The coppe document class

Vicente Helano F. Batista George O. Ainsworth Jr.* November 8, 2008

Abstract

In this work, it is described the coppe document class as well as other files distributed by the COPPETEX project. This class is suitable for writing academic dissertations, thesis and qualifying exams according to the format rules of the Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering. The minimalist set of macro commands allows its users to concentrate most of their efforts on text composition rather than on the document layout.

1 Introduction

Writing documents in LATEX may be a laborious task when the authors have to prepare their manuscripts rigorously respecting format rules imposed by publishers. Regardless of difficulty, a lot of thesis presented to the Coordination of Graduate Studies and Research in Engineering of the Federal University of Rio de Janeiro (COPPE/UFRJ) is typeseted in LATEX. This demand motivated the creation of the COPPETEX project, which tries to facilitate and encourage the use of LATEX within the COPPE/UFRJ scope.

The coppe document class is the main product of COPPETEX. It was designed to be clear and succinct. It enables the creation of dissertations, qualifying exams and thesis in a simple and automatic way. The main goal of the coppe class is to maintain authors strictly focused on text composition without worrying about margins sizes, line spacing, paper size, vertical and horizontal alignment, etc. The COPPETEX project comprehends also BIBTEX and Makeindex style files for creating lists of references, symbols and abbreviations. Although there aren't official guidelines to write qualifying exams, we provide this option just for convenience, as this exam is a requisite to obtain the DSc degree.

In which follows, it is described the user interface of the coppe class. Some details about using the style files cited above are also given. We use the term *thesis* to generally refer to dissertation, qualifying exam, and thesis itself.

^{*}Send comments, suggestions, questions and bugs to goajunior@users.sourceforge.net.

2 License

Each file belonging to this package contains a copyright notice. Its use is protected by the GNU General Public License (GPL) version 3, so that users are free for copying, distributing or modifying the source code, among other acts covered by this license.

To see the full text of the GNU GPL license, go to the COPYING file attached to this package.

3 User Interface

\frontmatter
\mainmatter
\backmatter

A thesis to be approved by the Academic Registry at COPPE/UFRJ must contain three-parts: front, main and back matters [1]. Each one of these parts is started by calling its corresponding macro \frontmatter, \mainmatter or \backmatter. The front matter of a thesis consists of front cover and face, cataloging page, dedication, acknowledgments, abstracts, table of contents, and lists of tables, algorithms, symbols and abbreviations. The main matter is just composed by chapters, while the back matter usually consists of bibliographic references, appendices and index.

You must invoke the \frontmatter macro immediately after the \maketitle one. The \mainmatter command comes right before the first chapter, and \backmatter must be typed before the list of references.

Front cover

This element was recently introduced by the Academic Registry. It is automatically constructed by the \maketitle command.

Front face

The front face is unnumbered. There, it is not allowed to use hyphenation [1]. It is constructed by calling \maketitle. Next, it is described the commands used to enter the information required to create it.

\author

The \author command was redefined. Here, it takes two arguments: the author's first names and surname, e.g. \author{First Names}{Surname}. The words should be typed with only first letters in uppercase.

\title \foreigntitle The macros \title and \foreigntitle are used to enter the titles of the monograph in the current and foreign languages. The default languages are Brazilian Portuguese and English. The babel package is automatically loaded by coppe.cls, so you don't need to load it again. The Brazilian Portuguese is the main language and the English is only required for the foreign abstract.

\advisor \coadvisor \examiner Every COPPE student is coordinated by an advisor. It is still possible to have a co-advisor. Their names must be provided by the commands \advisor and \coadvisor. It is also required to enter the names of all examiners using the

\examiner macro. For the advisor and co-advisor's names, you should enter them as below:

```
\advisor{Title}{Advisor's Name}{Advisor's Surname}{Degree}
\coadvisor{Title}{Co-advisor's Name}{Co-advisor's Surname}{Degree}
```

The examiners' names are entered differently:

```
\examiner{Title}{First Examiner's Complete Name}{Degree}
\examiner{Title}{Second Examiner's Complete Name}{Degree}
...
```

The difference in providing advisors and examiners' names was introduced in version 2.0, because of the new standard approved in 3rd July 2008. Remember that all names must be given before calling \maketitle.

\department

The Alberto Luiz Coimbra institute is divided into 12 academic units: Biomedical Engineering (PEB), Civil Engineering (PEC), Electrical Engineering (PEE), Mechanical Engineering (PEM), Metallurgical and Materials Science Engineering (PEMM), Nuclear Engineering (PEN), Ocean Engineering (PENO), Energy Planning (PPE), Production Engineering (PEP), Chemical Engineering (PEQ), Systems Engineering and Computer Science (PESC), and Transportation Engineering (PET). You must specify your department using one of the above abbreviations, e.g. \department{PEB}.

\date

This macro is used to set the month and year of defense. This information is required to create the front face, cataloging details page and abstracts. For example, October 2007 should be entered as \date{10}{2007}.

\keyword

The keywords should describe the concentration areas of your work. You must provide them as follows:

```
\keyword{First Keyword}
\keyword{Second Keyword}
...
```

Usually, six words are enough.

Cataloging details

This page contains cataloging information useful for librarians. It is automatically generated from the data entered by the user when calling \maketitle, except in qualifying exams.

Dedication (optional)

\dedication

This macro was added for convenience. The input text is placed at the right bottom of a blank page. It is emphasized and in normal size. It is numbered with roman digits.

Abstracts

abstract foreignabstract

As stated by the Academic Registry [1], the abstracts must be in one page each. Still, it is recommended that they should be only one paragraph long. They must be defined inside the environments abstract and foreignabstract.

Lists of symbols and abbreviations (optional)

\abbrev \symbl

The lists of symbols and abbreviations are optionals. It is recommended to define a symbol/abbreviation in its first occurrence in the text. To define a symbol use \symbol Some Symbol Definition}, and for abbreviations \abbrev{Some Abbreviation}{Some Abbreviation Definition}. These commands are called dummy, since they don't output anything at the place they are executed, just an entry in the correspondent list.

\makeloabbreviations \makelosymbols \printloabbreviations \printlosymbols These lists are lexicographically sorted by using the MakeIndex program, which is part of any IATEX implementation. Makeindex needs two commands to create a final sorted list: one which generates a list of entries and the other that indicates the position where the list will be printed out. To generate the lists of symbols and abbreviations, the coppe class has the commands \makeloabbreviations and \makelosymbols, respectively. They must be called in the document preamble. The commands \printlosymbols and \printloabbreviations have to be invoked at the point where you want the respective lists appear, e.g. following the list of tables as showed in the example. Once you call latex, it will be created two files with extensions abx and syx, which contain makeindex input data. They must be processed with makeindex command in order to get the lists correctly produced, redirecting the output to files with extension lab and los respectively:

```
makeindex -s coppe.ist -o example.lab example.abx
makeindex -s coppe.ist -o example.los example.syx
```

Note the option -s with the style file coppe.ist. Rerun latex twice to get the references correctly solved and you are done.

References

It is well known that bibliography databases can be easily maintained when using BibTeX. Thus, the CoppeTeX project designed the BibTeX style coppe-unsrt.bst to complement the coppe class. It is a numbered style, which sorts references by order of citation. To use it, you have to select coppe-unsrt as the BibTeX style and include your BibTeX references without the bib extension, as in the following example:

```
\bibliographystyle{coppe-unsrt}
\bibliography{example}
```

Run in sequence LaTeX, BibTeX, and twice again LaTeX to resolve references issues. This style is not compatible with natbib.

4 Graphics driver

Since the addition of a front cover with a Minerva's picture, it is required to use a package to enable graphical inclusion. You may choose among three standard graphical drivers, dvips, pdftex and dvipdfm, just passing it as a class option. The COPPETEX loads graphicx using the dvips driver by default, so you mustn't load it by yourself.

If you would like to generate a PDF output, we encourage the use of pdfT_EX. Remember that pdfT_EX turns the default graphics extension to PDF.

5 Hyperref

When working with PDF's, there is the possibility to add extra information to the file as the author's name, document title, subject, keywords, etc. This is easily done with the hyperref package. It is also useful to enable hyperlinks. The coppe class loads hyperref by default and fills in all the document properties.

6 Useful tips

Printing. To get your work correctly printed, you must ensure that any page scaling option (e.g. fit or shrink to printable area) isn't enabled. This options often comes in print dialogs of document visualization softwares.

Pictures. The default picture format of LATEX is the Encapsulated PostScript (EPS). If you use pdfTEX, the default format becomes the PDF. The package graphicx enables handling other formats like JPEG, PNG and GIF. In this case, you must provide the bounding box of your picture. There are two ways of doing this: pass an option to the \includegraphics command (e.g. \includegraphics[bb = 0 0 35 28]{picture.png}), or provide a file with extension bb containing the bounding box values (e.g. %%BoundingBox: 0 0 9 12). This file will be automatically read by LATEX.

Fonts. The default font in LaTeX is the Computer Modern. If you would like to try its enhanced version, consider using the package lmodern. To use Times, it is recommended to load the package mathptmx, rather than the deprecated times. There is also an enhanced Times version available with the tgtermes package. You can still use the Arial font face with the package uarial. Before including these packages you should call \usepackage[T1]{fontenc}. This command will tell LaTeX to use high-quality PostScript Type1 fonts.

7 A Simple Example

- 1 (*example)
- 2 \documentclass[dsc,pdftex]{coppe}
- 3 \usepackage[latin1]{inputenc}
- 4 \usepackage{amsmath,amssymb}

```
6 \makelosymbols
7 \makeloabbreviations
9 \begin{document}
    \title{Desenvolvimento de um Algoritmo Baseado no Método de Arnoldi para
    Solução de Problemas de Autovalor Generalizado}
11
    \foreigntitle{Solution of Generalized Eigensystems with Algorithms Based on
12
    Arnoldi Methods}
13
    \author{George Oliveira}{Ainsworth Jr.}
14
    \advisor{Prof.}{Carlos}{Magluta}{D.Sc.}
15
    \coadvisor{Prof.}{Fernando Luiz Bastos}{Ribeiro}{D.Sc.}
16
    \examiner{Prof.}{Alvaro Luiz Gayoso Azeredo Coutinho}{D.Sc.}
    \examiner{Prof.}{Webe João Mansur}{Ph.D.}
    \examiner{Prof.}{Paulo Batista Gonçalves}{D.Sc.}
19
    \department{PEC}
20
    \date{12}{2008}
21
22
    \keyword{Problemas de Autovalor}
23
24
    \keyword{Método de Arnoldi}
    \keyword{Análise Dinâmica}
25
    \maketitle
26
27
    \frontmatter
28
29
    \dedication{\( \rightarrow \) minha m\( \rightarrow \) pelo amparo ao longo desses anos.\\
30
    Às minhas tias Vanete e Vanilde (\emph{in memoriam}).}
31
32
    \chapter*{Agradecimentos}
33
    Agradeço ao Conselho Nacional de Desenvolvimento Científico e Tecnológico dos
34
    Estados Unidos do Brasil (CNPq) pelo suporte financeiro.
35
36
37
    \begin{abstract}
    Autovalores e autovetores de operadores lineares são importantes para muitas
    áreas da Matemática Aplicada. Na Engenharia Civil, sobretudo na Engenharia de
    Estruturas o uso de problemas de autovalor tem fundamental importância, um
    exemplo típico é a análise dinâmica, onde os autovalores representam as
41
    frequências naturais e os autovetores os modos de vibração associados à sua
    frequência natural correspondente. A crescente demanda da avaliação numérica
43
    de forma mais eficiente dessas quantidades, despertou o interesse na busca de
44
    novos métodos para a solução de problemas de autovalor, principalmente quando
45
    o problema a ser analisado conduz a quantidades pertencentes ao conjunto dos
46
    números complexos.
47
    \end{abstract}
48
49
    \begin{foreignabstract}
    Eigenvalues and eigenvectors of linear operators are important in many Applied
52
    Mathematics areas. In Civil Engineering, especially in Structural Analysis,
    eigensystems have a fundamental importance. A typical example is in dynamic
53
    analysis, where the eigenvalues represent the natural frequencies and
```

```
eigenvectors the mode shape. The increasing demand for efficient numeric
    evaluation of eigenvalues and eigenvectors motivated the search for new
    methods for the solution of complex eigensystems.
58
    \end{foreignabstract}
59
60
    \tableofcontents
    \listoffigures
61
    \listoftables
62
    \printlosymbols
63
    \printloabbreviations
64
65
    \mainmatter
66
    \chapter{Introdução}
67
    Em métodos numéricos para obter soluções aproximadas de equações
    diferenciais, tais como o método dos elementos finitos (MEF)%
    \abbrev{MEF}{método de elementos finitos}
70
    e o método dos volumes finitos (MVF)%
71
    \abbrev{MVF}{método de volumes finitos}, o domínio no qual estas
72
    equações foram definidas é discretizado em sub-domínios simples
73
74
    denominados \textit{elementos}.
75
    Denotemos o domínio por $\Omega$%
76
    \symbl{$\Omega$}{domínio de definição de uma equação diferencial}
77
78
    \chapter{Revisão Bibliográfica}
79
    \chapter{Método Proposto}
80
    \chapter{Resultados e Discussões}
81
    \chapter{Conclusões}
82
83
    \backmatter
84
    \nocite{*}
85
    \bibliographystyle{coppe-unsrt}
86
87
    \bibliography{coppe}
    \appendix
    \chapter{Código Fonte}
91 \end{document}
92 (/example)
```

8 Implementation

8.1 The 'coppe.cls' file

```
93 \( *class \)
94 \\def\filename\{coppe.dtx\}
95 \\def\fileversion\{v2.0\}
96 \\def\filedate\{2007/03/01\}
97 \\NeedsTeXFormat\{LaTeX2e\}[1995/12/01]
98 \\ProvidesClass\{coppe\}[\filedate\\fileversion\\ COPPE Dissertations and Thesis]
99 \\LoadClass\[12pt,a4paper,oneside\]\{book\}
```

```
100 \RequirePackage{lastpage}
101 \RequirePackage{hyperref}
102 \RequirePackage[english,brazil]{babel}
103 \RequirePackage{hyphenat}
104 \RequirePackage{ifthen}
105 \RequirePackage{graphicx}
106 \RequirePackage{tabularx}
107 \RequirePackage{eqparbox}
108 \RequirePackage[a4paper,bindingoffset=0.0cm,vcentering=true,%
109 top=2.5cm,bottom=2.5cm,left=3.0cm,right=3.0cm]{geometry}
110 \def\CoppeTeX{{\rm C\kern-.05em{\sc o\kern-.025em p\kern-.025em
111 p\kern-.025em e}}\kern-.08em\TeX}
    The default line spacing is 1.5pt.
112 \renewcommand\baselinestretch{1.5}
113 \let\@adname\@empty
114 \let\@adsurn\@empty
115 \let\@coadname\@empty
116 \let\@coadsurn\@empty
117 \newcounter{minexaminers}
118 \newboolean{isdraft}
119 \newboolean{maledoc}
120 \setboolean{maledoc}{false}
121 \setboolean{isdraft}{false}
122 \newboolean{needbb}
123 \setboolean{needbb}{false}
124 %
125 \DeclareOption{msc}{%
126
     \newcommand{\@degree}{M.Sc.}
     \newcommand{\@degreename}{Mestrado}
127
     \newcommand{\local@degname}{Mestre}
128
     \newcommand{\foreign@degname}{Master}
129
     \newcommand\local@doctype{Disserta{\c c}{\~ a}o}
130
     \newcommand\foreign@doctype{Dissertation}
131
     \setcounter{minexaminers}{2}
132
133 }
134 \DeclareOption{dscexam}{%
     \newcommand{\@degree}{D.Sc.}
135
136
     \newcommand{\@degreename}{Doutorado}
137
     \newcommand{\local@degname}{Doutor}
138
     \newcommand{\foreign@degname}{Doctor}
139
     \setboolean{maledoc}{true}
     \label{local@doctype} $$\operatorname{Exame de Qualifica(\c c)(\^a)o}$$
140
     \newcommand\foreign@doctype{Qualifying Exam}
141
     \setcounter{minexaminers}{1}
142
143 }
144 \DeclareOption{dsc}{%
     \newcommand{\@degree}{D.Sc.}
145
     \newcommand{\@degreename}{Doutorado}
146
147
     \newcommand{\local@degname}{Doutor}
```

```
\newcommand{\foreign@degname}{Doctor}
            148
                  \newcommand\local@doctype{Tese}
            149
                  \newcommand\foreign@doctype{Thesis}
            150
                  \setcounter{minexaminers}{2}
            151
            152 }
            153 \DeclareOption{draft}{%
                  \setboolean{isdraft}{true}
            154
                  \ClassWarning{coppe}{draft mode is ON}%
            155
            156 }
            157 \DeclareOption{dvips}{%
                  \PassOptionsToPackage{dvips}{hyperref,graphicx}
            158
            159 }
            160 \DeclareOption{dvipdfm}{%
                  \PassOptionsToPackage{dvipdfm}{hyperref,graphicx}
                  \setboolean{needbb}{true}
             162
            163 }
            164 \DeclareOption{pdftex}{%
                  \PassOptionsToPackage{pdftex}{hyperref,graphicx}
                  \PassOptionsToPackage{plainpages=false,pdfpagelabels}{hyperref}
            166
            167 }
            168 \ProcessOptions\relax
\university Set the university name.
            169 \newcommand\university[1]{%
            170
                  \renewcommand\local@universityname{#1}
            171 }
            172 %
            173 % \begin{macro}{\department}
            174\ \% This macro is used to set the author's affiliation. There are twelve options
            175 % which correspond to all academic units at COPPE/UFRJ. It defines the current
            176 % and the foreign names of these units.
            177 %
                     \begin{macrocode}
            178 \newcommand\department[1]{%
                  \left\{ \begin{array}{l} \text{T}_{FEB} \end{array} \right\}
            179
                    {\global\def\local@deptname{Engenharia Biom{\' e}dica}
            180
                     \global\def\foreign@deptname{Biomedical Engineering}}{}
            181
                  \ifthenelse{\equal{#1}{PEC}}
             182
                    {\global\def\local@deptname{Engenharia Civil}
             183
                     \global\def\foreign@deptname{Civil Engineering}}{}
             184
            185
                  \ifthenelse{\equal{#1}{PEE}}
            186
                    {\global\def\local@deptname{Engenharia El{\' e}trica}
            187
                     \global\def\foreign@deptname{Electrical Engineering}}{}
                  \ifthenelse{\equal{#1}{PEM}}
            188
                    {\cline{Condense} Engenharia Mec{^ a}nica}
             189
                     \global\def\foreign@deptname{Mechanical Engineering}}{}
             190
                  \ifthenelse{\equal{#1}{PEMM}}
            191
                    {\global\def\local@deptname{Engenharia Metal{\' u}rgica e de Materiais}
             192
             193 \global\def\foreign@deptname{Metallurgical and Materials Science Engineering}}{}
                  \ifthenelse{\equal{#1}{PEN}}
             194
                    {\global\def\local@deptname{Engenharia Nuclear}
             195
```

```
196
                     \global\def\foreign@deptname{Nuclear Engineering}}{}
                  \ifthenelse{\equal{#1}{PENO}}
             197
                    {\global\def\local@deptname{Engenharia Oce{\^ a}nica}
             198
             199
                     \global\def\foreign@deptname{Ocean Engineering}}{}
             200
                  \ifthenelse{\equal{#1}{PPE}}
                    {\global\def\local@deptname{Planejamento Energ{\' e}tico}
             201
                     \global\def\foreign@deptname{Energy Planning}}{}
             202
                  \ifthenelse{\equal{#1}{PEP}}
             203
                    204
                     \global\def\foreign@deptname{Production Engineering}}{}
             205
                  \ifthenelse{\equal{#1}{PEQ}}
             206
                    {\global\def\local@deptname{Engenharia Qu{\' i}mica}
             207
                     \global\def\foreign@deptname{Chemical Engineering}}{}
             208
                  \ifthenelse{\equal{#1}{PESC}}
             209
             210
                    211
                     \global\def\foreign@deptname{Systems Engineering and Computer Science}}{}
             212
                  \ifthenelse{\equal{#1}{PET}}
                    {\global\def\local@deptname{Engenharia de Transportes}
             213
                     \global\def\foreign@deptname{Transportation Engineering}}{}
             214
             215 }
      \title Used to enter the foreign title.
             216 \renewcommand\title[1]{%
             217
                  \global\def\local@title{#1}%
             218 }
\foreigntitle Used to enter the foreign title.
             219 \newcommand\foreigntitle[1]{%
                  \global\def\foreign@title{#1}%
             221 }
    \advisor Defines globally the title, name and academic degree of the advisor.
             222 \newcommand\advisor[4]{%
                  \global\def\@adtitle{#1}%
             223
                  \global\def\@adname{#2}%
             224
                  \global\def\@adsurn{#3}%
             226
                  \global\def\@addegree{#4}%
             227 }
             Defines globally the title, name and academic degree of the co-advisor.
   \coadvisor
             228 \newcommand\coadvisor[4] {%
                  \global\def\@coadtitle{#1}%
             229
                  \global\def\@coadname{#2}%
             230
             231
                  \global\def\@coadsurn{#3}%
             232
                  \global\def\@coaddegree{#4}%
                  \renewcommand\local@advisorstring{Orientadores}%
             233
                  \renewcommand\foreign@advisorstring{Advisors}%
             234
             235 }
```

```
\examiner It was fixed a maximum of 6 examiners, just for the sake of page layout.
                    236 \newcount\@examiner\@examiner0
                    237 \newcommand\examiner[3] {%
                         \global\@namedef{S:\expandafter\the\@examiner}{#1\ #2, #3}
                    239
                         \global\advance\@examiner by 1
                    240 \% Should we use this check?
                    241 % \ifnum\@examiner>6
                    242 %
                            \ClassWarning{coppe}{%
                    243 %
                              Maximum number of examiners exceeded.\MessageBreak
                    244 %
                              Printing only six of them}
                    245 %
                            \@examiner=6
                    246 %
                         \fi
                    247 }
           \author It is redefined to allow the identification of the author's first names and surname.
                    248 \renewcommand\author[2]{%
                         \global\def\@authname{#1}
                         \global\def\@authsurn{#2}
                    251 }
             \date This code enables makes easy to switch from dates in different languages.
                    252 \renewcommand\date[2]{%
                         \month=#1
                    254
                        \year=#2
                    255 }
 \local@monthname
                    256 \mbox{ } \mbox{newcommand} \mbox{local@monthname{\color=}} \
                         Janeiro\or Fevereiro\or Mar{\c c}o\or Abril\or Maio\or Junho\or
                         Julho\or Agosto\or Setembro\or Outubro\or Novembro\or Dezembro\fi}
\foreign@monthname
                    259 \newcommand\foreign@monthname{\ifcase\month\or
                         January\or February\or March\or April\or May\or June\or
                         July\or August\or September\or October\or November\or December\fi}
            \place Used to enter the place of defense.
                    262 \newcommand\place[3]{%
                         \renewcommand\local@cityname{#1}
                         \renewcommand\local@statename{#2}
                    265
                         \renewcommand\local@countryname{#3}
                    266 }
          \keyword
                    267 \newcounter{keywords}
                    268 \newcommand\keyword[1]{%
                         \verb|\global@namedef{K:\expandafter\the\c@keywords}{\#1}|
                    270
                         \global\addtocounter{keywords}{1}
                    271 }
```

```
catalográfica, utilizou-se uma referência. Assim, mesmo com uma main vazia, será
             necessário re-executar o LATEX para obter as referências corretas.
            272 \renewcommand\frontmatter{%
                  \cleardoublepage
            273
                  \@mainmatterfalse
            274
                  \pagenumbering{roman}
            275
            276
                  \thispagestyle{empty}
            277
                  \setcounter{page}{2}
            278
                  \makefrontpage
             279
                  \clearpage
            280
                  \pagestyle{plain}
                  \label{local} $$ \left( boolean\{maledoc\}\}{}{\mathbb{}}_{\infty}. $$
            281
            282 }
\mainmatter
            283 \renewcommand\mainmatter{%
                \immediate\write\@auxout{%
                    \string\newlabel{front:pageno}{{}}{\Roman{page}}{{}}{page.\roman{page}}{{}}}
            285
                  \cleardoublepage
            286
                  \@mainmattertrue
            287
                  \pagestyle{plain}
            288
                  \pagenumbering{arabic}}
\backmatter
            290 \renewcommand\backmatter{%
                  \if@openright
            291
            292
                    \cleardoublepage
            293
                  \else
            294
                    \clearpage
                 \fi}
            295
            296 %
 \maketitle
            297 \renewcommand\maketitle{%
            298 \pagenumbering{alph}
            299 \config@hypersetup
            300 % Should we use this check?
            301 %\ifthenelse{\@examiner<\value{minexaminers}}{%
            302 % \ifthenelse{\boolean{isdraft}}{%
            303 %
                     \ClassWarning{coppe}{Too few examiners for a \local@doctype}%
            304 % }{%
                     \ClassError{coppe}{%
            305 %
                     Too few examiners for a \local@doctype}{%
            306 %
                     This value is regulated by the Academic Registry at COPPE/UFRJ.\MessageBreak
            307 %
                     To disable this check, enable the draft option of the coppe class.}%
            308 %
            309 % }%
```

\frontmatter Para os números de páginas do frontmatter e do mainmatter aparecerem na ficha

310 %}{}

\begin{titlepage}

```
\begin{flushleft}
312
     \setlength\baselineskip{0pt}
313
     \setlength\parskip{1mm}
314
315
     \makebox[20mm][c]{%
       \ifthenelse{\boolean{needbb}}{%
316
         \includegraphics[bb = -1 -1 48 64]{minerva}}{%
317
         \includegraphics{minerva}}}\par
318
     \makebox[20mm][c]{{\fontfamily{phv}\textbf{\small COPPE/UFRJ}}}
319
     \end{flushleft}
320
     \begin{center}
321
     \nohyphens{\MakeUppercase\local@title}\par
322
     \vspace*{28mm}
323
     \nohyphens{\@authname\ \@authsurn}\par
324
     \end{center}
325
326
     \vspace*{16mm}
     \begin{flushright}
327
     \begin{minipage}{80mm}
328
     \frontcover@maintext
329
     \end{minipage}\par
330
     \vspace*{7.5mm}
331
     \begin{tabularx}{80mm}[b]{@{}1@{}}
332
       \local@advisorstring: & \nohyphens{\@adname\ \@adsurn}\\
333
       \ifthenelse{\equal{\@coadname}{\@empty}}{}{}{%
334
         & \nohyphens{\@coadname\ \@coadsurn}\\}
335
336
     \end{tabularx}\par
337
     \end{flushright}
     \vspace*{\fill}
338
     \begin{center}
339
     \local@cityname\par
340
     \local@monthname\ de \number\year
341
     \end{center}
342
     \end{titlepage}
343
     \global\let\maketitle\relax%
344
     \global\let\and\relax}
346 \newcommand\makefrontpage{%
347
     \begin{center}
348
       \sloppy\nohyphens{\MakeUppercase\local@title}\par
349
       \vspace*{7mm}
350
       {\@authname\ \@authsurn}\par
351
     \end{center}\par
352
     \vspace*{4mm}
     \frontpage@maintext
353
     \vspace*{8mm}
354
     \noindent\local@approvedname:\par
355
        \begin{center}
356
357
     \begin{flushright}
            \vskip16\p@ \baselineskip12pt
358
            \eqparbox{signture@list}{\hrulefill}\\
359
360
            \eqparbox{signture@list}{\protect\centering%
```

```
361
             \\\\\@adtitle\\@adname\\@adsurn,\@addegree\\\\}\\
           \ifthenelse{\equal{\@coadname}{\@empty}}{}{}
362
           \vskip26\p@ \baselineskip12pt
363
364
           \eqparbox{signture@list}{\hrulefill}\\
365
           \eqparbox{signture@list}{\protect\centering%
             \\\\@coadtitle\\@coadname\\@coadsurn, \@coaddegree\\\}\\}
366
           \count1=0
367
           \@whilenum \count1<\@examiner \do {
368
               \vskip26\p@ \baselineskip12pt
369
           \eqparbox{signture@list}{\hrulefill}\\
370
           \eqparbox{signture@list}{\protect\centering%
371
               \ \ \csname S:\the\count1 \endcsname\ \ \ }\\
372
               \advance\count1 by 1}
373
     \end{flushright}
374
375
        \end{center}
     \vspace*{\fill}
376
     \frontpage@bottomtext}
377
378 \newcommand\config@hypersetup{%
379 \begingroup
     % changes to \toks@ and \count@ are kept local;
380
     \% it's not necessary for them, but it is usually the case
     % for \count1, because the first ten counters are written
383
     % to the DVI file, thus you got lucky because of PDF output
384
     \toks@={}% in this special case not necessary
385
     \count@=0 %
     \@whilenum\count@<\value{keywords}\do{%
386
       % * a keyword separator is not necessary,
387
            if there is just one keyword
       %
388
       % * \csname K:\the\count@\endcsname must be expanded
389
            at least once, to get rid of the loop depended \count@
390
       \ifcase\count@ % same as \ifnum0=\count@
391
         \toks@=\expandafter{\csname K:\the\count@\endcsname}%
392
393
       \else
394
         \toks@=\expandafter\expandafter\expandafter{%
395
           \expandafter\the\expandafter\toks@
           \expandafter;\expandafter\space
396
397
           \csname K:\the\count@\endcsname
         }%
398
       \fi
399
400
       \advance\count@ by 1 %
401
     \edef\x{\endgroup
402
       \noexpand\hypersetup{%
403
404
         pdfkeywords={\the\toks@}%
405
       }%
     }%
406
407 \x
408 \ \protect\
     pdfauthor={\@authname\ \@authsurn},
```

```
410 pdftitle={\local@title},
411 pdfsubject={\local@doctype\ de \@degreename\ em \local@deptname\ da COPPE/UFRJ},
412 pdfcreator={LaTeX with CoppeTeX toolkit},
413 breaklinks={true},
414 raiselinks={true},
415 pageanchor={true},
416 }}
```

\makecatalog When the document has illustrations, it is required to insert ": il.; ' between the number of pages of the textual part and the page dimension. We have created a label to flag the existence of lists of figures. It is checked to be undefined using the plain TeX command \@isundefined [7].

```
417 \newcommand\makecatalog{%
     \vspace*{\fill}
418
     \begin{center}
419
       \setlength{\fboxsep}{5mm}
420
       \frac{120mm}{c}{\max[5mm][c]{\makebox[5mm][c]{}}}
421
         \begin{minipage}[c]{105mm}
422
         \setlength{\parindent}{5mm}
423
424
         \noindent\sloppy\nohyphens\@authsurn,
425
         \nohyphens\@authname\par
         \nohyphens{\local@title/\@authname\ \@authsurn. -- \local@cityname:
426
         UFRJ/COPPE, \number\year.}\par
427
428
         \pageref{front:pageno},
429
         \pageref{LastPage}
430
         p.\@ifundefined{r@cat:lofflag}{}{\pageref{cat:lofflag}} $29,7$cm.\par
         % There is an issue here. When the last entry must be split between lines,
431
         % the spacing between it and the next paragraph becomes smaller.
432
         % Should we manually introduce a fixed space? But how could we know that
433
         % a name was split?
434
         \begin{tabularx}{100mm}[b]{@{}l@{}}X@{}}
435
            \local@advisorstring: & \nohyphens{\@adname\ \@adsurn}%
436
437
            \ifthenelse{\equal{\@coadname}{\@empty}}{}{\\
              & \nohyphens{\@coadname\ \@coadsurn}}
438
439
         \end{tabularx}\par
         \nohyphens{\local@doctype\ ({\MakeLowercase\@degreename}) --
440
         UFRJ/COPPE/Programa de \local@deptname, \number\year.}\par
441
         \bibname: p. \pageref{bib:begin} -- \pageref{bib:end}.\par
442
         \count1=0
443
         \count2=1
444
         \nohyphens{\@whilenum \count1<\value{keywords} \do {%
445
           \number\count2. \csname K:\the\count1 \endcsname.
446
           \advance\count1 by 1
447
           \advance\count2 by 1}
448
449
         I. \@adsurn, \@adname%
         \ifthenelse{\equal{\@coadname}{\@empty}}{}{\emph{~et~al.}}.
450
         II. \local@universityname, COPPE, Programa de \local@deptname.
451
         III. T{\' i}tulo.}
452
453
       \end{minipage}}
```

```
\end{center}
               454
                    \vspace*{\fill}}
               455
   \dedication
               456 \newcommand\dedication[1]{
                    \gdef\@dedic{#1}
               457
                      \cleardoublepage
               458
                      \vspace*{\fill}
               459
                      \begin{flushright}
               460
                        \begin{minipage}{60mm}
               461
                462
                          \raggedleft \it \normalsize \@dedic
               463
                        \end{minipage}
                      \end{flushright}}
               464
               This is a specialization of the abstract in the article standard class.
               465 \newenvironment{abstract}{%
                    \clearpage
               467
                    \thispagestyle{plain}
               468
                    \abstract@toptext\par
               469
                    \vspace*{8.6mm}
               470
                    \begin{center}
                      \sloppy\nohyphens{\MakeUppercase\local@title}\par
               471
               472
                      \vspace*{13.2mm}
                      \@authname\ \@authsurn \par
               473
               474
                      \vspace*{7mm}
                      \local@monthname/\number\year
               475
                    \end{center}\par
               476
               477 \% Old style
               478 % \vspace*{3mm}
                    \vspace*{\fill}
               479
               480
                    \noindent%
                    481
                      \local@advisorstring: & \nohyphens{\@adname\ \@adsurn}\\
               482
                      483
                        & \nohyphens{\@coadname\ \@coadsurn}\\}
               484
                    \end{tabularx}\par
               485
                    \vspace*{2mm}
               486
                    \noindent\local@deptstring: \local@deptname\par
                    \vspace*{7mm}}{\vspace*{\fill}}
foreignabstract
               489 \newenvironment{foreignabstract}{%
               490
                    \clearpage
                    \thispagestyle{plain}
               491
                    \begin{otherlanguage}{english}
               492
                    \foreignabstract@toptext\par
               493
               494
                    \vspace*{8.6mm}
               495
                    \begin{center}
                      \sloppy\nohyphens{\MakeUppercase\foreign@title}\par
               496
```

```
\vspace*{13.2mm}
               497
                       \@authname\ \@authsurn \par
               498
               499
                       \vspace*{7mm}
                       \foreign@monthname/\number\year
               500
                     \end{center}\par
               501
               502 % Old style
               503 % \vspace*{3mm}
                     \vspace*{\fill}
               504
                     \noindent%
               505
                     \begin{tabularx}{\textwidth}[b]{@{}l@{}}
               506
                       \foreign@advisorstring: & \nohyphens{\@adname\ \@adsurn}\\
               507
                       \ifthenelse{\equal{\@coadname}{\@empty}}{}{}{%
               508
               509
                         & \nohyphens{\@coadname\ \@coadsurn}\\}
                     \end{tabularx}\par
               510
               511
                     \vspace*{2mm}
                     \noindent\foreign@deptstring: \foreign@deptname\par
               512
                     \vspace*{7mm}}{%
               513
                     \end{otherlanguage}
               514
                     \vspace*{\fill}
               515
                     \global\let\@author\@empty
               516
               517
                     \global\let\@date\@empty
                     \global\let\foreign@title\@empty
               518
                     \global\let\foreign@title\relax
               519
                     \global\let\local@title\@empty
               520
               521
                     \global\let\local@title\relax
               522
                     \global\let\author\relax
               523
                     \global\let\author\relax
                     \global\let\date\relax}
               524
\listoffigures
               525 \renewcommand\listoffigures{%
                     \immediate\write\@auxout{%
                     \string\newlabel{cat:lofflag}{{}{:~il.;}{}{page.\roman{page}}{}}}
               527
               528
                       \if@twocolumn
                         \@restonecoltrue\onecolumn
               529
                       \else
               530
               531
                         \@restonecolfalse
               532
                       \fi
                       \chapter*{\listfigurename}%
               533
                         \addcontentsline{toc}{chapter}{\listfigurename}%
               534
                         \@mkboth{\MakeUppercase\listfigurename}%
               535
               536
                                 {\MakeUppercase\listfigurename}%
               537
                       \@starttoc{lof}%
                       \if@restonecol\twocolumn\fi
               538
               539
                       }
 \listoftables
               540 \renewcommand\listoftables{%
                       \if@twocolumn
```

```
542
                                                                                       \@restonecoltrue\onecolumn
                                                                                 \else
                                                             543
                                                             544
                                                                                       \@restonecolfalse
                                                             545
                                                                                 \fi
                                                                                  \chapter*{\listtablename}%
                                                             546
                                                                                        \addcontentsline{toc}{chapter}{\listtablename}%
                                                             547
                                                                                        \@mkboth{%
                                                             548
                                                                                                  \MakeUppercase\listtablename}%
                                                             549
                                                                                                {\MakeUppercase\listtablename}%
                                                             550
                                                                                  \@starttoc{lot}%
                                                             551
                                                                                  \if@restonecol\twocolumn\fi
                                                             552
                                                             553
                 \printlosymbols
                                                             554 \mbox{ newcommand\printlosymbols}{\%}
                                                             555 \renewcommand\glossaryname{\listsymbolname}%
                                                             556 \@input@{\jobname.los}}
                   \makelosymbols
                                                             557 \def\mbox{makelosymbols}{\%}
                                                             558
                                                                           \newwrite\@losfile
                                                                            \immediate\openout\@losfile=\jobname.syx
                                                             559
                                                                            \label{thm:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma
                                                             560
                                                                                                          \@sanitize
                                                             561
                                                             562
                                                                                                          \@wrlos}\typeout
                                                                            {Writing index of symbols file \jobname.syx}%
                                                             563
                                                                            \let\makelosymbols\@empty
                                                             564
                                                             565 }
                                                             566 \@onlypreamble\makelosymbols
                                                             567 \AtBeginDocument{%
                                                             568 \@ifpackageloaded{hyperref}{%
                                                                          \def\@wrlos#1#2{%
                                                                                  \protected@write\@losfile{}%
                                                             570
                                                                                        571
                                                                                 \endgroup
                                                             572
                                                                                 \verb|\@esphack|| \} { % }
                                                             573
                                                                            \def\@wrlos#1#2{%
                                                             574
                                                             575
                                                                                  \protected@write\@losfile{}%
                                                             576
                                                                                       {\tt \{\string\indexentry{[\#1] \#2}{\tt \{\thepage}\}\%}
                                                             577
                                                                                  \endgroup
                                                                                 \@esphack}}}
\printloabbreviations
                                                             579 \newcommand\printloabbreviations{%
                                                             580 \renewcommand\glossaryname{\listabbreviationname}%
                                                             581 \@input@{\jobname.lab}}
```

\makeloabbreviations

```
582 \def\makeloabbreviations{%
            \newwrite\@labfile
583
            \immediate\openout\@labfile=\jobname.abx
584
            \def\abbrev{\@bsphack\begingroup
585
586
                                          \@sanitize
                                          \@wrlab}\typeout
587
            {Writing index of abbreviations file \jobname.abx}%
588
            \let\makeloabbreviations\@empty
589
590 }
591\ensuremath{\,^{\circ}}\ensuremath{\text{Conlypreamble}}\ensuremath{\text{makeloabbreviations}}
592 \land AtBeginDocument \%
593 \@ifpackageloaded{hyperref}{%
            \def\@wrlab#1#2{%
594
                 \protected@write\@labfile{}%
595
                      {\string\indexentry{[#1] #2|hyperpage}{\thepage}}%
596
597
598
                 \@esphack}}{%
            \def\@wrlab#1#2{%
599
                 \protected@write\@labfile{}%
600
                      {\string\indexentry{[#1] #2}{\arabic{page}}}%
601
602
                 \endgroup
                 \@esphack}}}
603
604 \newdimen\bibindent%
605 \setlength\bibindent{1.5em}%
606 \renewenvironment{thebibliography}[1]%
607
                    {\chapter*{\bibname}%
                      \addcontentsline{toc}{chapter}{\bibname}%
608
                      \immediate\write\@auxout{%
609
                      \label{bib:begin} $$  \left( page \right) { page . \arabic {page}} $$  \arabic {page} $$  \arabic
610
611
                      \list{\@biblabel{\@arabic\c@enumiv}}%
                                   {\setlength{\labelwidth}{0ex}%
612
613
                                     \setlength{\leftmargin}{9.0ex}%
                                     \setlength{\itemindent}{-9.0ex}%
614
                                     \advance\leftmargin\labelsep%
615
                                     \@openbib@code%
616
617
                                     \usecounter{enumiv}%
618
                                     \let\p@enumiv\@empty%
                                     \renewcommand\theenumiv{\@arabic\c@enumiv}}%
619
                      \sloppy%
620
                      \clubpenalty4000%
621
622
                      \@clubpenalty \clubpenalty%
623
                      \widowpenalty4000%
                      \sfcode'\.\@m}%
624
                    {\def\@noitemerr%
625
                        {\@latex@warning{Empty 'thebibliography' environment}}%
626
627
                      \immediate\write\@auxout{%
                      \label{bib:end} $$  \left( page \right) { page. \arabic \{page\} \} } 
628
                      \endlist}
629
```

```
630 \newenvironment{theglossary}{%
            \if@twocolumn%
631
                 \@restonecoltrue\onecolumn%
632
633
            \else%
                 \@restonecolfalse%
634
635
            \fi%
            \@mkboth{\MakeUppercase\glossaryname}%
636
            {\MakeUppercase\glossaryname}%
637
            \chapter*{\glossaryname}%
638
            \addcontentsline{toc}{chapter}{\glossaryname}
639
            \list{}
640
            {\setlength{\listparindent}{0in}%
641
               \setlength{\labelwidth}{1.0in}%
642
               \setlength{\leftmargin}{1.5in}%
643
644
               \setlength{\labelsep}{0.5in}%
645
               \setlength{\itemindent}{0in}}%
646
              \sloppy}%
            {\if@restonecol\twocolumn\fi%
647
648 \endlist}
649 %
650 \renewenvironment{theindex}{%
651
            \if@twocolumn
652
                 \@restonecolfalse
653
654
                 \@restonecoltrue
655
            \twocolumn[\@makeschapterhead{\indexname}]%
656
            \@mkboth{\MakeUppercase\indexname}%
657
            {\MakeUppercase\indexname}%
658
            \thispagestyle{plain}\parindent\z@
659
            \addcontentsline{toc}{chapter}{\indexname}
660
            \protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\pro
661
662
            \columnseprule \z@
663
            \columnsep 35\p@
            \let\item\@idxitem}
            {\if@restonecol\onecolumn\else\clearpage\fi}
666 \newcommand\glossaryname{Glossary}
667 \newcommand\listabbreviationname{Lista de Abreviaturas}
668 \newcommand\listsymbolname{Lista de S{\' i}mbolos}
669 %
670 \newcommand\local@advisorstring{Orientador}
671 \newcommand\foreign@advisorstring{Advisor}
672 \ifthenelse{\boolean{maledoc}}{%
            \newcommand\local@approvedname{Aprovado por}%
673
674 }{%
675
            \newcommand\local@approvedname{Aprovada por}%
676 }
677 \newcommand\foreign@approvedname{Approved by}
678 \newcommand\local@universityname{Universidade Federal do Rio de Janeiro}
679 \newcommand\local@deptstring{Programa}
```

```
680 \newcommand\foreign@deptstring{Department}
681 \newcommand\local@cityname{Rio de Janeiro}
682 \newcommand\local@statename{RJ}
683 \newcommand\local@countryname{Brasil}
684 %
685 \newcommand\frontcover@maintext{
     \sloppy\nohyphens{\local@doctype\ de \@degreename\
686
     \ifthenelse{\boolean{maledoc}}{apresentada}
687
     ao Programa de P{\' o}s-gradua{\c c}{\~ a}o em \local@deptname,
688
     COPPE, da \local@universityname, como parte dos requisitos
689
     necess{\' a}rios {\' a} obten{\c c}{\^ a}o do t{\' i}tulo de
690
     \local@degname\ em \local@deptname.}
691
692 }
693 %
694 \newcommand\frontpage@maintext{
695
     \noindent {\MakeUppercase\local@doctype}
     \ifthenelse{\boolean{maledoc}}{SUBMETIDO}{SUBMETIDA}
696
     \sloppy\nohyphens{AO CORPO DOCENTE DO INSTITUTO ALBERTO LUIZ COIMBRA
697
     DE P{\' 0}S-GRADUA{\c C}{\~ A}O E PESQUISA DE ENGENHARIA (COPPE) DA
698
     UNIVERSIDADE FEDERAL DO RIO DE JANEIRO COMO PARTE DOS REQUISITOS
699
700
     NECESS{\', A}RIOS PARA A OBTEN{\c C}{\~ A}O DO GRAU DE
     {\MakeUppercase\local@degname} EM CI{\^E}NCIAS EM}
701
702
     {\MakeUppercase\local@deptname. \par}%
703 }
704 %
705 \newcommand\frontpage@bottomtext{%
706
    \begin{center}
     {\MakeUppercase{\local@cityname, \local@statename\ -- \local@countryname}}\par
707
     {\MakeUppercase\local@monthname\ DE \number\year}
708
709
     \end{center}%
710 }
711 %
712 \newcommand\abstract@toptext{%
     \noindent Resumo \ifthenelse{\boolean{maledoc}}{do}{da}
     \local@doctype\ \ifthenelse{\boolean{maledoc}}{apresentada}
     \sloppy\nohyphens{{\'a} COPPE/UFRJ como parte dos requisitos
     necess{\' a}rios para a obten{\c c}{\~ a}o do grau de
716
     \local@degname\ em Ci{\^ e}ncias (\@degree)}
717
718 }
719 \newcommand\foreignabstract@toptext{%
    \noindent \sloppy\nohyphens{Abstract of \foreign@doctype\ presented to
     COPPE/UFRJ as a partial fulfillment of the requirements for the
     degree of \foreign@degname\ of Science (\@degree)}
723 }
724 %
725 (/class)
726 (*glossary)
727 actual '='
```

728 quote '!'

```
729 level '>'
730 delim_0 ", p. "
731 lethead_flag 0
732 headings_flag 0
733 preamble
734 "\n\begin{theglossary}\n \makeatletter"
735 postamble
736 "\n \\end{theglossary}\n"
737 \/glossary\
```

Acknowledgments

The authors would like to thank the National Council for Scientific and Technological Development (CNPq). They are also grateful to Alvaro Cuno for setting up the initial SVN repository, Caio Graco and Paula Faragó for being the first COPPETEX users and for their feedbacks, and professor Fernando Lizarralde and Heiko Oberdiek for helpful comments.

References

- [1] CPGP/COPPE/UFRJ. Norma para a Elaboração Gráfica de Teses. Rio de Janeiro, RJ, Brasil, Julho de 2008.
- [2] Donald E. Knuth. The T_EXbook. Addison-Wesley, Reading, MA, USA, 1984.
- [3] Leslie Lamport. Lambert. A Document Preparation System. Addison-Wesley, Reading, MA, USA, 1986.
- [4] Oren Patashnik. Bibtexing. Documentation for general BibTEX users, February 1988.
- [5] Oren Patashnik. Designing bibtex styles. The part of BibTeX 's documentation that's not meant for general users, February 1988.
- [6] William Strunk, Jr. and E. B. White. *The Elements of Style*. Macmillan, 3 edition, 1979.
- [7] TeX Frequently Asked Questions. http://www.tex.ac.uk/cgi-bin/texfaq2html?introduction=yes.

Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

100 110 100 50		
436, 449, 482, 507	507, 509, 686,	\foreign@doctype
\@adsurn 114,	691, 707, 708,	. 131, 141, 150, 720
225, 333, 361,	714, 717, 720, 722	\foreign@monthname .
436, 449, 482, 507	Δ.	<u>259</u> , 500
\@adtitle 223, 361	A / 70 70 70	\foreign@title
$\ensuremath{\texttt{Qauthname}}$ 249,	\abbrev 4, 70, 72, 585	. 220, 496, 518, 519
324, 350, 409,	abstract (environ-	foreignabstract (envi-
425, 426, 473, 498	ment) $4, \underline{465}$	ronment) . $4, \underline{489}$
\@author 516	\abstract@toptext .	\foreignabstract@toptext
\@authsurn 250,	468, 712	
324, 350, 409,	\advisor 2 , 15 , $\underline{222}$	\foreigntitle 2 , 12 , 219
424, 426, 473, 498	\author	\frontcover@maintext
\@coaddegree 232, 366	$2, 14, \underline{248}, 522, 523$	
\@coadname	_	\frontmatter . 2, 28, <u>272</u>
. 115, 230, 334,	В	\frontpage@bottomtext
335, 362, 366,	\backmatter $2, 84, \underline{290}$	377, 705
437, 438, 450,		\frontpage@maintext
483, 484, 508, 509	C	353, 694
\@coadsurn	\c@keywords 269	
. 116, 231, 335,	\coadvisor 2 , 16 , $\underline{228}$	${f G}$
366, 438, 484, 509	$\config@hypersetup$.	\glossaryname . 555,
\@coadtitle 229, 366		580, 636–639, 666
\@date 517	\CoppeTeX 110	000, 000 000, 000
\@dedic 457, 462	ъ.	I
\@degree 126,	D	\if@openright 291
	\date $3, 21, 252, 524$	(1100pon116n0 201
135 145 717 722		
135, 145, 717, 722	\dedication 3 , 30 , $\underline{456}$	К
$\verb \@degreename 127, 136,$	$\label{eq:dedication} \begin{array}{lll} \texttt{\ \ \ } & 30,\underline{456} \\ \texttt{\ \ \ \ \ } & \\ \end{array}$	K \keyword 3. 23-25. 267
\@degreename 127, 136, 146, 411, 440, 686	\dedication 3 , 30 , $\underline{456}$	$\mathbf{K} \\ \texttt{\keyword} $
\@degreename 127, 136, 146, 411, 440, 686 \@examiner	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	
\@degreename 127, 136, 146, 411, 440, 686 \@examiner . 236, 238, 239,	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	\text{keyword} 3, 23-25, $\underline{267}$
\@degreename 127, 136,	$\begin{tabular}{lll} $\tt \end{tabular} $	\keyword 3, 23-25, $\underline{267}$ \mathbf{L} \listabbreviationname
\@degreename 127, 136,	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{tabular}{l} \bf L \\ \begin{tabular}{l} \bf L \\ \begin{tabular}{l} \bf L \\ \begin{tabular}{l} \bf$
\@degreename 127, 136,	$\begin{tabular}{lll} $\tt \end{tabular} $	$\begin{tabular}{l} \bf L \\ \begin{tabular}{l} \bf L \\ \begin{tabular}{l} \bf L \\ \begin{tabular}{l} \bf 1 \\ \bf 0 \\ $
\@degreename 127, 136, 146, 411, 440, 686 \@examiner . 236, 238, 239, 241, 245, 301, 368 \@labfile . 583, 584, 595, 600 \@losfile	$\begin{tabular}{lll} $$ \end{tabular} $$ \end{tabular} $$ \end{tabular} $$ $$ \end{tabular} $$ $$ $$ E $$ environments: $$ abstract $$ $$ $$ $$ $$ $$ $$ $$ foreignabstract $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$$	$\begin{tabular}{l} $\bf L$ \\ \label{listabbreviationname} $\dots \dots \dots$
\@degreename 127, 136, 146, 411, 440, 686 \@examiner . 236, 238, 239, 241, 245, 301, 368 \@labfile . 583, 584, 595, 600 \@losfile . 558, 559, 570, 575	$\begin{tabular}{lll} $\tt \end{tabular} $	$\begin{tabular}{l} \bf L \\ \begin{tabular}{l} \bf L \\ \begin{tabular}{l} \textbf{L} \\ \begin{tabular}{l} \textbf{Listabbreviationname} \\ & \dots \dots 580, 667 \\ \begin{tabular}{l} \textbf{Listoffigures} & .61, \underline{525} \\ \begin{tabular}{l} \textbf{Listoftables} & .62, \underline{540} \\ \begin{tabular}{l} \textbf{Listsymbolname} & .555, 668 \\ \end{tabular}$
\@degreename 127, 136,	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{tabular}{l} \mathbf{L} \\ \begin{tabular}{l} \mathbf{L} \\ $
\@degreename 127, 136,	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{tabular}{l} \mathbf{L} \\ \label{listabbreviationname} \\ $\dots \dots 580, 667$ \\ \listoffigures $.61, \underline{525}$ \\ \listoftables $.62, \underline{540}$ \\ \listsymbol name $55, 668$ \\ \local@advisorstring $\dots \dots 233, \\ \end{tabular}$
\\(\text{Qdegreename} 127, 136, \\	$\begin{tabular}{lll} $\tt \end{tabular} $	$\begin{tabular}{ll} \bf L \\ & \bf L \\ & \begin{tabular}{ll} \textbf{L} \\ & $
\@degreename 127, 136, 146, 411, 440, 686 \@examiner 236, 238, 239, 241, 245, 301, 368 \@labfile 583, 584, 595, 600 \@losfile 558, 559, 570, 575 \@wrlab 587, 594, 599 \@wrlos 562, 569, 574 \^ 189, 198, 701, 717 \" 130, 140,	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{tabular}{ll} L \\ \label{listabbreviationname} \\ $\dots \dots \dots 580, 667$ \\ \listoffigures . 61, 525 \\ \listoftables 62, 540 \\ \listsymbolname $55, 668$ \\ \local@advisorstring \\ $\dots \dots 233, \\ $333, 436, 482, 670$ \\ \local@approvedname \\ \end{tabular}$
\@degreename 127, 136, 146, 411, 440, 686 \@examiner . 236, 238, 239, 241, 245, 301, 368 \@labfile . 583, 584, 595, 600 \@losfile . 558, 559, 570, 575 \@wrlab 587, 594, 599 \@wrlos 562, 569, 574 \^ 189, 198, 701, 717 \^ 130, 140, 204, 210, 688,	$\begin{tabular}{lll} $\ \ & $	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
\@degreename 127, 136, 146, 411, 440, 686 \@examiner 236, 238, 239, 241, 245, 301, 368 \@labfile 583, 584, 595, 600 \@losfile 558, 559, 570, 575 \@wrlab 587, 594, 599 \@wrlos 562, 569, 574 \^ 189, 198, 701, 717 \" 130, 140,	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{tabular}{ll} L \\ \label{listabbreviationname} & 580, 667 \\ \listoffigures 61, \underline{525} \\ \listoftables 62, \underline{540} \\ \listsymbolname 555, 668 \\ \local@advisorstring & 233, \\ 333, 436, 482, 670 \\ \local@approvedname & 355, 673, 675 \\ \local@cityname 263, \\ \end{tabular}$
\@degreename 127, 136, 146, 411, 440, 686 \@examiner . 236, 238, 239, 241, 245, 301, 368 \@labfile . 583, 584, 595, 600 \@losfile . 558, 559, 570, 575 \@wrlab 587, 594, 599 \@wrlos 562, 569, 574 \^ 189, 198, 701, 717 \^ 130, 140, 204, 210, 688,	$\begin{tabular}{lll} \begin{tabular}{lll} $\tt dedication & . & . & . & . & . & . & . & . & . & $	$\begin{tabular}{l} L \\ \label{listabbreviationname} \\ \hdots 580, 667 \\ \label{listoffigures} 61, \underline{525} \\ \listoftables 62, \underline{540} \\ \listsymbolname 233, 333, 436, 482, 670 \\ \local@approvedname \\ \hdots 355, 673, 675 \\ \local@cityname 363, 340, 426, 681, 707 \\ \end{tabular}$
\@degreename 127, 136,	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$ \begin{array}{c} \textbf{L} \\ \textbf{L} \\ \textbf{listabbreviationname} \\ & \dots \dots 580, 667 \\ \textbf{listoffigures} & .61, \underline{525} \\ \textbf{listoftables} & .62, \underline{540} \\ \textbf{listsymbolname} & .555, 668 \\ \textbf{local@advisorstring} \\ & \dots \dots 233, \\ & 333, \ 436, \ 482, \ 670 \\ \textbf{local@approvedname} \\ & \dots 355, 673, 675 \\ \textbf{local@cityname} & .263, \\ & 340, \ 426, \ 681, \ 707 \\ \textbf{local@countryname} & . \end{array} $
\@degreename 127, 136, 146, 411, 440, 686 \@examiner	\dedication 3, 30, 456 \department	$\begin{tabular}{l} L \\ \label{listabbreviationname} \\ \hdots 580, 667 \\ \listoffigures 61, 525 \\ \listoftables 62, 540 \\ \listsymbolname 233, 333, 436, 482, 670 \\ \local@advisorstring \\ \hdots 355, 673, 675 \\ \local@cityname 355, 673, 777 \\ \local@cityname 340, 426, 681, 707 \\ \local@countryname 265, 683, 707 \\ \end{tabular}$
\@degreename 127, 136, 146, 411, 440, 686 \@examiner	\dedication 3, 30, 456 \department 3, 20, 173, 178 E environments: abstract 4, 465	$\begin{tabular}{l} L \\ \label{listabbreviationname} \\ $\dots \dots 580, 667 \\ \listoffigures . 61, \underline{525} \\ \listoftables . 62, \underline{540} \\ \listsymbolname . 555, 668 \\ \local@advisorstring \\ $\dots \dots 233, \\ 333, 436, 482, 670 \\ \local@approvedname \\ $\dots \dots 355, 673, 675 \\ \local@cityname . 263, \\ 340, 426, 681, 707 \\ \local@countryname . \\ $\dots 265, 683, 707 \\ \local@degname . \dots \end{tabular}$
\@degreename 127, 136,	\dedication 3, 30, 456 \department 3, 20, 173, 178 E environments: abstract 4, 465	$\begin{tabular}{ll} L \\ \label{listabbreviationname} \\ &$
\@degreename 127, 136,	\dedication 3, 30, 456 \department 3, 20, 173, 178 E environments: abstract 4, 465 foreignabstract 4, 489 \examiner 2, 17-19, 236 F \foreign@advisorstring 234, 507, 671 \foreign@approvedname 677 \foreign@degname	L \listabbreviationname \(\ldots \cdot 580, 667 \) \listoffigures \(\ldots 62, \frac{540}{540} \) \listoftables \(\ldots 62, \frac{540}{540} \) \listsymbolname \(555, 668 \) \local@advisorstring \(\ldots \ldots 233, \) \(333, 436, 482, 670 \) \local@approvedname \(\ldots 355, 673, 675 \) \local@cityname \(263, \) \(340, 426, 681, 707 \) \local@countryname \(\ldots \ldots 683, 707 \) \local@degname \(\ldots \ldots 128, 137, \) \(147, 691, 701, 717 \)
\@degreename 127, 136,	\dedication 3, 30, 456 \department 3, 20, 173, 178 E environments: abstract 4, 465 foreignabstract 4, 489 \examiner	$\begin{tabular}{l} L \\ \label{listabbreviationname} \\ $\dots \dots 580, 667 \\ \listoffigures . 61, 525 \\ \listoftables . 62, 540 \\ \listsymbolname 555, 668 \\ \local@advisorstring \\ $\dots \dots 233, \\ 333, 436, 482, 670 \\ \local@approvedname \\ $\dots 355, 673, 675 \\ \local@cityname 263, \\ 340, 426, 681, 707 \\ \local@countryname . \\ $\dots 265, 683, 707 \\ \local@degname . \dots \\ 128, 137, \\ 147, 691, 701, 717 \\ \local@deptname . \dots \\ \local@$
\@degreename 127, 136,	\dedication 3, 30, 456 \department 3, 20, 173, 178 E environments: abstract 4, 465 foreignabstract 4, 489 \examiner 2, 17-19, 236 F \foreign@advisorstring 234, 507, 671 \foreign@approvedname 677 \foreign@degname	L \listabbreviationname \(\ldots \cdot 580, 667 \) \listoffigures \(\ldots 62, \frac{540}{540} \) \listoftables \(\ldots 62, \frac{540}{540} \) \listsymbolname \(555, 668 \) \local@advisorstring \(\ldots \ldots 233, \) \(333, 436, 482, 670 \) \local@approvedname \(\ldots 355, 673, 675 \) \local@cityname \(263, \) \(340, 426, 681, 707 \) \local@countryname \(\ldots \ldots 683, 707 \) \local@degname \(\ldots \ldots 128, 137, \) \(147, 691, 701, 717 \)

198, 201, 204,	322, 348, 410,	\printloabbreviations
207, 210, 213,	426, 471, 520, 521	4, 64, 579
411, 441, 451,	\local@universityname	\printlosymbols
487, 688, 691, 702	. 170, 451, 678, 689	
\local@deptstring .	DΛ	g
	M	S
\local@doctype	\mainmatter 2, 66, $\frac{283}{415}$	• • • • • • • • • • • • • • • • • • • •
. 130, 140, 149,	\makecatalog 281, 417	
303, 306, 411,	\makefrontpage 278, 346	
440, 686, 695, 714	\makeloabbreviations	\tableofcontents 60
\local@monthname	$4, 7, \frac{582}{5}$	
. 256, 341, 475, 708	\makelosymbols $4, 6, \frac{557}{337}$	
\local@statename	\maketitle $26, \underline{297}$	392, 394, 395, 404
264, 682, 707	Р	U
\local@title 217,	=	\university 169
v0.0		alization
General: Creation Date.		_
v0.1		Beta documentation 1
General: Documentation	9	
raphy fixed, title tran		tter: Added mainmatter
Sourceforge submission		s counter 12
v0.2	abstract: Changed from macro to	
General: Unification of the code for environment		
ations	9	
v0.3	v1.0	o to environment 17
General: Added 'draft' o	. =	First CoppeTfX release 1
\maketitle: Added num		THE CONTENT OF THE PARTY OF THE
aminers test		CoppeTeX release 2.0 1