
1237   \if\@subtitle\relax\else\bigskip
```

```

1238      {\ifthesis\fontsize{24}{28}\selectfont
1239      \else\Large\bfseries\fi\@subtitle\par}%
1240      \fi

```

Volume number is compulsory if the thesis is multi-volume.

```

1241      \ifthesis
1242      \if\@volume\relax\else
1243      \vspace{2pc}{\large Volume \@volume\ of
1244      \@maxvolumes\par}%
1245      \fi
1246      \fi
1247      \vspace*{2pc}%

```

Author is compulsory; qualifications are optional.

```

1248      {\LARGE\@author%
1249 \if\relax\@quals\else
1250      \\\large\scshape\@quals
1251      \fi
1252 \if\relax\@studno\else
1253      \\\Large\upshape\@studno
1254      \fi
1255 \par}%

```

Any free space can also go here, above the UCC crest.

```

1256      \vfill
1257      \ifthesis{\Large\UCCcrest}\fi
1258      \par\medskip

```

The name of the institution is required.

```

1259      \ifthesis
1260      \@institution\par
1261      \vspace*{.5pc}%
1262      \fi

```

Use the preformed \@submission which reproduces those divisional elements which have been specified.

```

1263      \ifthesis
1264      \@submission\par
1265      \vspace*{1.5pc}%
1266      \fi

```

Grade of degree is compulsory. Phrasing for some degrees 'in part fulfilment' needs investigating.

```
1267 \ifthesis
1268 \textbf{\large Thesis submitted for the degree of
1269 \\\@degree}\par
1270 \else
1271 \large\@module~--- Minor Dissertation\par
1272 \fi
1273 \vspace*{1.5pc}%
```

Date of submission is required here for theses.

```
1274 \ifthesis
1275 {\@date \par}%
1276 \vspace*{2pc}%
1277 \fi
```

If this is a thesis, give the Professor and Supervisor(s) as a tabular alignment.

```
1278 \ifthesis
1279 \begin{tabular}{%
1280 >\raggedleft\arraybackslashp{.45\UCC@textbodywidth}%
1281 >\raggedright\arraybackslashp{.45\UCC@textbodywidth}}
```

Professor is actually optional here for some reason.

```
1282 \if\@prof\relax\else
1283 Head of \@unitttype:&\@prof\\[1pc]
1284 \fi
1285 \@supervisorname:&
```

Multiple supervisors must have been separated by double backslashes, so we can use a 1-column table to make them format vertically.

```
1286 \begin{tabular}[t]{@{}l@{}}\@supervisor\end{tabular}
1287 \end{tabular}\par\vfill%
```

If this was not a thesis, just give the supervisor. This should probably be collapsed into the above formatting.

```
1288 \else
1289 Supervisor:\quad\@supervisor\par
```

```
1290     \fi
1291     \vspace*{2pc}%
```

Date of submission is required here for dissertations.

```
1292     \ifthesis\else
1293         {\@date \par}%
1294     \fi
```

Sponsor, if there is one.

```
1295     \if\@sponsor\relax\else
1296         \vfill
1297 Research supported by \@sponsor\par
1298     \fi
1299 \end{center}%
```

Set the title page number to one and make sure it has no running header or footer.

```
1300 \setcounter{page}{1}%
1301 \pagestyle{empty}%
1302 \end{titlepage}%
```

Now reset the commands used to create the title page so that they can't accidentally be used again. Note that the stored values in the \@ remain unaffected for re-use in running headers, etc.

```
1303 \global\let\@thanks\@empty
1304 \global\let\and\relax
1305 \global\let\author\relax
1306 \global\let\centre\relax
1307 \global\let\college\relax
1308 \global\let\date\relax
1309 \global\let\degree\relax
1310 \global\let\department\relax
1311 \global\let\faculty\relax
1312 \global\let\institute\relax
1313 \global\let\keywords\relax
1314 \global\let\maketitle\relax
1315 \global\let\professor\relax
1316 \global\let\qualifications\relax
1317 \global\let\school\relax
1318 \global\let\sponsor\relax
```

```

1319 \global\let\subject\relax
1320 \global\let\subtitle\relax
1321 \global\let\supervisor\relax
1322 \global\let\thanks\relax
1323 \global\let\title\relax
1324 \global\let\unit\relax
1325 \global\let\volume\relax

```

Set the footnote counter (back) to zero, establish Roman (lowercase) page numbering for the front matter, and set the numbering depth down to the subparagraph level, and the ToC depth down to the subsection.

```

1326 \setcounter{footnote}{0}%
1327 \pagestyle{empty}
1328 \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1329 \ifthesis
1330   \setcounter{secnumdepth}{5}
1331   \pagenumbering{roman}%
1332 \else
1333   \setcounter{secnumdepth}{0}
1334   \pagenumbering{arabic}
1335 \fi
1336 \ifshorttoc\setcounter{tocdepth}{2}%
1337 \else\setcounter{tocdepth}{3}\fi
1338 \iffancy
1339   \pagestyle{fancy}
1340 \else
1341   \pagestyle{plain}
1342 \fi

```

As an integral part of the `\maketitle` command, do the Table of Contents immediately after the title page, as required by the Registrar's rules; then do the List of Figures and List of Tables if they are needed.

The built-in internal command `\@ifpackageloaded` is used to detect the use of the `glossaries` package, and print the Glossary if appropriate.

```

1343 \ifthesis
1344   \tableofcontents
1345   \iflof\listoffigures\fi
1346   \iflot\listoftables\fi

```

```

1347   %% \@ifpackageloaded{glossaries}{\printglossary}{\relax}
1348   \fi

```

Flag the title as having been done.

```

1349   \madetitletrue

```

Finally, add the PDF metadata. Temporarily redefine the double backslash in case it gets used in the title, as `\pdfinfo` will gag on it and undefine `\maketitle` in the process.

```

1350   \renewcommand{\}{ }
1351   \pdfinfo{%
1352     /Title (\@title)
1353     /Author (\@author)
1354     /CreationDate (\adobedate)
1355     /Subject (\@subject)
1356     /Keywords (\@keywords)
1357   }}

```

`\madedecl` If this is a thesis (ie not a term paper or essay), start a new page, set both marks to null, and output the Declaration.

```

1358 \newif\ifmadedecl
1359 \newcommand{\makedecl}{%
1360   \ifthesis
1361     \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1362     \null\vfill\markboth{}{}%
1363     \begingroup
1364     I, \@author, certify that this thesis is my own work
1365     and I have not obtained a degree in this university
1366     or elsewhere on the basis of the work submitted in
1367     this thesis.
1368     \par\bigskip\flushright\textit{\@author}\par\endgroup
1369     \vfill
1370   \fi
1371   \global\madedecltrue
1372   \global\UCC@delaydeclfalse}

```


9.10 General settings and redefinitions

This is a collection of changes (usually small) and additions (for convenience).

9.10.1 Floats

Reset the proportions of the page used for floats. This is taken from

<http://www.tex.ac.uk/cgi-bin/texfaq2html?label=floats>.

```
1373 \renewcommand{\topfraction}{.85}
1374 \renewcommand{\bottomfraction}{.7}
1375 \renewcommand{\textfraction}{.15}
1376 \renewcommand{\floatpagefraction}{.75}
1377 \renewcommand{\dbltopfraction}{.75}
1378 \renewcommand{\dblfloatpagefraction}{.75}
1379 \setcounter{topnumber}{9}
1380 \setcounter{bottomnumber}{9}
1381 \setcounter{totalnumber}{20}
1382 \setcounter{dbltopnumber}{9}
```

9.10.2 New front and back matter macros and environments

Firstly, a consistent way to provide a Dedication, Acknowledgements, and other preliminaries.

`dedication` The `dedication` environment is for dedicating a thesis. It creates a page on its own and does not make a ToC entry. If the title page has not yet been done, this will trigger it first.

```
1383 \newenvironment{dedication}{%
1384   \ifmadetitle\else\maketitle\fi
1385   \ifmadedecl\else\makedecl\fi
1386   \clearpage\null\vfill
1387   \thispagestyle{empty}%
1388   \begin{center}}{%
1389   \end{center}\vfill}
```

`\prelim` **The `\prelim` command creates a minor frontmatter (unnumbered) section.**

```
1390 \newif\ifUCC@delaydecl
1391 \newcommand{\prelim}{%
1392   \@ifnextchar *
1393     {\UCC@delaydecltrue\UCC@prelim}
1394     {\UCC@delaydeclfalse\UCC@prelim{*}}
1395 \newcommand{\UCC@prelim}[2]{% dummy first arg
1396   \ifmadetitle\else\maketitle\fi
1397   \ifmadedecl\else
1398     \ifUCC@delaydecl\else\makedecl\fi
1399   \fi
1400   \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1401   \section*{#2}\@mkboth{#2}{#2}%
1402   \addcontentsline{toc}{section}{#2}%
1403   \onehalfspacing}
```

`\refsec` **A `\refsec` is a special form of `\prelim` that does not trigger the Declaration, and is typeset single-spaced.**

```
1404 \newcommand{\refsec}[1]{%
1405   \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1406   \section*{#1}\@mkboth{#1}{#1}%
1407   \addcontentsline{toc}{section}{#1}%
1408   \singlespacing}
```

`\ackname` **Define a string for the titling of the Acknowledgements section, so that it can be redefined in the `gaeilge` option.**

```
1409 \newcommand{\ackname}{Acknowledgements}
```

`acknowledgements` **The `acknowledgements` environment uses the `\prelim` format.**

```
1410 \newenvironment{acknowledgements}{%
1411   \ifmadetitle\else\maketitle\fi
1412   \ifmadedecl\else\makedecl\fi
1413   \prelim{\ackname}\singlespacing
1414 }{}%
```

Redefine the Table of Contents as a section, and the same for the List of Figures and List of Tables.

`\tableofcontents` **The ToC is just a section, otherwise unchanged.**

```
1415 \renewcommand\tableofcontents{%
1416   \section*{\contentsname
1417     \@mkboth{\contentsname}{\contentsname}}%
1418   \@starttoc{toc}%
1419 }
```

`\listoffigures` **LoF works the same as ToC**

```
1420 \renewcommand\listoffigures{%
1421   \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1422   \section*{\listfigurename
1423     \@mkboth{\listfigurename}{\listfigurename}}%
1424   \addcontentsline{toc}{section}{\listfigurename}%
1425   \@starttoc{lof}%
1426 }
```

`\listoftables` **And so does LoT**

```
1427 \renewcommand\listoftables{%
1428   \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1429   \section*{\listtablename
1430     \@mkboth{\listtablename}{\listtablename}}%
1431   \addcontentsline{toc}{section}{\listtablename}%
1432   \@starttoc{lot}%
1433 }
```

The Abstract is done slightly differently to normal for a page by itself.

`\maketitle` **We can't use the `titlepage` environment, because it resets the page number, so we do it like all the other Prelims.**

```
1434 \renewenvironment{abstract}{%
1435   \ifmadetitle\else\maketitle\fi
1436   \ifmadedecl\else\makedecl\fi
1437   \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1438   \@beginparpenalty\@lowpenalty
1439   \section*{\abstractname}%
1440   \addcontentsline{toc}{section}{\abstractname}%
1441   \markboth{\abstractname}{\abstractname}%
1442   \onehalfspacing
1443 }{%
```

```
1444 \clearpage
1445 }
```

Lastly, the Index, if used.

`theindex` Again, this is a section-level start, otherwise it uses the same format as the default. Possibly this should use the `multicol` package if people wanted balanced columns; but indexes are rare.

```
1446 \renewenvironment{theindex}{%
1447   \ifUCC@oneside\clearpage\else\cleardoublepage\fi
1448   \columnseprule \z@
1449   \columnsep 35\p@
1450   \twocolumn[\section*{\indexname}]%
1451   \@mkboth{\indexname}{\indexname}%
1452   \parindent\z@
1453   \parskip\z@ \@plus .3\p@\relax
1454   \let\item\@idxitem}%
1455 {\clearpage}
```

We should have a closer look at the `glossaries` package to see if there is anything there needs redefining.

9.10.3 Sectioning commands

Make sure that `\parts` and `\chapters` switch to Arabic numbering and the appropriate stretch, because all the prelims are Roman.

`\part` Same as the default, but with a switch to Arabic page numbering and wide spacing if this is the first Part (resets the page number to 1).

```
1456 \renewcommand\part{%
1457   \ifmadetitle\else\maketitle\fi
1458   \ifmadedecl\else\madedecl\fi
1459   \if@openright
1460     \cleardoublepage
1461   \else
1462     \clearpage
1463   \fi
```

```

1464 \thispagestyle{plain}%
1465 \if@twocolumn
1466   \onecolumn
1467   \@tempwattrue
1468 \else
1469   \@tempwafalse
1470 \fi
1471 \null\vfil
1472 \ifnum\c@part=0
1473   \pagenumbering{arabic}%
1474   \onehalfspacing
1475 \fi
1476 \secdef\@part\@spart}

```

`\maketitle` Same switch as in `\part`, checking that this is the first chapter and that we have not started an Appendix, *but only* if the Part number is also zero (ie Parts are not in use).

```

1477 \renewcommand{\chapter}{%
1478   \ifmadetitle\else\maketitle\fi
1479   \ifmadedecl\else\makedecl\fi
1480   \if@openright\cleardoublepage\else\clearpage\fi
1481   \thispagestyle{plain}%
1482   \global\@topnum\z@
1483   \ifnum\c@chapter=0
1484     \ifnum\c@part=0
1485       \ifthenelse{\equal{\@chapapp}{\chaptername}}%
1486         {\pagenumbering{arabic}\onehalfspacing}%
1487         {}%
1488     \fi
1489   \fi
1490   \@afterindentfalse
1491   \secdef\@chapter\@schapter}

```

9.10.4 Epigraphs and quotations

`\@opttest` To enable optional argument testing for the null string in Epigraphs (and later, in Quotations), we define a Plain $\text{T}_{\text{E}}\text{X}$ macro which sets the `\ifoptarg` switch.

```

1492 \newif\ifoptarg
1493 \def\@opttest#1#2\sentinel{\ifx[#1\optargtrue

```

```
1494 \else\optargfalse\fi}
```

`epigraph` Define an environment for Epigraphs. These would normally go immediate after the `\chapter` command. This is basically the `quotation` environment modified, but it has to allow for *either* manual *or* automated citation (because it may just be a phrase needing no citation), whereas a normal quotation *must* be cited. It therefore has *two* arguments, described below:

```
1495 \newenvironment{epigraph}[2][\relax]{%
```

Record the argument values now, because they are needed in the end of the environment, so they have to pass across the group boundary. The compulsory argument is for a Bib_TE_X citation key, so that a proper citation can be formatted; the optional argument is for when a pre-formed, ‘full’ (actually often simpler, non-rigorous) citation is wanted.

```
1496 \gdef\@fullcite{#1}%
```

```
1497 \gdef\@quotcite{#2}%
```

Like the default Quotation, this is done with a dummy `list` environment, but we add small italic type and no indentation.

```
1498 \list{}{%
```

```
1499 \listparindent 1.5em%
```

```
1500 \itemindent \listparindent
```

```
1501 \rightmargin \leftmargin
```

```
1502 \parsep \z@ \@plus\p@}%
```

```
1503 \item\relax\noindent\small\itshape\ignorespaces
```

```
1504 }{%
```

Unlike the [redefined] `quotation` environment, a citation is compulsory here, even if it’s the default ‘Anon.’ The Bib_TE_X citation can be empty if there was a manual one, otherwise it ought to be there.

```
1505 {\unskip\nobreak\hfil\penalty50
```

```
1506 \hskip2em\hbox{} \nobreak\hfil\upshape\footnotesize
```

If there is a manual citation (optional argument), use it before any BibT_EX one:

```
1507 \if\@fullcite\relax\else\@fullcite\fi
```

If the compulsory argument (BibT_EX key) was empty (ie, just a pair of curly braces) *and* there was no optional argument, print ‘Anon.’

```
1508 \ifthenelse{\equal{\@quotcite}{}}{%  
1509 \if\@fullcite\relax(Anon.)\fi}{%
```

Otherwise (compulsory argument was provided), test it to see if it contains an optional argument of its own (for example, a page number for a citation key), and \cite it accordingly.

```
1510 \expandafter\@opttest\@quotcite\sentinel  
1511 \ifoptarg\expandafter\cite\@quotcite  
1512 \else\cite{\@quotcite}\fi}%
```

Now terminate the paragraph so that the citation is fitted in, using the same code from the memoir class as used for the `quotation` environment below.

```
1513 \parfillskip\z@\finalhyphendemerits=0\par}%  
1514 \medskip  
1515 \endlist\@afterheading}%
```

See the user-level documentation for examples.

The `Quotation` environment is redefined similarly.

`\quotation` Here, however, a citation should be compulsory, so there is only one argument: we define it as optional so that we can test for it. Any optional component to the citation key must, as with `Epigraph`, rely on the entire argument being inside its own set of curly braces.

```
1516 \newlength{\mainparskip}  
1517 \newlength{\mainparindent}  
1518 \renewenvironment{quotation}[1][\relax]{%  
1519 \setlength{\mainparskip}{\parskip}%  
1520 \setlength{\mainparindent}{\parindent}%  
1521 \gdef\@quotcite{#1}%
```

```

1522 \smallskip
1523 \list{}{%
1524   \listparindent 1.5em%
1525   \itemindent    \listparindent
1526   \rightmargin   \leftmargin
1527   \parsep        \z@ \@plus\p@}%
1528 \item\relax\small
1529 \setlength{\parindent}{\mainparindent}%
1530 \setlength{\parskip}{\mainparskip}%
1531 \noindent\ignorespaces
1532 }{%
1533 \if\@quotcite\relax\else{%

```

This positional code is taken from the `\sourceatright` command of the memoir class (thanks to Lee Rudolph and Robin Fairbairns for identifying this).

```

1534   \unskip\nobreak\hfil\penalty50
1535   \parfillskip\z@\finalhyphendemerits=0
1536   \hskip2em\hbox{} \nobreak\hfill
1537   \expandafter\@opttest\@quotcite\sentinel
1538   \ifoptarg\expandafter\cite\@quotcite
1539   \else\cite{\@quotcite}\fi\par}%
1540 \fi\medskip\endlist
1541 \@afterheading\noindent\ignorespaces}%

```

9.10.5 Odds 'n' sods

This is mostly fixes and utilities.

`\so` Specify tighter letter-spacing for the title page.

```

1542 \sodef\so{.1em}{.5em plus.5em}{1em plus1em}

```

Add more space around captions with the `\abovecaptionskip` and `\belowcaptionskip` commands.

```

1543 \setlength{\abovecaptionskip}{.5\baselineskip}
1544 \setlength{\belowcaptionskip}{.5\baselineskip}

```

`table` Restyle the Table float to have the caption on top.


```
1545 \floatstyle{plaintop}
1546 \restylefloat{table}
```

figure **Restyle the Figure float to have the caption below.**

```
1547 \floatstyle{plain}
1548 \restylefloat{figure}
```

\@pnumwidth **Make more space for the page number in the ToC, LoT, and LoF.**

```
1549 \renewcommand\@pnumwidth{2em}%
```

Define a few experimental utilities.

```
1550 \def\inch{\ifmmode{}^{\prime\prime}\else$
1551           {}^{\prime\prime}$\fi}
1552 \newcommand{\me}{\@author}
1553 \newcommand{\signature}[1][\relax]{%
1554   \begin{flushright}\small\me\\
1555   \if#1\relax\else#1, \fi\@date
1556   \end{flushright}}
1557 \newcommand{\tm}{\raisebox{2pt}{%
1558   \scriptsize\textsf{\texttrademark}}}}
1559 \newcommand{\etc}{etc.\ }
1560 \newcommand{\eg}{e.g.\ }
1561 \newcommand{\ie}{i.e.\ }
```

\hyphenation **Add a few bells and whistles to the hyphenation.**

```
1562 \hyphenation{%
1563 Regi-strar
1564 Sebas-tian
1565 analy-sis
1566 Analy-sis
1567 analy-ses
1568 Analy-ses
1569 bre-vi-ty
1570 chan-ges
1571 de-fi-ning
1572 docu-ment
1573 epex-e-ge-sis
1574 epex-e-ge-ses
1575 exa-mined}
```

```

1576 helico-pter
1577 hier-ar-chy
1578 inter-linea-ted
1579 lexi-cal
1580 manu-script
1581 re-fe-ren-ces
1582 re-prin-ted
1583 smal-ler
1584 spe-ci-fy
1585 sub-con-sci-ous-ly
1586 tech-no-logy
1587 typo-gra-phy
1588 no-men-cla-ture
1589 }

```

`\foreign` **Enable semantic distinction of foreign words and phrases.**

```
1590 \let\foreign\emph
```

`\marginal` **Define a new command for marginal notes.**

```

1591 \newcommand{\marginal}[1]{%
1592   \marginpar{\sffamily\tiny\raggedright#1\par}}

```

`\bibliography` **Add a trace to the log file to help in cutting the PDF to separate sections.**

```

1593 \def\bibliography#1{%
1594   \if@filesw
1595     \immediate\write\@auxout{\string\bibdata{#1}}%
1596   \fi
1597   \typeout{\bibname\space.}%
1598   \@input@{\jobname.bbl}}

```

The new `\vstrut` command which takes account of the surrounding font size has been moved to the documentation.

Last of all, establish 1 1/2 line-spacing and a ragged page-bottom.

```

1599 \raggedbottom
1600 \message{UCC thesis class loaded}

```

A Revised UCC Crest

This is the METAFONT crest written by Jeremy Gibbons for UCC in 1989, with the scroll commented out (look for the commented line saying banner(j)).

```
1601 %% METAFONT program to draw University College, Cork coat of arms.
1602 %%
1603 %% Jeremy Gibbons, Oxford University, October 1989
1604 %% Modified by JG (now at University of Auckland; jeremy@cs.aukuni.ac.nz)
1605 %%   September 1994, December 1994.
1606 %%
1607 %% There are now two "knobs" to adjust the appearance. One is called
1608 %% "pen_knob", the other "banner_gap_knob". Search through this file
1609 %% for the second occurrences of these strings, and play with the
1610 %% settings as much as you like!
1611
1612 designsize:=10pt#;
1613
1614 def !! = scantokens ("input " & jobname); enddef;
1615
1616 mode_setup;
1617
1618 u# := .2pt#; define_pixels(u);
1619 if unknown sections: sections := 1; fi
1620
1621 banner_gap_knob := 8;
1622   % Adjusting this affects the width of the gap between the top
1623   % of the banner and the bottom of the shield. A setting of 0
1624   % has them touching; a setting of 8 gives a gap of about 1mm
1625   % when the whole shield is about 3cm high. You can set it to
1626   % a floating-point number (eg 7.5).
1627
1628 total_width# := 170u#; total_height# := 210u#;
1629 total_depth# := (banner_gap_knob+1)*u#;
1630 section_width# := total_width#;
1631
1632 if sections > 1: % round so sections whole no of pixels wide
1633   % SURPRISE: makes crests at different resolutions have different widths!
1634   section_width# := (round((total_width#/sections)*hppp))/hppp;
1635   % should be a whole no of pixels
1636   total_width# := section_width# * sections;
1637 fi
```

```

1638
1639 define_pixels(section_width, total_width, total_height, total_depth);
1640 w := section_width; h := total_height; d := total_depth;
1641
1642 pen_knob := 1.5;
1643 % Adjusting this affects the width of the "detailpen" (used for the
1644 % castles, ship, book, lion and crowns). A setting of 1 was too fine
1645 % at high resolutions; it was set at 2 for the 1989 version of the coat
1646 % of arms. You can set it to a floating-point number (eg 1.5).
1647
1648 thickpenwidth#:=4u#;
1649 thinpenwidth#:=u#;
1650 detailpenwidth#:=pen_knob * .5u#;
1651 calligraphicpenwidth#:=u#;
1652 calligraphicpenheight#:=0.1u#;
1653 define_whole_blacker_pixels(thickpenwidth, thinpenwidth, detailpenwidth,
1654                             calligraphicpenwidth, calligraphicpenheight);
1655
1656 pickup pencircle scaled thickpenwidth; thickpen := savepen;
1657 pickup pencircle scaled thinpenwidth; thinpen := savepen;
1658 pickup pencircle scaled detailpenwidth; detailpen := savepen;
1659
1660 pickup pensquare
1661   xscaled calligraphicpenwidth yscaled calligraphicpenheight
1662   rotated 40; % a 'calligraphic' nib
1663 calligraphicpen := savepen;
1664
1665 pickup pencircle; draftpen := savepen;
1666 %% thickpen := draftpen; thinpen := draftpen;
1667 %% detailpen := draftpen; calligraphicpen := draftpen;
1668
1669 def drawbothsides (expr p) =
1670   draw p;
1671   draw (p reflectedabout axis);
1672 enddef;
1673
1674 def fillbothsides (expr p) =
1675   fill p;
1676   fill (p reflectedabout axis);
1677 enddef;
1678
1679 def crown(suffix $) =
1680   % (0,0) is centre of bottom edge of crown

```

```

1681
1682 def axis = ((0,0),up) enddef;
1683
1684 z0$ = (-12u,0); % left end of bottom edge
1685 z1$ = z0$ + 6u*up; % left end of top of 'band' on crown
1686 z2$ = (-11u,0); % lower end of left edge of band
1687 z3$ = z2$ + 6u*up; % upper end ditto
1688 z4$ = (-16u, 23u); % point of lefthand spike
1689 z5$ = (-9u, 13u); % trough between left and centreleft spikes
1690 z6$ = (-7u, 25u); % point of centreleft spike
1691 z7$ = (-3u, 15u); % trough between centreleft and centre spikes
1692 z8$ = (0, 26u); % point of centre spike
1693
1694 pickup detailpen;
1695 drawbothsides(z3$--z4$--z5$--z6$--z7$--z8$); % spiky bit
1696
1697 draw z0$ -- (z0$ reflectedabout axis); % bottom of band
1698 draw z1$ -- (z1$ reflectedabout axis); % top of band
1699
1700 drawbothsides(z2$--(z2$+2u*up)); % lower halves of edges of band
1701 drawbothsides(z3$--(z3$-2u*up)); % ... and upper halves
1702
1703 drawbothsides(unitsquare scaled 2u xscaled 2 shifted (z2$+(-2u,2u)));
1704 draw unitsquare scaled 2u xscaled 2 shifted (-2u,2u);
1705 % three rectangular jewels
1706 drawbothsides(fullcircle scaled 2u shifted ((.5[(0,0),z2$])+3u*up));
1707 % and two circular jewels
1708
1709 enddef;
1710
1711 def shield(suffix $) =
1712 z0$ = (.5total_width, 30u); % centre bottom
1713 z1$ = (50u, 37.5u); % ...
1714 z2$ = (3u, 85u); % up the left hand side
1715 z3$ = (13u, 147u); % ...
1716 z4$ = (3u, 188u); % top left (sw of diagonal line)
1717 z5$ = (22u, 207u); % top left (ne of diagonal line)
1718 z6$ = (52u, 200u); % ... across top ...
1719 z7$ = (.5total_width, 205u); % centre top
1720
1721 def axis = (z0$,z0$+total_height*up) enddef; % axis of symmetry of shield
1722
1723 path shieldleft;

```

```

1724 shieldleft = z0${dir 135}..z1${left}..z2${up}..z3${up}..{dir 135}
1725             z4$--z5$
1726             {dir -30}..z6${right};
1727
1728 % y8$ = 138u; z8$ = shieldleft intersectionpoint ((0,y8$)--(total_width,y8$)
1729 z8$ = shieldleft intersectionpoint ((0,138u)--(total_width,138u));
1730             % left edge of horiz dividing line
1731 y9$ = 134u; x9$=x0$; % top of gap for book in vert dividing line
1732 y10$ = 103u; x10$=x0$; % bottom of gap ...
1733
1734 pickup thickpen;
1735 draw ( shieldleft .. z7$ .. (reverse shieldleft reflectedabout axis) );
1736
1737 draw z8$ -- (z8$ reflectedabout axis); % horiz dividing line
1738 draw (.5[z8$,z8$ reflectedabout axis]--z9$; % top of vert dividing line
1739 draw z10$ -- z0$; % ... and bottom
1740
1741 enddef;
1742
1743 def book(suffix $) =
1744     z0$ = (0,0); % centre of base of spine
1745
1746     def axis = (z0$, z0$ + up) enddef; % up the spine
1747
1748     z1$ = (-2.5u,0); % left edge of ellipse at base of spine
1749     z2$ = (-20u,0); % bottom left hand corner of cover
1750     z3$ = (-19u,19u); % top left corner of cover
1751     y5$ = 18u; z5$ = whatever[z2$,z3$];
1752             % top left corner of page 1
1753     z6$ = z2$ + (4u*(up+right)); % bottom left corner of lefthand open page
1754     z7$ = z5$ + (z6$-z2$); % ... and top left
1755     z8$ = (-6u, 4u); % centre of bottom edge of lh open page
1756     z9$ = (0, 1.5u); % bottom right of lh open page
1757
1758     path bottomleftofpages; bottomleftofpages = z2${dir 40}..z6${dir 60};
1759     y4$=y3$;
1760     z4$ = (bottomleftofpages shifted (z5$-z2$))
1761             intersectionpoint (z3$--(z3$ reflectedabout axis));
1762             % where top of book cover goes behind pages
1763
1764     y10$ = 4u; z10$ = whatever[z2$,z3$]; % lower left flap
1765     y11$ = y10$; x11$ = -29u;
1766     y12$ = y11$ + 4u; z12$=z11$+whatever*(z3$-z2$);

```

```

1767 y13$ = y12$; z13$ = whatever[z2$,z3$];
1768
1769 y14$ = 12u; z14$ = whatever[z2$,z3$]; % upper left flap
1770 y15$ = y14$; z15$ = whatever[z11$,z12$]; % z15--z16 in line with z11--z12
1771 y16$ = y15$+(y12$-y11$); z16$ = whatever[z11$,z12$];
1772 y17$ = y16$; z17$ = whatever[z2$,z3$];
1773
1774 z18$ = z11$ + 3u*right; z19$=z18$+(z12$-z11$);
1775 % vert line on lower flap
1776
1777 z21$ = z20$+(z8$-z9$); % middle of top of left open page
1778 z20$ = z9$+(0,y7$-y6$); % top of spine
1779
1780 pickup detailpen;
1781
1782 drawbothsides(z1$--z2$--z3$--z4$); % cover
1783 drawbothsides(bottomleftofpages);
1784 drawbothsides((bottomleftofpages shifted (z5$-z2$))); % top of pages
1785 drawbothsides(z9${dir 135}..z8${left}..z6${dir 150});
1786 drawbothsides(z20${dir 135}..z21${left}..z7${dir 150}); % top of open page
1787 drawbothsides(z6$--z7$); % outside edge of open page
1788 drawbothsides(z10$--z11$--z12$--z13$); % lower flap
1789 drawbothsides(z14$--z15$--z16$--z17$); % upper flap
1790 fillbothsides(unitsquare scaled u shifted .5[z18$,z19$] shifted
1791 (u*left+.5u*down));
1792 % catch on lower flap
1793 fillbothsides(unitsquare scaled u shifted .5[z18$,z19$]
1794 shifted (u*left+.5u*down) shifted (z15$-z11$));
1795 % catch on upper flap
1796
1797 draw fullcircle xscaled 5u yscaled 3u; % ellipse at base of spine
1798 draw z9$--z20$; % spine
1799 draw z18$--z19$; % vert line on lower flap
1800 draw (z18$--z19$) shifted (z15$-z11$); % ... and on upper flap
1801
1802 enddef;
1803
1804 def castle (suffix $) =
1805 z0$ = (0,0);
1806
1807 def axis = (z0$, z0$ + up) enddef; % up the middle
1808
1809 z1$ = (0, 6u); % top of doorway

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1810 z17$ = (-2u,4u); % bottom left of door archway
1811 z2$ = (-2u,0); % bottom left of doorway
1812 z3$ = (-9u, 0); % bottom left
1813 z4$ = z3$ + 7u*up; % left bottom of band round castle
1814 z5$ = z4$ + 6u*right; % end of band
1815 z7$ = z4$ + (-2u,2u); % left edge of band
1816 z8$ = z4$ + 4u*up; % left top of band
1817 z9$ = (-7u,33u); % top of body
1818 z10$ = z9$ + (-u,2u); % bottom of battlements
1819 z11$ = z10$ + u*left; % bottom left of battlements
1820 z12$ = z11$ + (-2u,6u); % top left
1821 z13$ = z12$ + 4u*right; % top right of lh battlement
1822 z14$ = z13$ + (u,-3u); % bottom left of lh gap
1823 z15$ = z14$ + 3u*right; % bottom right
1824 z16$ = z15$ + 3u*up; % top left of middle battlement
1825
1826 pickup detailpen;
1827
1828 drawbothsides(z1${left}..{down}z17$--z2$--z3$--z4$); % lower floor
1829 drawbothsides(z5$--z4$..z7$..z8${right});
1830 draw z8$--(z8$ reflectedabout axis); % band
1831 drawbothsides(z8$--z9$--z10$); % upper floor
1832 draw z9$--(z9$ reflectedabout axis); % top of top floor
1833 drawbothsides(z11$--z12$--z13$--z14$--z15$--z16$); % battlements
1834 draw z11$--(z11$ reflectedabout axis); % bottom of battlements
1835 draw z16$--(z16$ reflectedabout axis); % top of middle battlement
1836
1837 drawbothsides(unitsquare scaled 3u yscaled 2.5 shifted (-5u,14u));
1838 % lower windows
1839 draw unitsquare scaled 3u yscaled 2.5 shifted (-1.5u,24u); % upper window
1840
1841 enddef;
1842
1843 def ship (suffix $) =
1844 z0$ = (0,0);
1845
1846 def axis = (z0$, z0$ + up) enddef; % up the middle
1847
1848 z1$ = (-22u,9u); % front of the hull
1849 z2$ = (-10u, 0); % front of the keel
1850 z3$ = (10u, 0); % back of the keel
1851 z4$ = (14u, u); % further back on the keel
1852 z5$ = (16u, 10u); % back of the hull

```



```

1853 z6$ = z1$ + 2u*right;
1854 z7$ = (-7u, 2u); % lower deck
1855 z8$ = (5u, 2u);
1856 x9$ = x1$; y9$ = y10$;
1857 z10$ = (-25u, 11u); % bottom of bowsprit
1858 z11$ = z10$ + 2u*up; % top deck...
1859 z12$ = z11$ + 15u*right;
1860 z13$ = z12$ + (4u, -3u);
1861 z14$ = z13$ + 13u*right;
1862 z15$ = z14$ + (4u, 3u);
1863 z16$ = z15$ + 10u*right;
1864 x17$=x16$; y17$=y5$;
1865 z18$ = z17$ + (-13u, -2u);
1866 z19$ = z18$ + 15u*left;
1867 x20$ = x19$ - 9u; y20$=y10$;
1868
1869 z29$ = (-15u, 23u);
1870 z30$ = z29$ + (28u, 14u); % ``crossbar`` for sail
1871 z25$ = .05[z29$, z30$];
1872 z26$ = .15[z29$, z30$] + (2u, -2u);
1873 z27$ = .75[z29$, z30$] + (2u, -2u);
1874 z28$ = .95[z29$, z30$];
1875 path lsail, msail, rsail; % three parts of sail
1876 rsail = z27${dir -45}..{(z30$-z29$) rotated 90}z28$;
1877 msail = z26${dir -45}..tension 1.4..(point .25 of rsail);
1878 lsail = z25${(z30$-z29$) rotated -90}..(point .08 of msail);
1879
1880 x21$ = -u; y21$ = y13$; % bottom left of mast
1881 x23$ = u; y23$ = y21$; % bottom right
1882 x22$ = -.5u; z22$ = ((x22$,0)--(x22$,h)) intersectionpoint msail; % top left
1883 x24$ = .5u; z24$ = ((x24$,0)--(x24$,h)) intersectionpoint msail; % top right
1884
1885 x31$ = 0; z31$ = whatever[z29$, z30$];
1886 z32$ = z31$ + 10u*up; % flagpole
1887 z33$ = .7[z31$, z32$] + 10u*left; % tip of flag
1888
1889 pickup detailpen;
1890
1891 draw z1${right}..{right}z2$--z3${right}..z4$; draw z4${up}..z5$; % keel
1892 draw z9$--z1$--z6${right}..{right}z7$--z8${right}..z5$; % lower deck
1893 draw z10$--z11$--z12${right}..{right}z13$--z14${right}..z15$--z16$--
1894 z17$--z5${left}..{left}z18$--z19${left}..{left}z20$-- cycle; % top deck
1895

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```

1896 def oar (expr p) =
1897     draw (p+1.5u*left){dir 60}..{dir -60}(p+1.5u*right);
1898     draw p--(p+(5u,-9u));
1899 enddef;
1900
1901 oar((-8u,5u));
1902 oar((-3u,5u));
1903 oar((2u,5u));
1904 oar((7u,5u));
1905
1906 draw z21$--z22$; draw z23$--z24$; % mast
1907
1908 draw lsail; draw msail; draw rsail;
1909 draw z29$--z30$; % `crossbar' for mast
1910
1911 draw z31$--z32$; % flagpole
1912 draw (.2[z31$,z32$]){dir 120}..z33${dir 120};
1913 draw (.8[z31$,z32$]){dir 135}..z33${dir 135}; % flag
1914 enddef;
1915
1916 def lion (suffix $) =
1917     path lowermanea, lowermaneb, lowermanec;
1918     lowermaneb = flex( (5u, 28u), (3u, 26u), (3u, 23u) ) &
1919                   flex( (3u, 23u), (4u, 24u), (5u, 24u), (7u, 26u) ) &
1920                   flex( (7u, 26u), (6u, 24u), (7u, 22u) ) &
1921                   flex( (7u, 22u), (8u, 24u), (9u, 24u) ) &
1922                   flex( (9u, 24u), (7.5u, 21u), (8u, 19u) ) &
1923                   flex( (8u, 19u), (10u, 21u), (12u, 22u) );
1924     lowermanea = flex( (4u, 33u), (2u, 31u), (2u, 30u), (u, 29u) ) &
1925                   flex( (u, 29u), (2u, 28u), (4u, 29u) ) &
1926                   flex( (4u, 29u), (3u, 27u), (point .8 of lowermaneb) );
1927     lowermanec = flex( (14u, 23u), (13u, 20u), (14u, 17u) ) &
1928                   flex( (14u, 17u), (15u, 19u), (18u, 21u), (18u, 23u) ) &
1929                   flex( (18u, 23u), (19u, 21u), (20u, 21u), (21u, 20u) ) &
1930                   flex( (21u, 20u), (20u, 22u), (22u, 24u), (20u, 26u) ) &
1931                   flex( (20u, 26u), (21u, 25.5u), (23u, 26.5u), (25u, 26u) ) &
1932                   flex( (25u, 26u), (24u, 27u), (23u, 29.5u), (22u, 30u) ) &
1933                   flex( (22u, 30u), (23u, 30u), (24u, 31.5u), (25u, 31u) ) &
1934                   flex( (25u, 31u), (24.5u, 31.5u), (24u, 33u), (22u, 33u) ) &
1935                   flex( (22u, 33u), (24u, 34u), (26u, 36u), (27u, 36u) ) &
1936                   flex( (27u, 36u), (24u, 36.5u), (23u, 38u) );
1937
1938 path uppermane, rightear;

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1939 rightear = (20u, 45u) -- (21.5u, 46.5u) --
1940         flex( (21u, 44u), (23u, 44.5u), (25u, 42.5u), (26u, 42.5u) ) &
1941         flex( (26u, 42.5u), (24u, 42u), (22u, 40u), (20u, 41u) );
1942 uppermane = (6u, 45u) -- (4u, 46u) --
1943         flex( (5u, 44u), (4u, 44u), (0, 43u) ) &
1944         flex( (0, 43u), (2u, 41u), (3u, 39u), (5u, 39u) ) &
1945         flex( (5u, 39u), (3u, 37u), (3u, 34u) ) &
1946         flex( (3u, 34u), (4.5u, 36u), (5u, 35.5u) ) &
1947         flex( (5u, 35.5u), (4u, 33u), (5u, 30u) ) &
1948         flex( (5u, 30u), (6u, 31.5u), (7u, 32u) ) &
1949         flex( (7u, 32u), (7u, 30u), (8u, 26u) ) &
1950         flex( (8u, 26u), (8.5u, 28u), (10u, 30u) ) &
1951         flex( (10u, 30u), (10u, 28u), (11u, 27u), (11u, 26u) ) &
1952         flex( (11u, 26u), (12u, 28u), (14u, 28u), (14u, 30u) ) &
1953         flex( (14u, 30u), (15u, 28.5u), (14u, 27u) ) &
1954         flex( (14u, 27u), (16u, 28.5u), (17u, 31u) ) &
1955         flex( (17u, 31u), (18u, 30u), (18u, 29u) ) &
1956         flex( (18u, 29u), (19u, 32u), (18u, 34u) ) &
1957         flex( (18u, 34u), (19.5u, 33u), (20u, 32u) ) &
1958         flex( (20u, 32u), (20u, 35u), (19u, 36u) ) &
1959         flex( (19u, 36u), (21u, 36u), (23u, 35u) ) &
1960         flex( (23u, 35u), (23u, 36u), (21u, 38u), point 7 of rightear );
1961
1962 path leftfrontleg;
1963 leftfrontleg =
1964     flex( point 2.8 of lowermanec, (19u, 12u), (20u, 6u) ) &
1965     flex( (20u, 6u), (18u, 4.5u), (14u, 4.5u), (16u, 3u) ) &
1966     flex( (16u, 3u), (16u, u), (19u, 3u) ) &
1967     flex( (19u, 3u), (20u, .5u), (22u, 2u), (24u, 2u), (24u, 6u), (26u, 7u) ) &
1968     flex( (26u, 7u), (25u, 7.5u), (24u, 7u) ) &
1969     flex( (24u, 7u), (24.5u, 8u), (26u, 9u) ) &
1970     flex( (26u, 9u), (25u, 10u), (23u, 11u) ) &
1971     flex( (23u, 11u), (25u, 11.5u), (26u, 11u) ) &
1972     flex( (26u, 11u), (23u, 15u), (25u, 18u) ) &
1973     flex( (25u, 18u), (23u, 19u), (23u, 21u) );
1974
1975 path rightfrontmidtoe;
1976 rightfrontmidtoe = flex( (5u, 4u), (3u, 5u), (2u, 2u) ) ... {right}(6u, 3u);
1977
1978 path rightfrontlega, rightfrontlegb;
1979 rightfrontlega =
1980     flex( point 12.5 of lowermaneb, (10u, 10u), (6u, 7u) ) &
1981     flex( (6u, 7u), (2u, 7u), point 1 of rightfrontmidtoe );

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1982 rightfrontlegb =
1983     flex( (6u, 3u), (6u, 0), (9u, 3u), (11u, 2u), (12u, 6u), (13u, 5u) ) &
1984     flex( (13u, 5u), (13.5u, 6.5u), (13u, 8u) ) &
1985     flex( (13u, 8u), (14u, 8.5u), (16u, 7.5u) ) &
1986     flex( (16u, 7.5u), (16u, 9u), (15u, 11u) ) &
1987     flex( (15u, 11u), (16u, 11u), (17u, 10u) ) &
1988     flex( (17u, 10u), (16.5u, 11.5u), point .6 of leftfrontleg );
1989
1990 path riba, ribb, ribc, ribd;
1991 riba = flex( point 21.7 of leftfrontleg, (26u, 18u), (27u, 21u) );
1992 ribb = flex( point .7 of riba, (28u, 18u), (30u, 21u) );
1993 ribc = flex( point .5 of ribb, (31u, 19u), (33u, 22u) );
1994 ribd = flex( point .7 of ribc, (33u, 18.5u), (36u, 21u), (39u, 22u) );
1995
1996 path leftrearlega, leftrearlegb;
1997 leftrearlegb =
1998     flex( (58u, 3u), (58u, u), (59u, 2u), (63u, 2u), (64u, 6u), (66u, 7u) ) &
1999     flex( (66u, 7u), (64u, 9u), (66u, 11u) ) &
2000     flex( (66u, 11u), (64u, 12u), (66u, 13u) ) &
2001     flex( (66u, 13u), (64u, 14u), (62u, 13u) ) &
2002     flex( (62u, 13u), (61u, 15u), (62u, 17u) ) &
2003     flex( (62u, 17u), (60.5u, 16u), (60u, 14u) ) &
2004     flex( (60u, 14u), (56.5u, 17u), (55u, 26u), (52u, 26u) );
2005 leftrearlega =
2006     flex( (38u, 24u), (45u, 18u), (43u, 14u) )
2007     --(47.5u, 16u)--(47u, 14u)--
2008     flex( (49u, 15u), (49u, 13u), (50u, 11u) ) --
2009     flex( (50u, 15u), (52u, 13u), (55u, 12u) ) ..
2010     flex( (60u, 8u), (59u, 7u), (55u, 7u), (56u, 5u) ) &
2011     flex( (56u, 5u), (54.5u, 3.5u), point .45 of leftrearlegb );
2012
2013 path rightrearleg;
2014 rightrearleg =
2015     (point 1.6 of ribd) --
2016     flex( (35u, 17u), (33.5u, 15u), (33.5u, 13.5u) ) &
2017     flex( (33.5u, 13.5u), (35u, 15.5u), (36u, 16u) ) &
2018     flex( (36u, 16u), (35u, 14u), (36u, 12u) ) &
2019     flex( (36u, 12u), (36u, 13u), (37u, 15u) ) &
2020     flex( (37u, 15u), (42u, 10u), (39u, 6u) ) ..
2021     flex( (36u, 7u), (34u, 6u), (36u, 4.5u) ) &
2022     flex( (36u, 4.5u), (33u, 4.5u), (35u, 3u) ) &
2023     flex( (35u, 3u), (35u, -.5u), (38u, 2u), (39u, u), (43u, 3u), (43u, u) )
2024     & flex( (43u, u), (44u, 2u), (45u, 5u) )

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2025     -- (46u, 3u) -- (46u, 6u) --
2026     flex( (49u, 5u), (47u, 8u), (49u, 11u) ) &
2027     flex( (49u, 11u), (46u, 12u), point 2.6 of leftrearlega );
2028
2029     def axis = ((13u,0), (13u,1)) enddef;
2030
2031     pickup detailpen;
2032
2033     % Head:
2034     draw lowermanea; draw lowermaneb; draw lowermanec;
2035     draw flex( (19u, 25u), (20u, 24.5u), (20.5u, 24u) );
2036     %
2037     draw uppermane; draw flex( (4u, 41u), (5u, 42u), (2u, 42u) );
2038     draw rightear; draw flex( (21u, 42u), (21u, 43u), (23u, 43u) );
2039     %
2040     draw flex( (6u, 41u), (6u, 39u), (7u, 38u), (7u, 36u) ); % cheeks
2041     draw flex( (19u, 40u), (19.5u, 39u), (18u, 37u), (18.5u, 36u) );
2042     %
2043     drawbothsides( flex( (6u, 43u), (8u, 42u), (10u, 42.5u), (12u, 41u) )
2044                   & flex( (12u, 41u), (11u, 41u), (8u, 40.5u), (7u, 42u) ) );
2045     drawbothsides( fullcircle scaled u shifted (9.5u,41.25u) ); % eyes
2046     %
2047     draw (13u,42u)--(13u,43u); % line on forehead
2048     %
2049     draw (10u, 39u){dir -120}..(13u, 36u){right}..{dir 120}(16u, 39u);
2050     draw flex( (12u, 39u), (13u, 37.5u), (14u, 39u) ); % nose
2051     %
2052     path tongue; tongue = flex( (11.5u,36u), (11.5u, 35u), (13u, 31u) );
2053     drawbothsides( flex( (10u, 37u), (10.5u, 35u), point 1.5 of tongue ) );
2054     drawbothsides( tongue );
2055     draw (13u, 36u)--(13u, 35u); % mouth
2056     %
2057     % drawbothsides( (11u, 34u)--(8.5u, 35u) );
2058     % drawbothsides( (11u, 33u)--(9u, 32u) ); % whiskers?
2059
2060
2061     % Crown:
2062     draw (7u,44u)--((7u,44u) reflectedabout axis); % band
2063     drawbothsides (unitsquare scaled u xscaled 2 shifted (6.5u, 45u));
2064     drawbothsides (fullcircle scaled u shifted (10u, 45.5u));
2065     draw unitsquare scaled u xscaled 2 shifted (12u, 45u);
2066     draw (7u,47u)--((7u,47u) reflectedabout axis);
2067     %

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2068 drawbothsides((7u,47u)--(4u,50u)--
2069         flex( (6u,49u), (5u,50.5u), (6u, 51u) ) &
2070         flex( (6u, 51u), (5.5u, 52.5u), (7u, 52u) ) &
2071         flex( (7u, 52u), (7.25u, 53.5u), (8.5u, 53u) ) &
2072         flex( (8.5u, 53u), (9.75u, 54u), (11u, 53u) ));
2073 drawbothsides(flex( (7u, 49u), (8u, 52u), (12u, 51u) ));
2074 %
2075 draw fullcircle scaled 2u shifted (13u, 52u);
2076 draw unitsquare scaled 2u yscaled .7 shifted (12u,49u);
2077 draw unitsquare scaled u xscaled 4 shifted (11u, 48u);
2078 path partofjewel;
2079 partofjewel = flex( (12.5u, 55u), (13u, 53u), (13.5u, 55u) );
2080 partofjewel := partofjewel--(partofjewel rotatedaround ((13u, 55.5u), 90));
2081 draw partofjewel--(partofjewel rotatedaround ((13u, 55.5u), 180));
2082 drawbothsides(unitsquare scaled u rotated 45 yscaled 1.5 shifted (9u,48u));
2083
2084 % draw leftfrontleg;
2085 draw subpath (0,4+xpart ((subpath(4,5-eps) of leftfrontleg)
2086         intersectiontimes
2087         (subpath(5+eps,6) of leftfrontleg)))
2088     of leftfrontleg;
2089 draw subpath (5,6+xpart ((subpath(6,7-eps) of leftfrontleg)
2090         intersectiontimes
2091         (subpath(7+eps,8) of leftfrontleg)))
2092     of leftfrontleg;
2093 draw subpath (7,infinity) of leftfrontleg;
2094 draw flex( point 4.3 of leftfrontleg, (12u, 2u), (12.5u, .5u) ) &
2095     flex( (12.5u, .5u), (13u, 2u), point 4.6 of leftfrontleg );
2096 draw flex( point 5.5 of leftfrontleg, (14u, .5u), (15u, -.5u) ) &
2097     flex( (15u, -.5u), (15u, .5u), point 6 of leftfrontleg );
2098 draw flex( point 7.5 of leftfrontleg, (17u, 0u), (18u, -u) ) &
2099     flex( (18u, -u), (18u, -0u), point 7.8 of leftfrontleg );
2100
2101 draw rightfrontlega;
2102 draw subpath (0,xpart (rightfrontmidtoe intersectiontimes
2103         (subpath (eps,infinity) of rightfrontlegb)))
2104     of rightfrontmidtoe;
2105 draw rightfrontlegb;
2106 draw flex( point 3 of rightfrontlega, (.3u, 6u), (0,4u) ) &
2107     flex( (0,4u), (u, 5u), point 3.5 of rightfrontlega );
2108 draw flex( point 1.4 of rightfrontmidtoe, (0.3u, 2.2u), (0u, .5u) ) &
2109     flex( (0u, .5u), (.7u, 1.8u), point 2 of rightfrontmidtoe );
2110 draw flex( point .5 of rightfrontlegb, (3u, u), (3u, -u) ) &

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2111     flex( (3u, -u), (4u, 0), point .8 of rightfrontlegb );
2112
2113 draw riba; draw ribb; draw ribc; draw ribd;
2114
2115 draw leftrearlega; draw leftrearlegb;
2116 draw flex( point 13 of leftrearlega, (53.5u, 7.5u), (52u, 6u) ) &
2117     flex( (52u, 6u), (53u, 6.5u), point 13.7 of leftrearlega );
2118 draw flex( point 14.7 of leftrearlega, (53u, 4u), (51u, 2u) ) &
2119     flex( (51u, 2u), (53u, 3u), point 15.3 of leftrearlega );
2120 draw flex( point .5 of leftrearlegb, (55u, 2u), (54u, -u) ) &
2121     flex( (54u, -u), (54.5u, 0), point .8 of leftrearlegb );
2122
2123 draw subpath (0,13+xpert ((subpath(13,14-eps) of rightrearleg)
2124     intersectiontimes
2125     (subpath(14+eps,15) of rightrearleg)))
2126     of rightrearleg;
2127 draw subpath (14,15+xpert ((subpath(15,16-eps) of rightrearleg)
2128     intersectiontimes
2129     (subpath(16+eps,17) of rightrearleg)))
2130     of rightrearleg;
2131 draw subpath (16,infinity) of rightrearleg;
2132
2133 draw flex( point 12.4 of rightrearleg, (33u, 8u), (32u, 6u) ) &
2134     flex( (32u, 6u), (33u, 7u), point 13.2 of rightrearleg );
2135 draw flex( point 14.9 of rightrearleg, (31u, 4u), (30u, 2u) ) &
2136     flex( (30u, 2u), (31u, 3u), point 15.4 of rightrearleg );
2137 draw flex( point 16.3 of rightrearleg, (32u, u), (31u, -u) ) &
2138     flex( (31u, -u), (32u, 0), point 16.6 of rightrearleg );
2139
2140 draw flex( (52u, 26u), (54u, 27u), (56u, 27.5u), (59u, 29u) ) ..
2141     flex( (59u, 38u), (51u, 39u), (49u, 42u) ) &
2142     flex( (49u, 42u), (48u, 40u), (49u, 38u) ) &
2143     flex( (49u, 38u), (46u, 40u), (45u, 43u) ) &
2144     flex( (45u, 43u), (43.5u, 40.5u), (45u, 39u) ) &
2145     (45u, 39u){left}..(33u, 43u){up}..{dir -45}(43u, 43u) &
2146     flex( (43u, 43u), (43u, 44u), (42u, 46u) ) &
2147     flex( (42u, 46u), (48u, 44u), (53u, 48u) ) &
2148     flex( (53u, 48u), (50u, 46.5u), (47u, 47.5u), (45u, 47u) ) &
2149     flex( (45u, 47u), (47u, 48u), (48u, 50u) ) &
2150     flex( (48u, 50u), (46u, 49u), (41u, 50u), (39u, 49u) ) &
2151     flex( (39u, 49u), (40u, 51u), (37u, 52u) ) &
2152     flex( (37u, 52u), (37u, 50u), (31u, 46u), (30u, 43u) )
2153     {down}..{right}(43u, 37u) &

```

```

2154     flex( (43u, 37u), (42.5u, 35.5u), (43u, 34u) ) &
2155     flex( (43u, 34u), (44u, 36u), (47u, 37u) ) &
2156     flex( (47u, 37u), (47u, 35u), (50u, 33u) ) &
2157     flex( (50u, 33u), (49u, 35u), (51u, 37u) ) &
2158     flex( (51u, 37u), (51u, 36u), (52u, 34u) ) &
2159     flex( (52u, 34u), (56u, 37u), (59u, 33u) )
2160     {down}..{left}(53u, 31u)..{left}(44u,32u)..{left}(34u,31u)..
2161     point 24.5 of lowermanec; % tail and back
2162 enddef;
2163
2164 def banner(suffix $) =
2165     def axis = ((.5total_width, 0), (.5total_width,0)+up) enddef;
2166
2167     path upperedge,loweredge;
2168     upperedge =
2169         ((15u,49u){curl 0}..tension 2..(7u,52u)..tension 4..(43u,32u)
2170         ..tension 4..(10u,30u)..tension 4 and 1..{right}(.5total_width,15u))
2171         shifted (banner_gap_knob * u*down);
2172     loweredge =
2173         (( 9u,39u){curl 0}..tension 2.. (u,42u)..tension 4..(39u,21u)
2174         ..tension 4..( 6u,19u)..tension 4 and 1..{right}(.5total_width,u))
2175         shifted (banner_gap_knob * u*down);
2176
2177     pair intersectA, intersectB;
2178     intersectA = ((subpath (1,2) of loweredge) intersectiontimes
2179                 (subpath (2,3) of upperedge)) + (1,2);
2180     intersectB = ((subpath (2,3) of loweredge) intersectiontimes
2181                 (subpath (3,4) of upperedge)) + (2,3);
2182
2183     pickup thinpen;
2184     drawbothsides (((point 0 of loweredge)--(point 0 of upperedge))
2185                 intersectionpoint (subpath (1,infinity) of upperedge))
2186                 -- point 0 of upperedge);
2187     drawbothsides (subpath (0,2) of upperedge);
2188     drawbothsides (subpath (ypart intersectA,4) of upperedge);
2189     drawbothsides (subpath (1,xpart intersectB) of loweredge);
2190     drawbothsides (subpath (3.06,4) of loweredge);
2191
2192     def dent (expr za,zb,delta) =
2193         (.5[za,zb] + delta * (unitvector(zb-za) rotated 90))
2194     enddef;
2195
2196     def wiggle (expr p,q,delta) =

```



```

2197     (subpath (length p,2+length p) of
2198     (p...dent(point (length p) of p, point 0 of q,delta)...q))
2199   endif;
2200
2201   drawbothsides
2202     (wobble ((subpath (0,1) of upperedge),(subpath (1,2) of loweredge),.5u));
2203   drawbothsides
2204     (wobble ((subpath (1,2) of upperedge),(subpath (2,3) of loweredge),-.5u));
2205   drawbothsides
2206     (wobble ((subpath (2,3.06) of upperedge),(subpath (3.06,4) of loweredge),
2207
2208   def diagfoot(expr base, dirn) =
2209     draw base+u*left -- base+.5u*right;
2210     draw base+u*left{right}..{dirn}base+u*dir angle dirn;
2211   endif;
2212
2213   def foot(expr base) =
2214     diagfoot(base, up);
2215   endif;
2216
2217   def diaghook(expr topofstem, dirn) =
2218     draw topofstem-u*dir 30 -- topofstem;
2219     draw topofstem-u*dir 30{dir 30}..{dirn}topofstem+u*dir angle dirn;
2220   endif;
2221
2222   def hook(expr topofstem) =
2223     diaghook(topofstem, down);
2224   endif;
2225
2226   def vertstem(expr base) = % for F, I, H, R
2227     foot(base);
2228     draw base -- base+lh*up;
2229     hook(base+lh*up);
2230   endif;
2231
2232   def crossbar(expr leftend, straightlength) =
2233     draw leftend -- leftend+straightlength*right {right}
2234     ..{dir 30}leftend+(straightlength+u)*right + .5u*dir 45;
2235   endif;
2236
2237   def upperbowl(expr bl, midht) = % for B, R
2238     draw bl+.8lh*up{dir 30} .. bl+lh*up+2u*right ..
2239     bl+(midht+u)*up+3u*right..{left}bl+midht*up;

```

```

2240   endif;
2241
2242   def SEdiagwithtail(expr nw, se) = % eg R
2243     draw nw{se+.5u*left-nw} .. se .. se+.3u*dir 45;
2244   endif;
2245
2246   def SEdiagwithtwotails(expr nw, se) = % eg A, N
2247     draw nw+u*-dir 30 .. nw
2248       ... {se+.5u*left-(nw+.5u*right)}.5[nw,se] ...
2249     se .. se+u*dir 30;
2250   endif;
2251
2252   numeric letterspacing; letterspacing = 2.6u;
2253
2254   def letter (expr c) =
2255     % this big case statement is a bit grotty, but a better way doesn't
2256     % spring to mind...
2257     if c = ASCII "A":
2258       SEdiagwithtwotails(lh*up+2u*right, 5u*right);
2259       draw (0,0)--lh*up+2u*right;
2260       diagfoot((0,0),lh*up+2u*right);
2261       crossbar(.4[(0,0),lh*up+2u*right], 2.5u);
2262       width(letterspacing+5u);
2263
2264     elseif c = ASCII "B":
2265       vertstem((0,0));
2266       upperbowl((0,0), .5lh);
2267       draw .5lh*up{right} .. .2lh*up+3.5u*right .. {left}(0,0);
2268       width(letterspacing+3u);
2269
2270     elseif c = ASCII "E":
2271       crossbar((0,0), 2u);
2272       vertstem((0,0)); % next four lines same as an "F"
2273       crossbar(.5lh*up, u);
2274       draw .8lh*up{dir 30} .. lh*up+2u*right .. .8lh*up+3u*right;
2275       width(letterspacing+3u);
2276
2277     elseif c = ASCII "F":
2278       vertstem((0,0));
2279       crossbar(.5lh*up, u);
2280       draw .8lh*up{dir 30} .. lh*up+2u*right .. .8lh*up+3u*right;
2281       width(letterspacing+3u);
2282

```

```

2283 elseif c = ASCII "G":
2284   draw 4u*right+(lh-u)*up .. 3u*right+lh*up ..
2285       .5lh*up .. 2u*right .. {up}4u*right+.5lh*up;
2286   draw 4u*right -- 4u*right+.5lh*up -- 3u*right+.5lh*up;
2287   width(letterspacing+4u);
2288
2289 elseif c = ASCII "H":
2290   vertstem((0,0));
2291   vertstem(3.5u*right);
2292   crossbar(.5lh*up, 3u);
2293   width(letterspacing+3.5u);
2294
2295 elseif c = ASCII "I":
2296   vertstem((0,0));
2297   width(letterspacing+u);
2298
2299 elseif c = ASCII "L":
2300   vertstem((0,0));
2301   crossbar((0,0), 2u);
2302   width(letterspacing+3u);
2303
2304 elseif c = ASCII "M":
2305   diagfoot((0,0), lh*up+.5u*right);
2306   draw (0,0) -- lh*up+.5u*right;
2307   SEdiagwithtwotails(lh*up+.5u*right, 3.5u*right);
2308   draw 3u*right+.5u*up -- 5u*right+lh*up -- 6u*right+lh*up;
2309   draw 5u*right+lh*up -- 6u*right;
2310   diagfoot(6u*right, lh*up-u*right);
2311   width(letterspacing+6u);
2312
2313 elseif c = ASCII "N":
2314   foot((0,0));
2315   draw (0,0)--.85lh*up;
2316   SEdiagwithtwotails(lh*up+u*left, 4u*right);
2317   draw 4u*right -- 4u*right+.8lh*up ..
2318       3u*right+lh*up{left} -- 3u*right+lh*up+u*-dir 60;
2319   width(letterspacing+4u);
2320
2321 elseif c = ASCII "R":
2322   vertstem((0,0));
2323   upperbowl((0,0), .4lh);
2324   SEdiagwithtail(.4lh*up+u*right, 4u*right);
2325   width(letterspacing+3.5u);

```

```

2326
2327 elseif c = ASCII "S":
2328     draw 4u*right+(lh-u)*up-.5u*dir 45 --
2329         4u*right+(lh-u)*up .. {left}2u*right+lh*up ..
2330         (lh-2u)*up .. 4u*right+2u*up ..
2331         {left}2u*right .. u*up
2332         -- u*up+.5u*dir 45;
2333     width(letterspacing+3.5u);
2334
2335 elseif c = ASCII "T":
2336     foot(2.5u*right);
2337     draw 2.5u*right -- 2.5u*right+lh*up;
2338     draw u*right+(lh-2u)*up{dir 135} .. (lh-u)*up ..
2339         {right}2u*right+lh*up -- 5u*right+lh*up;
2340     width(letterspacing+4u);
2341
2342 elseif c = ASCII "U":
2343     hook(lh*up);
2344     draw lh*up{down} -- .4lh*up{down} ..
2345         2u*right{right} -- 3.5u*right+u*up;
2346     hook(3.5u*right+lh*up);
2347     draw 3.5u*right+lh*up -- 3.5u*right -- 3.5u*right+.5u*dir 20;
2348     width(letterspacing+4u);
2349
2350 elseif c = ASCII "W":
2351     draw lh*up -- 2u*right -- .3[3u*right+lh*up,5u*right];
2352     draw 3u*right+lh*up -- 5u*right;
2353     draw 5u*right{dir 60} .. {left}5u*right+lh*up
2354         -- 5u*right+lh*up + .5u*dir 30;
2355     diaghook(lh*up, 2u*right-lh*up);
2356     diaghook(3u*right+lh*up, 2u*right-lh*up);
2357     width(letterspacing+6u);
2358
2359 elseif c = ASCII " ":
2360     width(letterspacing+0); % used to be +1.5u, but that was too slack
2361
2362 elseif c = ASCII "/":
2363     width(-.5u); % small kern
2364
2365 fi;
2366 endif;
2367
2368 % pathtext takes theword (a string) and draws it with a baseline that

```

```

2369 % follows thepath (roughly). Probably won't work for intricate paths,
2370 % but fine for smooth shallow curves.
2371
2372 def pathtext (expr theword, thepath) =
2373     % width advances thetime, so that the next letter will go in the right
2374     % place on thepath. Works by intersecting thepath with the 'vertical'
2375     % line at the right of the character.
2376     def width(expr wid) =
2377         thetime := xpart (thepath intersectiontimes
2378             ((wid,-infinity)--(wid,infinity))
2379             transformed currenttransform));
2380     enddef;
2381     numeric thetime; thetime := 0;
2382     transform savetfm; savetfm := currenttransform;
2383     for i = 1 upto (length theword):
2384         currenttransform :=
2385             savetfm rotated(angle direction thetime of thepath)
2386             shifted(point thetime of thepath);
2387         % ie the translation to put the letter at the right place
2388         % and angle on thepath
2389         letter(ASCII (substring (i-1,i) of theword))
2390     endfor;
2391     currenttransform := savetfm;
2392 enddef;
2393
2394 numeric lh; lh = 6u; % letter height
2395
2396 pickup calligraphicpen;
2397
2398 def offset (expr d, t, p) = % point d away from path p at time t
2399     (point t of p + d*dir(90 + angle direction t of p))
2400 enddef;
2401
2402 pathtext ("WHERE", subpath (1.25, 2) of loweredge
2403     shifted (3.15u*dir (90 + angle direction 1.7 of loweredge)));
2404
2405 path thetextpath;
2406
2407 def scaffold (expr theoffset, thetime) =
2408     if thetime <= 4:
2409         offset(theoffset,thetime,loweredge)
2410         {direction thetime of loweredge}
2411     else:

```

```

2412         offset(theoffset,(thetime-4),reverse (loweredge reflectedabout axis))
2413         {direction (thetime-4) of reverse (loweredge reflectedabout axis)}
2414     fi
2415 enddef;
2416
2417 thetextpath =
2418     (scaffold(3.15u,3.32) ... scaffold(3.2u,3.6) ... scaffold(3.25u,4)
2419     ... scaffold(3.2u,4.4) ... scaffold(3.15u,4.68))
2420     shifted (u*up);
2421 pathtext ("FINBARR T/A/U/GHT L/E//T MUNSTER", thetextpath);
2422
2423 pathtext ("LEARN",
2424     subpath (2.25,3) of reverse (loweredge reflectedabout axis)
2425     shifted (3.15u*dir (90 + angle direction 2.5 of
2426         reverse (loweredge reflectedabout axis))));
2427
2428 enddef;
2429
2430     transform tfm;
2431     tfm := currenttransform;
2432
2433     currenttransform := tfm;                                shield(a);
2434 %%                                                         banner(j);
2435
2436     currenttransform := tfm shifted (round 106u, round 79u); crown(b);
2437     currenttransform := tfm shifted (round 144u, round 79u); crown(c);
2438     currenttransform := tfm shifted (round 125u, round 48u); crown(d);
2439
2440     currenttransform := tfm shifted (.5total_width, 109u);  book(e);
2441
2442     currenttransform := tfm shifted (132u, 148u);           castle(f);
2443     currenttransform := tfm shifted (total_width-132u,148u); castle(g);
2444
2445     currenttransform := tfm shifted (.5total_width,151u);   ship(h);
2446
2447     currenttransform := tfm shifted (15u,57u);              lion(i);
2448
2449     currenttransform := tfm;
2450
2451 picture crest_picture; cullit; % crest_picture := currentpicture;
2452 crest_picture := nullpicture; addto crest_picture also currentpicture;
2453
2454 clearit;

```

```
2455 fill unitsquare xscaled (section_width+4u)
2456         yscaled (total_height+(banner_gap_knob+1)*u)
2457         shifted (2u*left+(banner_gap_knob+1)*u*down);
2458 picture mask; cullit; mask = currentpicture;
2459
2460 for code := 1 upto sections:
2461     beginchar(code, section_width#, total_height#, total_depth#); "UCC Arms";
2462     currentpicture := crest_picture shifted ((code-1)* -section_width,0);
2463     addto currentpicture also mask; cull currentpicture keeping (2,2);
2464     endchar;
2465 endfor
2466
2467
2468 end
```

B \LaTeX style file for the UCC crest

```
2469 \NeedsTeXFormat{LaTeX2e}[2009/09/24]
2470 \ProvidesPackage{ucccrest}[2014/05/30 v1.19
2471 LaTeX style file for the UCC crest]
```

This is the `uccnew.sty` style package for the UCC crest implemented as a character in a METAFONT font outline.

```
2472 %% UCC crest implemented as a character in a METAFONT font outline
2473 \def\fileversion{2.0}
2474 \def\filedate{2012/11/22}
2475 \def\docdate{2013/07/06}
2476 \NeedsTeXFormat{LaTeX2e}
2477 \ProvidesPackage{ucccrest}[\filedate\space\fileversion\space
2478 UCC 2013 crest font MFNFSS2e package]
2479 %%\RequirePackage[U]{fontenc}
2480 \newcommand{\UCCcrest}{\fontencoding{U}\fontfamily{zcc}\selectfont\char'001 }
```


C UCC crest font definition file

```
2481 %% Filename: uzcc UCC crest
2482 %% Created by: PF 2000/03/23
2483 \ProvidesFile{uzcc.fd}
2484 [2000/03/23 UCC crest definitions for U/zcc.]
2485 \DeclareFontFamily{U}{zcc}{}
2486 \DeclareFontShape{U}{zcc}{m}{n}{<-> uccnew}{}

```

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3. (a) If the Current Maintainer is reachable and agrees to pass maintenance of the Work to you, then this takes effect immediately upon announcement.
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4. If you make an ‘intention announcement’ as described in item 2b above and after three months your intention is challenged neither by the Current Maintainer nor by the Copyright Holder nor by other people, then you may arrange for the Work to be changed so as to name you as the (new) Current Maintainer.
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D.6 Whether and How to Distribute Works under This License

This section contains important instructions, examples, and recommendations for authors who are considering distributing their works under this license. These authors are addressed as ‘you’ in this section.

D.6.1 Choosing This License or Another License

If for any part of your work you want or need to use *distribution* conditions that differ significantly from those in this license, then do not refer to this license anywhere in your work but, instead, distribute your work under a different license. You may use the text of this license as a model for your own license, but your license should not refer to the LPPL or otherwise give the impression that your work is distributed under the LPPL.

The document `modguide.tex` in the base \LaTeX distribution explains the motivation behind the conditions of this license. It explains, for example, why distributing \LaTeX under the GNU General Public License (GPL) was considered inappropriate. Even if your work is unrelated to \LaTeX , the discussion in `modguide.tex` may still be relevant, and authors intending to distribute their works under any license are encouraged to read it.

D.6.2 A Recommendation on Modification Without Distribution

It is wise never to modify a component of the Work, even for your own personal use, without also meeting the above conditions for distributing the modified component. While you might intend that such modifications will never be distributed, often this will happen by accident — you may forget that you have modified that component; or it may not occur to you when allowing others to access the modified version that you are thus distributing it and violating the conditions of this license in ways that could have legal implications and, worse, cause problems for the community. It is therefore usually in your best interest to keep your copy of the Work identical with the public one. Many works provide ways to control the behavior of that work without altering any of its licensed components.

D.6.3 How to Use This License

To use this license, place in each of the components of your work both an explicit copyright notice including your name and the year the work was authored and/or last substantially modified. Include

also a statement that the distribution and/or modification of that component is constrained by the conditions in this license.

Here is an example of such a notice and statement:

```
%%% pig.dtx
%%% Copyright 2005 M. Y. Name
%%
%% This work may be distributed and/or modified under the
%% conditions of the LaTeX Project Public License, either version 1.3
%% of this license or (at your option) any later version.
%% The latest version of this license is in
%%   http://www.latex-project.org/lppl.txt
%% and version 1.3 or later is part of all distributions of LaTeX
%% version 2005/12/01 or later.
%%
%% This work has the LPPL maintenance status 'maintained'.
%%
%% The Current Maintainer of this work is M. Y. Name.
%%
%% This work consists of the files pig.dtx and pig.ins
%% and the derived file pig.sty.
```

Given such a notice and statement in a file, the conditions given in this license document would apply, with the ‘Work’ referring to the three files `pig.dtx`, `pig.ins`, and `pig.sty` (the last being generated from `pig.dtx` using `pig.ins`), the ‘Base Interpreter’ referring to any ‘ \LaTeX -Format’, and both ‘Copyright Holder’ and ‘Current Maintainer’ referring to the person M. Y. Name.

If you do not want the Maintenance section of LPPL to apply to your Work, change ‘maintained’ above into ‘author-maintained’. However, we recommend that you use ‘maintained’ as the Maintenance section was added in order to ensure that your Work remains useful to the community even when you can no longer maintain and support it yourself.

D.6.4 Derived Works That Are Not Replacements

Several clauses of the LPPL specify means to provide reliability and stability for the user community. They therefore concern themselves with the case that a Derived Work is intended to be used as a

(compatible or incompatible) replacement of the original Work. If this is not the case (e.g., if a few lines of code are reused for a completely different task), then clauses 6b and 6d shall not apply.

D.6.5 Important Recommendations

D.6.5.1 Defining What Constitutes the Work The LPPL requires that distributions of the Work contain all the files of the Work. It is therefore important that you provide a way for the licensee to determine which files constitute the Work. This could, for example, be achieved by explicitly listing all the files of the Work near the copyright notice of each file or by using a line such as:

```
%% This work consists of all files listed in manifest.txt.
```

in that place. In the absence of an unequivocal list it might be impossible for the licensee to determine what is considered by you to comprise the Work and, in such a case, the licensee would be entitled to make reasonable conjectures as to which files comprise the Work.

Change History

v0.70	
General: First working version derived from the author's personal thesis class.: Added running headers and footers.	1
\@now: Added timestamp ..	119
v0.90	
\@pnumwidth: Changed pnumwidth.	137
General: Last changes before release: 1) Added all known degrees; 2) Updated bibliographic reference styles for those schools and departments who responded to the request; 3) Fixed text-wrapping error in footers and headers.	1
\@made decl: Centering removed from Declaration.	128
Wording from Michelle Nelson.	128
\@maketitle: Changed author to LARGE size.	124
v0.91	
General: Changes after first release: 1) Added justified option; 2) Implemented 10/11/12 point size options; 3) Changed proportions of the page for floats.	1
\@UCC@textbodywidth: Zapped the intrusive double backslash in titles affecting the running footers	119
v0.92	
General: Bugs reported by	
testers: 1) Added code to automate detection of use of tables and figures, and disable LoT and LoF accordingly.; 2) Added nolot and nolof options to manually disable automated Lists of Tables and Figures.; 3) Replaced the harvard package reference with natbib and har2nat, because harvard on its own was invoking html and breaking on an undefined htmladdnormallink* command (thanks to Dan Luecking, Mico Loretan, and others for this).; 4) Corrected misspelling of Sociology..	1
epigraph: Added Epigraphs.	134
v0.93	
General: More bugs reported by testers: 1) Re-placed re-floating to put captions under figures (already above tables).; 2) Enclosed footmisc in ifjustified to defeat ragged footnotes; moved ragged redefinition of captions to do the same.; 3) Added plainheaders option to avoid fancy headers.; 4) Added indented option to revert to indented/unspaced paragraphs.; 5) Added stable option to footmisc to allow footnotes in chapter and section headings..	1

\ifjustified: Added justified in response to user queries	111	ble backslash	128
v0.94		v0.99	
General: Fixed incorrect recording of justification option: Justification option was not resetting indentation and paragraph spacing..	1	\@usebib: Added institutions to the list of options to generate (previously omitted)	53
\ifjustified: updated (manual comment)	116	General: Added tracing to bibliography: Reset page margins to allow printing on inkjets with restricted paper-handling.	1
v0.95		Changed it back to single spacing for prelims and one and a half spacing for the rest.	138
General: Reinforced wording of justification option: Justification option was open to misinterpretation..	1	Changed onehalfspacing to setstretch of 1.333 for prelims and moved the main 1.666 one to the start of the first part or chapter.	138
v0.96		Removed code for altering layout of description lists, as the modifications were not working consistently	136
General: Added subject and keywords	122	\bibliography: Added typeout to bibliography	138
Rewrite of XML for new version of classpack: Changed method of specification of packages.	1	\maketitle: Changed it back.	133
\maketitle: Added PDF metadata	128	Changed onehalfspacing to setstretch of 1.333 for prelims and moved the main 1.666 one to here.	133
\now: Simplified now, added adobedate	119	\UCC@textbodywidth: Fixed uppercased headings at last	119
v0.97		Italicised the thesis title in the footer	119
General: Added author so we can have optional student number	120	v1.00	
Added mdiss option ...	111	General: Added new code for citations in quotations: This tucks citations into the remaining space of the last line where possible.. .	1
Experimenting with mdiss option for dissertations: Minor Dissertation option.	1	epigraph: Added new posi-	
v0.98			
General: Tidying up packages: Removed xcolor and ulem.	1		
\maketitle: Moved pdfinfo to the end of maketitle, temporarily nullified the dou-			

tional code for citations to epigraphs	135		
\quotation: Added new positional code for citations to block quotations	136		
\UCC@textbodywidth: Made plain style for chapter starts retain the page number	117		
v1.01			
General: Updated installation instructions: Added detail about installing the crest..	1		
v1.02			
General: Added revision date facility for drafts: Added @revdate and revdate; if present in drafts, they supersede the default TODAY date..	1		
v1.03			
General: Renamed Bibliography to References: Following suggestion from Ehsan Sooudi of Tyndall..	1		
v1.04			
General: Changes to quotations: Spacing of instep citation was not flush to margin.	1		
\quotation: Removed footnotesize for citation, changed hfil to hfill, and moved the parfillskip and finalhyphendemerits earlier	136		
v1.05			
General: "kernel".	1		
v1.06			
General: Changes to bibrefs: Physics changed to ieeetr; resetbibstyle updated.	1		
		v1.07	
		General: Added a setlist command via prepost to preset description lists to the unboxed option	136
		Reorganisation of implementations sections: Addition of crest files, changes to description lists.	1
		v1.08	
		General: Added short title to main title: Use the @title and @@title.	1
		\title: Added the @title and @@title commands	123
		v1.09	
		General: Corrected locations for installation in build file: Distinct directories for different embedded filetypes; also updated BIS to use APA.	1
		v1.10	
		General: Added twoside option: Some people need to print bindable two-sided copies of long theses.. . . .	1
		\UCC@textbodywidth: Added specs for twosided fancy headers	117
		v1.11	
		General: Removed from automaketitle and put in start of part or chapter:	1
		acknowledgements: Added maketitle test to acknowledgements.	130
		\UCC@textbodywidth: Added replication of columnwidth for use in headers to avoid conflict with longtable and lscape.	117

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