

The `coppe` document class

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January 24, 2024

Abstract

In this work, it is described the `coppe` document class as well as other files distributed by the COPPE \TeX project. This class is suitable for writing academic dissertations, thesis and qualifying exams according to the formatting 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 formatting 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 typeset in \LaTeX . This demand motivated the creation of the COPPE \TeX 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 COPPE \TeX . 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 COPPE \TeX project comprehends also BIB \TeX 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 and, for some of the programs, the MSc 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.

2 License

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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 Support

We maintain a mailing list where users can send questions, comments, and bugs to. More details can be found [here](#).

However, as the project maintenance was transferred to a new repository, bug reports, as well as new feature requests, should be directed to <https://github.com/COPPE-UFRJ/CoppeTeX>.

4 User interface

`\frontmatter` A thesis to be approved by the Academic Registry at COPPE/UFRJ must contain
`\mainmatter` three-parts: *front*, *main* and *back* matters [1]. Each one of these parts is started
`\backmatter` 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` The macros `\title` and `\foreigntitle` are used to enter the titles of your
`\foreigntitle` 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 do not need to load it again. The Brazilian Portuguese is the main language and the English is only required for the foreign abstract.

`\advisor` Every COPPE student is coordinated by at least one advisor. M.Sc. and D.Sc.
`\examiner` students can have at most 2 and 3 advisors, respectively. Their names must be provided by issuing the command `\advisor` as below:

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

```
\advisor{Title}{Second Advisor's Name}{Surname}{Degree}
\advisor{Title}{Third Advisor's Name}{Surname}{Degree}
```

The advisors are not necessarily members of the thesis examination board. Thus, it is required to enter the names of all examiners using the `\examiner` macro. The examiners' names are entered differently:

```
\examiner{Title}{First Examiner's Name Surname}{Degree}
\examiner{Title}{Second Examiner's Name Surname}{Degree}
...
\examiner{Title}{N-th Examiner's Name Surname}{Degree}
```

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{PEC}`.

`\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}
...
\keyword{N-th Keyword}
```

Usually, six words are enough.

Cataloging details

This page contains cataloging information useful for librarians. Fortunately, it is automatically generated from the data you entered at the time you call `\maketitle`. It is not needed in qualifying exams, though.

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.

Abstracts

`abstract` (*env.*) As stated by the Academic Registry [1], abstracts must be in one page each, with `foreignabstract` (*env.*) at most 250 words. We 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` The lists of symbols and abbreviations are optional, although highly recommended.

`\syml` It is a good practice to define a symbol/abbreviation in its first occurrence in the text. To define a symbol use `\syml[alphabetic symbol]{Symbol}{Symbol Definition}`, and for abbreviations `\abbrev[alphabetic symbol]{Abbreviation}{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` These lists are lexicographically sorted by using the MakeIndex program, which is part of any L^AT_EX implementation. For `\syml`, if the optional parameter is provided, it will be used as sort key. This was later, in 2024, implemented also for `\printloabbreviations` and `\printlosymbols`. `\abbrev`, otherwise `Symbol`, or `Abreviation` will be used as sort key, what can result in an undesirable order if it contains L^AT_EX commands, mathematical symbols, or mix of uppercase and lowercase. 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 provides 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 these 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` 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 `-s` option for specifying the style `coppe.ist`. Now, rerun `latex` twice to get the references solved and you are done.

References

It is well known that bibliography databases can be easily maintained with the aid of B^IB^T_EX. Thus, the COPPE_T_EX project designed two B^IB^T_EX styles, `coppe-plain.bst` and `coppe-unsrt.bst`. The `coppe-plain.bst` creates a list of references alphabetically sorted. The later is a numbered style, which sorts references by the order of citation. To use them, you have to select either `coppe-plain` or `coppe-unsrt` as the B^IB^T_EX style and include your B^IB^T_EX references without the `bib` extension, as in the following example:

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

As of May 4th, 2023, there are new bibliographic styles for english, `en-coppe-plain.bst` and `en-coppe-unsrt.bst`, that uses other string constants, such as “Technical Report” instead of “Relatório Técnico”.

Run in sequence L^AT_EX, B^IB^T_EX, and twice again L^AT_EX to resolve reference. These styles are `natbib` compatible. This means that you can freely issue the commands `\citet` and `\citep`, as well as any other `natbib` feature.

5 Class options

There are some options users can specify in order to customize the appearance of the output produced by the `coppe` class. These options can be passed to `coppe` as follows: `\documentclass[option1, option2]{coppe}`. In which follows, we give a brief description of all supported options.

dsc, msc, dscexam, mscexam The `coppe` class is able to produce thesis, dissertations, and qualifying exams, which are enabled by the `dsc`, `msc`, `mscexam`, and `dscexam` options, respectively.

doublespacing The default line spacing is one-and-a-half. For enabling double spacing between lines, use the `doublespacing` option.

numbers The default citation style is the author-year scheme, which must be followed by the use of its corresponding BibTeX style, namely, the `coppe-plain.bst` file. For numbered citations, specify the option `numbers` to the `coppe` class. In this case, it is mandatory the use of `coppe-unsrt.bst`, as the bibliography style.

5.1 Changing document identification

`\freeconfig` The user could *optionally* use the command `freeconfig` to modify the parameters that print the document identification. The command `freeconfig` needs all those parameters, which are degree initials, degree name, title, foreign title, local doctype, and foreign doctype as in the following example:

```
\freeconfig{Dr.}{Philosophiae Doctor}{PhD}{Doutor}{Dissertation}{Tese}
```

6 Quick, useful tips

Pictures. The default picture format of L^AT_EX is the Encapsulated PostScript (EPS). If you use pdfL^AT_EX, the default format becomes the PDF, but you can equally load PNG files. For such, you must enter the name of your image file without extension, e.g., `\includegraphics{filename}`, and `pdflatex` will firstly look for a file called `filename.pdf` and after for file `filename.png`. For producing high quality pictures with embedded fonts we recommend the Ipe drawing software available [here](#).

Fonts. The default font in L^AT_EX is the Computer Modern. If you would like to try its enhanced version, consider using the `lmodern` package. 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`.

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. Fortunately, the `coppe` class will do this automatically if `hyperref` is loaded.

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 kind of option often comes in print dialogs of document visualization softwares.

longquote Quotation To quote text larger than three lines, according to ABNT, you must increase the left margin to 4 cm, do not use quotation marks, and use a smaller font. The `coppe` class provides the `longquote` environment to easily make these adjustments.

7 A simple example

```

1 (*example)
2 \documentclass[dsc,numbers]{coppe}
3 \usepackage{amsmath,amssymb}
4 \usepackage{hyperref}
5
6
7
8 \makelosymbols
9 \makeloabbreviations
10
11 \begin{document}
12   \title{T\'itulo da Tese}
13   \foreigntitle{Thesis Title}
14   \author{Nome do Autor}{Sobrenome}
15   \advisor{Prof.}{Nome do Primeiro Orientador}{Sobrenome}{D.Sc.}
16   \advisor{Prof.}{Nome do Segundo Orientador}{Sobrenome}{Ph.D.}
17   \advisor{Prof.}{Nome do Terceiro Orientador}{Sobrenome}{D.Sc.}
18
19   \examiner{Prof.}{Nome do Primeiro Examinador Sobrenome}{D.Sc.}
20   \examiner{Prof.}{Nome do Segundo Examinador Sobrenome}{Ph.D.}
21   \examiner{Prof.}{Nome do Terceiro Examinador Sobrenome}{D.Sc.}
22   \examiner{Prof.}{Nome do Quarto Examinador Sobrenome}{Ph.D.}
23   \examiner{Prof.}{Nome do Quinto Examinador Sobrenome}{Ph.D.}
24   \department{PESC}
25   \date{01}{2024}
26
27   \keyword{Primeira palavra-chave}
28   \keyword{Segunda palavra-chave}
29   \keyword{Terceira palavra-chave}
30
31   \maketitle
32
33   \frontmatter
34   \dedication{A algu\'em cujo valor \'e digno desta dedicat\'oria.}
35
36   \chapter*{Agradecimentos}
37
38   Gostaria de agradecer a todos.
39
40   \begin{abstract}
41

```

```

42 Apresenta-se, nesta tese, ...
43
44 \end{abstract}
45
46 \begin{foreignabstract}
47
48 In this work, we present ...
49
50 \end{foreignabstract}
51
52 \tableofcontents
53 \listoffigures
54 \listoftables
55 \printlosymbols
56 \printloabbreviations
57
58 \mainmatter
59 \chapter{Introdu{\c c}\~ao}
60
61 Segundo a norma de formata{\c c}\~ao de teses e disserta{\c c}\~oes do
62 Instituto Alberto Luiz Coimbra de P\~os-gradua{\c c}\~ao e Pesquisa de
63 Engenharia (COPPE), toda abreviatura deve ser definida antes de
64 utilizada.\abbrev{COPPE}{Instituto Alberto Luiz Coimbra de P\~os-gradua{\c
65 c}\~ao e Pesquisa de Engenharia}.
66
67 Do mesmo modo, \e imprescind\~ivel definir os s\~imbolos, tal como o
68 conjunto dos n\~umeros reais  $\mathbb{R}$  e o conjunto vazio  $\emptyset$ .
69 \syml{\mathbb{R}}{Conjunto dos n\~umeros reais}
70 \syml{\emptyset}{Conjunto vazio}
71
72
73 \begin{longquote}
74 Um exemplo de citação longa nas regras da ABNT (4cm de recuo e fonte menor)
75 feita com o ambiente \verb=longquote= The primary objective of this
76 investigation was to determine the feasibility of detecting corrosion in
77 aluminum Naval aircraft components with neutron radiographic interrogation
78 and the use of standard corrosion penetrameters. Secondary objectives
79 included the determination of the effect of object thickness on image quality,
80 the defining of minimum levels of detectability and a preliminary investigation
81 of a means whereby the degree of corrosion could be quantified with neutron
82 radiographic data. \cite{article-example}
83 \end{longquote}
84
85
86 \chapter{Revis\~ao Bibliogr\~afica}
87
88 Para ilustrar a completa ades\~ao ao estilo de cita{\c c}\~oes e listagem de
89 refer\~encias bibliogr\~aficas, a Tabela~\ref{tab:citation} apresenta cita{\c
90 c}\~oes de alguns dos trabalhos contidos na norma fornecida pela CPGP da
91 COPPE, utilizando o estilo num\~erico.
92
93 \begin{table}[h]
94 \caption{Exemplos de cita{\c c}\~oes utilizando o comando padr\~ao
95 \texttt{\textbackslash cite} do \LaTeX\ e

```

```

96     o comando \texttt{\textbackslash cite},
97     fornecido pelo pacote \texttt{natbib}.)
98 \label{tab:citation}
99 \centering
100 {\footnotesize
101 \begin{tabular}{|c|c|c|}
102 \hline
103 Tipo da Publica{\c c}\~ao & \verb|\cite| & \verb|\citet|\
104 \hline
105 Livro & \cite{book-example} & \citet{book-example}\
106 Artigo & \cite{article-example} & \citet{article-example}\
107 Relat'orio & \cite{techreport-example} & \citet{techreport-example}\
108 Relat'orio & \cite{techreport-exampleIn} & \citet{techreport-exampleIn}\
109 Anais de Congresso & \cite{inproceedings-example} &
110 \citet{inproceedings-example}\
111 S'eries & \cite{incollection-example} & \citet{incollection-example}\
112 Em Livro & \cite{inbook-example} & \citet{inbook-example}\
113 Disserta{\c c}\~ao de mestrado & \cite{mastersthesis-example} &
114 \citet{mastersthesis-example}\
115 Tese de doutorado & \cite{phdthesis-example} & \citet{phdthesis-example}\
116 \hline
117 \end{tabular}}
118 \end{table}
119
120 \chapter{M'etodo Proposto}
121 \chapter{Resultados e Discuss\~oes}
122
123 \section{Algumas Demonstra{\c c}\~oes}
124
125 A Lista de S'imbolos precisa usar comandos espec'ificos. Aqui vamos usar os s'imbolos $\alpha$
126 \symbbl[beta]{Beta}{A palavra Beta more e corrigida}
127 \symbbl[zzbeta]{\beta}{A letra $\beta$ corrigida}
128 \symbbl[beta]{A palavra beta}
129 \symbbl[alpha]{A palavra alpha}
130 \symbbl[alpha]{Alpha}{A palavra Alpha}
131 \symbbl[zzalpha]{\alpha}{A letra $\alpha$ corrigida}
132 \symbbl[marco]{Marco}{A palavra Marco corrigida}
133
134 A Lista de Abrevia'c'oes segue, a partir de 2024, a mesma regra, e aqui seguem alguns exemplos
135 \abbrev{GoT}{Game of Thrones}
136 \abbrev[GOT]{GoT}{Game of Thrones ordenado como GOT}
137 \abbrev[iot]{IoT}{IoT ordenado como iot}
138 \abbrev[IoT]{IoT}{IoT ordenado como IoT}
139 \abbrev[IOT]{IoT}{IoT ordenado como IOT}
140 \abbrev{IoT}{IoT com ordena'c'ao default}
141 \abbrev[ITU]{ITU}{ITU mesmo}
142
143
144
145 \chapter{Conclus\~oes}
146
147 \backmatter
148 \bibliographystyle{coppe-unsrt}
149 \bibliography{example}

```



```

150
151 \appendix
152
153
154
155
156 \end{document}
157 />example

```

8 Implementation

8.1 The ‘coppe.cls’ file

```

158 <class>
159 \def\filename{coppe.dtx}
160 \def\fileversion{v3.2}
161 \def\filedate{2023/11/11}
162 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
163 \ProvidesClass{coppe}[\filedate\ \fileversion\ COPPE Dissertations and Thesis]
164 \LoadClass[12pt,a4paper,oneside]{book}
165 \RequirePackage[sort&compress]{natbib}
166 \RequirePackage{hyphenat}
167 \RequirePackage{lastpage}
168 \RequirePackage{ifthen}
169 \RequirePackage{graphicx}
170 \RequirePackage{setspace}
171 \RequirePackage{tabularx}
172 \RequirePackage{etoolbox}
173 \RequirePackage{eqparbox}
174 \RequirePackage{ltxcmds}
175 \RequirePackage[T1]{fontenc}
176 \RequirePackage[a4paper,bindingoffset=0.0cm,vcentering=true,%
177 top=2.5cm,bottom=2.5cm,left=3.0cm,right=3.0cm]{geometry}
178 \def\CoppeTeX{\rm C\kern-.05em{\sc o\kern-.025em p\kern-.025em
179 p\kern-.025em e}}\kern-.08em
180 T\kern-.1667em\lower.5ex\hbox{E}\kern-.125emX\spacefactor1000}
181 \newboolean{maledoc}
182 \setboolean{maledoc}{false}
183 %
184 % Class options.
185 % If you are writing a text in English, you must turn ‘‘English’’ on.
186 % Otherwise, Portuguese is considered the main language.
187 \newif\if@english\@englishfalse
188 \DeclareOption{english}{\@englishtrue}
189 \DeclareOption{msc}{\%
190 \newcommand{\@degree}{M.Sc.}
191 \newcommand{\@degreename}{Mestrado}
192 \newcommand{\local@degname}{Mestre}
193 \newcommand{\foreign@degname}{Master}
194 \newcommand\local@doctype{Disserta{\c c}{\~ a}o}
195 \newcommand\foreign@doctype{Dissertation}
196 }
197 \DeclareOption{dsceexam}{\%
198 \newcommand{\@degree}{D.Sc.}

```

```

199 \newcommand{\@degreename}{Doutorado}
200 \newcommand{\local@degname}{Doutor}
201 \newcommand{\foreign@degname}{Doctor}
202 \setboolean{maledoc}{true}
203 \newcommand\local@doctype{Exame de Qualifica{\c c}{\~ a}o}
204 \newcommand\foreign@doctype{Qualifying Exam}
205 }
206 \DeclareOption{mscexam}{%
207 \newcommand{\@degree}{M.Sc.}
208 \newcommand{\@degreename}{Mestrado}
209 \newcommand{\local@degname}{Mestre}
210 \newcommand{\foreign@degname}{Master}
211 \setboolean{maledoc}{true}
212 \newcommand\local@doctype{Exame de Qualifica{\c c}{\~ a}o}
213 \newcommand\foreign@doctype{Qualifying Exam}
214 }
215 \DeclareOption{dsc}{%
216 \newcommand{\@degree}{D.Sc.}
217 \newcommand{\@degreename}{Doutorado}
218 \newcommand{\local@degname}{Doutor}
219 \newcommand{\foreign@degname}{Doctor}
220 \newcommand\local@doctype{Tese}
221 \newcommand\foreign@doctype{Thesis}
222 }
223 \DeclareOption{numbers}{%
224 \PassOptionsToPackage{numbers}{natbib}
225 }

Here is the default one-and-a-half line spacing. Users can change to double spacing
by passing the doublespacing option.
226 \onehalfspacing
227 \DeclareOption{doublespacing}{%
228 \doublespacing
229 }

230 \ProcessOptions\relax
231 \if@english
232 \RequirePackage[english]{babel}
233 \else
234 \RequirePackage[english,brazilian]{babel}
235 \fi
236 \addto{\captionenglish}{%
237 \renewcommand{\bibname}{References}
238 }

```

\department This macro is used to set the author's affiliation. There are twelve options which correspond to all academic units at COPPE/UFRJ. It defines the current and the foreign names of these units.

```

239 \newcommand\department[1]{%
240 \ifthenelse{\equal{#1}{PEB}}{
241 {\global\def\local@deptname{Engenharia Biom{\~ e}dica}
242 {\global\def\foreign@deptname{Biomedical Engineering}}}{
243 \ifthenelse{\equal{#1}{PEC}}{
244 {\global\def\local@deptname{Engenharia Civil}
245 {\global\def\foreign@deptname{Civil Engineering}}}{

```

```

246 \ifthenelse{\equal{#1}{PEE}}
247   {\global\def\local@deptname{Engenharia El{\` e}trica}
248    \global\def\foreign@deptname{Electrical Engineering}}{}
249 \ifthenelse{\equal{#1}{PEM}}
250   {\global\def\local@deptname{Engenharia Mec{\` a}nica}
251    \global\def\foreign@deptname{Mechanical Engineering}}{}
252 \ifthenelse{\equal{#1}{PEMM}}
253   {\global\def\local@deptname{Engenharia Metal{\` u}rgica e de Materiais}
254 \global\def\foreign@deptname{Metallurgical and Materials Engineering}}{}
255 \ifthenelse{\equal{#1}{PEN}}
256   {\global\def\local@deptname{Engenharia Nuclear}
257    \global\def\foreign@deptname{Nuclear Engineering}}{}
258 \ifthenelse{\equal{#1}{PEN0}}
259   {\global\def\local@deptname{Engenharia Oce{\` a}nica}
260    \global\def\foreign@deptname{Ocean Engineering}}{}
261 \ifthenelse{\equal{#1}{PPE}}
262   {\global\def\local@deptname{Planejamento Energ{\` e}tico}
263    \global\def\foreign@deptname{Energy Planning}}{}
264 \ifthenelse{\equal{#1}{PEP}}
265   {\global\def\local@deptname{Engenharia de Produ{\c c}{\` a}o}
266    \global\def\foreign@deptname{Production Engineering}}{}
267 \ifthenelse{\equal{#1}{PEQ}}
268   {\global\def\local@deptname{Engenharia Qu{\` i}mica}
269    \global\def\foreign@deptname{Chemical Engineering}}{}
270 \ifthenelse{\equal{#1}{PESC}}
271   {\global\def\local@deptname{Engenharia de Sistemas e Computa{\c c}{\` a}o}
272    \global\def\foreign@deptname{Systems Engineering and Computer Science}}{}
273 \ifthenelse{\equal{#1}{PET}}
274   {\global\def\local@deptname{Engenharia de Transportes}
275    \global\def\foreign@deptname{Transportation Engineering}}{}
276 \ifthenelse{\equal{#1}{PENT}}
277   {\global\def\local@deptname{Engenharia de Nanotecnologia}
278    \global\def\foreign@deptname{Nanotechnology Engineering}}{}
279 }

```

\title Used to enter the title in Brazilian Portuguese.

```

280 \renewcommand\title[1]{%
281   \global\def\local@title{#1}%
282 }

```

\foreigntitle Used to enter the foreign title.

```

283 \newcommand\foreigntitle[1]{%
284   \global\def\foreign@title{#1}%
285 }

```

\advisor Defines globally the title, name and academic degree of the advisors.

```

286 \newcount\@advisor\@advisor0
287 \newcommand\advisor[4]{%
288   \global\@namedef{CoppeAdvisorTitle:\expandafter\the\@advisor}{#1}
289   \global\@namedef{CoppeAdvisorName:\expandafter\the\@advisor}{#2}
290   \global\@namedef{CoppeAdvisorSurname:\expandafter\the\@advisor}{#3}
291   \global\@namedef{CoppeAdvisorDegree:\expandafter\the\@advisor}{#4}
292   \global\advance\@advisor by 1
293   \ifnum\@advisor>1

```

```

294 \renewcommand\local@advisorstring{Orientadores}
295 \renewcommand\foreign@advisorstring{Advisors}
296 \fi
297 }

\examiner
298 \newcount\@examiner\@examiner0
299 \newcommand\examiner[3]{%
300 \global\@namedef{CoppeExaminer:\expandafter\the\@examiner}{#1\ #2}
301 \global\advance\@examiner by 1
302 }

\author It was redefined to allow the identification of the author's first names and surname.
303 \renewcommand\author[2]{%
304 \global\def\@authname{#1}
305 \global\def\@authsurn{#2}
306 }

\date This code makes easy to switch from dates in different languages.
307 \renewcommand\date[2]{%
308 \month=#1
309 \year=#2
310 }

\local@monthname
311 \newcommand\local@monthname{\ifcase\month\or
312 Janeiro\or Fevereiro\or Mar{c}o\or Abril\or Maio\or Junho\or
313 Julho\or Agosto\or Setembro\or Outubro\or Novembro\or Dezembro\fi}

\foreign@monthname
314 \newcommand\foreign@monthname{\ifcase\month\or
315 January\or February\or March\or April\or May\or June\or
316 July\or August\or September\or October\or November\or December\fi}

\keyword
317 \newcounter{keywords}
318 \newcommand\keyword[1]{%
319 \global\@namedef{CoppeKeyword:\expandafter\the\c@keywords}{#1}
320 \global\addtocounter{keywords}{1}
321 }

\freeconfig This command allows easy changing of core class parameters.
322 \newcommand\freeconfig[6]{%
323 \providecommand\@degree{}
324 \renewcommand\@degree{#1}
325 \providecommand\@degreename{}
326 \renewcommand\@degreename{#2}
327 \providecommand\local@degname{}
328 \renewcommand\local@degname{#3}
329 \providecommand\foreign@degname{}
330 \renewcommand\foreign@degname{#4}
331 \providecommand\local@doctype{}
332 \renewcommand\local@doctype{#5}

```

```

333 \providecommand\foreign@doctype{}
334 \renewcommand\foreign@doctype{#6}%
335 }
336 % \end{macrocode}
337 % \end{macro}
338 %
339 % \begin{macro}{\frontmatter}
340 % The number of pages for both frontmatter and mainmatter printed
341 % in the cataloging details page is computed by means of simple
342 % \LaTeX\ labels.
343 % \begin{macrocode}
344 \renewcommand\frontmatter{%
345 \cleardoublepage
346 \@mainmatterfalse
347 \pagenumbering{roman}
348 \thispagestyle{empty}
349 \setcounter{page}{2}
350 \makefrontpage
351 \clearpage
352 \pagestyle{plain}
353 \ifthenelse{\boolean{maledoc}}{\}\{\makecatalog}%
354 }

\mainmatter
355 \renewcommand\mainmatter{%
356 \coppe@mainBegin
357 \cleardoublepage
358 \@mainmattertrue
359 \pagestyle{plain}
360 \pagenumbering{arabic}}

\backmatter
361 \renewcommand\backmatter{%
362 \if@openright
363 \cleardoublepage
364 \else
365 \clearpage
366 \fi}
367 %

\maketitle
368 \renewcommand\maketitle{%
369 \pagenumbering{alph}
370 \ltx@ifpackageloaded{hyperref}{\coppe@hypersetup}{}%
371 \begin{titlepage}
372 \begin{flushleft}
373 \vspace*{1.5mm}
374 \setlength\baselineskip{0pt}
375 \setlength\parskip{1mm}
376 \makebox[20mm][c]{\hspace{4.8cm}\includegraphics{coppe-logo}}
377 \end{flushleft}
378 \vspace{1.05cm}
379 \begin{center}
380 \nohyphens%
```

```

381 \if@english
382 \MakeUppercase\foreign@title
383 \else
384 \MakeUppercase\local@title
385 \fi}\par
386 \vspace*{3cm}
387 \nohyphens{\@authname\ \@authsur}\par
388 \end{center}
389 \vspace*{2.1cm}
390 \begin{flushright}
391 \begin{minipage}{8.45cm}
392 \frontcover@maintext
393 \end{minipage}\par
394 \vspace*{7.5mm}
395 \nohyphens{%
396 \begin{tabularx}{8.45cm}[b]{@{}l@{ }}>{\raggedright\arraybackslash}X@{}}
397 \local@advisorstring: &
398 \count1=0
399 \toks@={}
400 \@whilenum \count1<\@advisor \do{%
401 \ifcase\count1 % same as \ifnum0=\count1
402 \toks@=\expandafter\csname CoppeAdvisorName:\the\count1%
403 \expandafter\endcsname\expandafter\space%
404 \csname CoppeAdvisorSurname:\the\count1\endcsname\\
405 \else
406 \toks@=\expandafter\expandafter\expandafter{%
407 \expandafter\the\expandafter\toks@%
408 \expandafter&\expandafter\space%
409 \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
410 \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
411 }%
412 \fi
413 \advance\count1 by 1}
414 \the\toks@
415 \end{tabularx}}\par
416 \end{flushright}
417 \vspace*{\fill}
418 \begin{center}
419 \local@cityname\par
420 \local@monthname\ de \number\year
421 \end{center}
422 \end{titlepage}
423 \global\let\maketitle\relax%
424 \global\let\and\relax}

425 \newcommand\makefrontpage{%
426 \begin{center}
427 \sloppy\nohyphens{
428 \if@english
429 \MakeUppercase\foreign@title
430 \else
431 \MakeUppercase\local@title
432 \fi}\par
433 \vspace*{7mm}

```

```

434   {\@authname\ \@authsurn}\par
435 \end{center}\par
436 \vspace*{4mm}
437 \frontpage@maintext
438 \vspace*{16mm}
439 \nohyphens{%
440 \noindent\begin{tabularx}{\textwidth}[b]{@{}l@{ }}>{\raggedright\arraybackslash}X@{}}
441   \local@advisorstring: &
442   \count1=0
443   \toks@={}
444   \@whilenum \count1<\@advisor \do{%
445     \ifcase\count1 % same as \ifnum0=\count1
446       \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
447         \expandafter\endcsname\expandafter\space%
448         \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
449     \else
450       \toks@=\expandafter\expandafter\expandafter{%
451         \expandafter\the\expandafter\toks@%
452         \expandafter&\expandafter\space%
453         \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
454         \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
455       }%
456     \fi
457     \advance\count1 by 1}
458   \the\toks@
459 \end{tabularx}\par
460 \vspace*{20mm}
461 \noindent\begin{tabularx}{\textwidth}[b]{@{}l@{ }}>{\raggedright\arraybackslash}X@{}}
462   Aprovada por: &
463   \count1=0
464   \toks@={}
465   \@whilenum \count1<\@examiner \do{%
466     \ifcase\count1 % same as \ifnum0=\count1
467       \toks@=\expandafter{\csname CoppeExaminer:\the\count1%
468         \expandafter\endcsname\expandafter\\}
469     \else
470       \toks@=\expandafter\expandafter\expandafter{%
471         \expandafter\the\expandafter\toks@%
472         \expandafter&\expandafter\space%
473         \csname CoppeExaminer:\the\count1\expandafter\endcsname%
474         \expandafter\space\\
475       }%
476     \fi
477     \advance\count1 by 1}
478   \the\toks@
479 \end{tabularx}}\par
480 \vspace*{\fill}
481 \frontpage@bottomtext}

482 \newcommand\coppe@hypersetup{%
483 \begingroup
484 % changes to \toks@ and \count@ are kept local;
485 % it's not necessary for them, but it is usually the case
486 % for \count1, because the first ten counters are written

```

```

487 % to the DVI file, thus you got lucky because of PDF output
488 \toks@={}% in this special case not necessary
489 \count@=0 %
490 \@whilenum\count@<\value{keywords}\do{%
491   % * a keyword separator is not necessary,
492   %   if there is just one keyword
493   % * \csname CoppeKeyword:\the\count@\endcsname must be expanded
494   %   at least once, to get rid of the loop depended \count@
495   \ifcase\count@ % same as \ifnum0=\count@
496     \toks@=\expandafter{\csname CoppeKeyword:\the\count@\endcsname}%
497   \else
498     \toks@=\expandafter\expandafter\expandafter{%
499       \expandafter\the\expandafter\toks@
500       \expandafter;\expandafter\space
501       \csname CoppeKeyword:\the\count@\endcsname
502     }%
503   \fi
504   \advance\count@ by 1 %
505 }%
506 \edef\x{\endgroup
507   \noexpand\hypersetup{%
508     pdfkeywords={\the\toks@}%
509   }%
510 }%
511 \x
512 \hypersetup{%
513   pdfauthor={\@authname\ \@authsur},
514   pdftitle={\local@title},
515   pdfsubject={\local@doctype\ de \@degreename\ em \local@deptname\ da COPPE/UFRJ},
516   pdfcreator={LaTeX with CoppeTeX toolkit},
517   breaklinks={true},
518   raiselinks={true},
519   pageanchor={true},
520 }}

```

`\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].

```

521 \newcommand\makecatalog{%
522   \vspace*{\fill}
523   \begin{center}
524     \setlength{\fboxsep}{5mm}
525     \framebox[120mm][c]{\makebox[5mm][c]{}%
526       \begin{minipage}[c]{105mm}
527         \setlength{\parindent}{5mm}
528         \noindent\sloppy\nohyphens\@authsur,
529         \nohyphens\@authname\par
530         \nohyphens{%
531           \if@english
532             \foreign@title%
533           \else
534             \local@title%
535           \fi/\@authname\ \@authsur. -- \local@cityname:

```



```

536 UFRJ/COPPE, \number\year.}\par
537 \pageref{front:pageno},
538 \pageref{LastPage}
539 p.\@ifundefined{r@cat:lofflag}{\pageref{cat:lofflag}} $29,7$cm.\par
540 % There is an issue here. When the last entry must be split between lines,
541 % the spacing between it and the next paragraph becomes smaller.
542 % Should we manually introduce a fixed space? But how could we know that
543 % a name was split? Is this happening yet?
544 \nohyphens{%
545 \begin{tabularx}{100mm}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
546 \local@advisorstring: &
547 \count1=0
548 \toks@={}
549 \@whilenum \count1<\@advisor \do{%
550 \ifcase\count1 % same as \ifnum0=\count1
551 \toks@=\expandafter\csname CoppeAdvisorName:\the\count1%
552 \expandafter\endcsname\expandafter\space%
553 \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
554 \else
555 \toks@=\expandafter\expandafter\expandafter{%
556 \expandafter\the\expandafter\toks@
557 \expandafter&\expandafter\space
558 \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
559 \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
560 }%
561 \fi
562 \advance\count1 by 1}
563 \the\toks@
564 \end{tabularx}}\par
565 \nohyphens{\local@doctype\ ({\MakeLowercase\@degreename}) --
566 UFRJ/COPPE/Programa de \local@deptname, \number\year.}\par
567 Refer{\~ e}ncias Bibliogr{\' a}ficas: p. \pageref{bib:begin} -- \pageref{bib:end}.\par
568 \count1=0
569 \count2=1
570 \nohyphens{\@whilenum \count1<\value{keywords} \do {%
571 \number\count2. \csname CoppeKeyword:\the\count1 \endcsname.
572 \advance\count1 by 1
573 \advance\count2 by 1}
574 I. \csname CoppeAdvisorSurname:0\endcsname,%
575 \ \csname CoppeAdvisorName:0\endcsname%
576 \ifthenelse{\@advisor>1}{\ \emph{et~al.}}{}}.
577 II. \local@universityname, COPPE, Programa de \local@deptname.
578 III. T{\' i}tulo.}
579 \end{minipage}}
580 \end{center}
581 \vspace*{\fill}}

```

\dedication

```

582 \newcommand\dedication[1]{
583 \gdef\@dedic{#1}
584 \cleardoublepage
585 \vspace*{\fill}
586 \begin{flushright}
587 \begin{minipage}{60mm}

```

```

588      \raggedleft \it \normalsize \@dedic
589      \end{minipage}
590      \end{flushright}}

```

abstract (*env.*) This is a specialization of the abstract in the article standard class.

```

591 \newenvironment{abstract}{%
592   \clearpage
593   \thispagestyle{plain}
594   \abstract@toptext\par
595   \vspace*{8.6mm}
596   \begin{center}
597     \sloppy\nohyphens{\MakeUppercase\local@title}\par
598     \vspace*{13.2mm}
599     \@authname\ \@authsur \par
600     \vspace*{7mm}
601     \local@monthname/\number\year
602   \end{center}\par
603   \vspace*{\fill}
604   \noindent%
605   \begin{tabularx}{\textwidth}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
606     \local@advisorstring: &
607     \count1=0
608     \toks@={}
609     \@whilenum \count1<\@advisor \do{%
610       \ifcase\count1 % same as \ifnum0=\count1
611         \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
612           \expandafter\endcsname\expandafter\space%
613           \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
614       \else
615         \toks@=\expandafter\expandafter\expandafter{%
616           \expandafter\the\expandafter\toks@
617           \expandafter&\expandafter\space
618           \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
619           \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\}
620       }%
621     \fi
622     \advance\count1 by 1}
623     \the\toks@
624   \end{tabularx}\par
625   \vspace*{2mm}
626   \noindent\local@deptstring: \local@deptname\par
627   \vspace*{7mm}}{\vspace*{\fill}}

```

foreignabstract (*env.*)

```

628 \newenvironment{foreignabstract}{%
629   \clearpage
630   \thispagestyle{plain}
631   \begin{otherlanguage}{english}
632   \foreignabstract@toptext\par
633   \vspace*{8.6mm}
634   \begin{center}
635     \sloppy\nohyphens{\MakeUppercase\foreign@title}\par
636     \vspace*{13.2mm}
637     \@authname\ \@authsur \par

```

```

638 \vspace*{7mm}
639 \foreign@monthname/\number\year
640 \end{center}\par
641 \vspace*{\fill}
642 \noindent%
643 \begin{tabularx}{\textwidth}[b]{@{}l@{ }}>{\raggedright\arraybackslash}X@{}}
644 \foreign@advisorstring: &
645 \count1=0
646 \toks@={ }
647 \@whilenum \count1<\@advisor \do{%
648 \ifcase\count1 % same as \ifnum0=\count1
649 \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
650 \expandafter\endcsname\expandafter\space%
651 \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
652 \else
653 \toks@=\expandafter\expandafter\expandafter{%
654 \expandafter\the\expandafter\toks@
655 \expandafter&\expandafter\space
656 \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
657 \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
658 }%
659 \fi
660 \advance\count1 by 1}
661 \the\toks@
662 \end{tabularx}\par
663 \vspace*{2mm}
664 \noindent\foreign@deptstring: \foreign@deptname\par
665 \vspace*{7mm}}{%
666 \end{otherlanguage}
667 \vspace*{\fill}
668 \global\let\@author\@empty
669 \global\let\@date\@empty
670 \global\let\foreign@title\@empty
671 \global\let\foreign@title\relax
672 \global\let\local@title\@empty
673 \global\let\local@title\relax
674 \global\let\author\relax
675 \global\let\author\relax
676 \global\let\date\relax}

```

\listoffigures

```

677 \renewcommand\listoffigures{%
678 \coppe@hasLof
679 \if@twocolumn
680 \@restonecoltrue\onecolumn
681 \else
682 \@restonecolfalse
683 \fi
684 \chapter*{\listfigurename}%
685 \addcontentsline{toc}{chapter}{\listfigurename}%
686 \mkboth{\MakeUppercase\listfigurename}%
687 {\MakeUppercase\listfigurename}%
688 \@starttoc{lof}%
689 \if@restonecol\twocolumn\fi

```

```

690     }

\listoftables
691 \renewcommand\listoftables{%
692     \if@twocolumn
693         \@restonecoltrue\onecolumn
694     \else
695         \@restonecolfalse
696     \fi
697     \chapter*{\listtablename}%
698     \addcontentsline{toc}{chapter}{\listtablename}%
699     \@mkboth{%
700         \MakeUppercase\listtablename}%
701     {\MakeUppercase\listtablename}%
702     \@starttoc{lot}%
703     \if@restonecol\twocolumn\fi
704 }

\printlosymbols
705 \newcommand\printlosymbols{%
706 \renewcommand\glossaryname{\listsymbolname}%
707 \@input@{\jobname.los}}

\makelosymbols
708 \def\makelosymbols{%
709     \newwrite\@losfile
710     \immediate\openout\@losfile=\jobname.syx
711     \newcommand\syml[3][]{\@bsphack\begingroup
712     \ifstrepty{##1}{\def\@tempsymb1{##2=}}{\def\@tempsymb1{##1=}}%
713         \@sanitize%
714         \@wrlos{\@tempsymb1}{##2}{##3}}\typeout%
715     {Writing index of symbols file \jobname.syx}%
716     \let\makelosymbols\empty%
717 }%
718 \@onlypreamble\makelosymbols

719 \AtBeginDocument{%
720 \@ifpackageloaded{hyperref}{%
721     \newcommand\@wrlos[3]{%
722         \protected@write\@losfile{%
723             {\string\indexentry{#1[#2] #3|hyperpage}{\thepage}}}%
724         \endgroup%
725         \@esphack}}{%
726     \newcommand\@wrlos[3]{%
727         \protected@write\@losfile{%
728             {\string\indexentry{#1[#2] #3}{\thepage}}}%
729         \endgroup%
730         \@esphack}}}%

\printloabbreviations
731 \newcommand\printloabbreviations{%
732 \renewcommand\glossaryname{\listabbreviationname}%
733 \@input@{\jobname.lab}}

```

\makeloabbreviations

```

734 \def\makeloabbreviations{%
735   \newwrite\@labfile
736   \immediate\openout\@labfile=\jobname.abx
737   \newcommand\abbrev[3][\@bsphack\begin{group}
738     \ifstreampy{##1}{\def\@tempsymb1{##2=}}{\def\@tempsymb1{##1=}}
739     \@sanitiz
740     \@wrlab{\@tempsymb1}{##2}{##3}\typeout
741     {Writing index of abbreviations file \jobname.abx}%
742     \let\makeloabbreviations\@empty
743 }
744 \@onlypreamble\makeloabbreviations

745 \AtBeginDocument{%
746   \@ifpackageloaded{hyperref}{%
747     \newcommand\@wrlab[3]{%
748       \protected@write\@labfile{%
749         {\string\indexentry{#1[#2] #3|hyperpage}{\thepage}}%
750       }
751       \@esphack}}{%
752     \newcommand\@wrlab[3]{%
753       \protected@write\@labfile{%
754         {\string\indexentry{#1[#2] #3}{\thepage}}%
755       }
756       \@esphack}}}%

757 %%% \AtBeginDocument{%
758 %%% \@ifpackageloaded{hyperref}{%
759 %%% \def\@wrlab#1#2{%
760 %%% \protected@write\@labfile{%
761 %%%   {\string\indexentry{[#1] #2|hyperpage}{\thepage}}%
762 %%%   \endgroup
763 %%%   \@esphack}}{%
764 %%% \def\@wrlab#1#2{%
765 %%%   \protected@write\@labfile{%
766 %%%     {\string\indexentry{[#1] #2}{\arabic{page}}}%
767 %%%   \endgroup
768 %%%   \@esphack}}}%

769 % Some macros used to generate cataloging information.
770 \AtBeginDocument{%
771   \ltx@ifpackageloaded{hyperref}{%
772     \def\coppe@bibEnd{%
773       \immediate\write\@auxout{%
774         \string\newlabel{bib:end}{\arabic{page}}{\page.\arabic{page}}}%
775     }
776     \def\coppe@bibBegin{%
777       \immediate\write\@auxout{%
778         \string\newlabel{bib:begin}{\arabic{page}}{\page.\arabic{page}}}%
779     }
780     \def\coppe@mainBegin{%
781       \immediate\write\@auxout{%
782         \string\newlabel{front:pageno}{\Roman{page}}{\page.\roman{page}}}%
783     }
784     \def\coppe@hasLof{%
785       \immediate\write\@auxout{%
786         \string\newlabel{cat:lofflag}{~il.;}{\page.\roman{page}}}%
787     }

```

```

785 \def\coppe@bibEnd{%
786 \immediate\write\@auxout{%
787 \string\newlabel{bib:end}{\arabic{page}}}%
788 \def\coppe@bibBegin{%
789 \immediate\write\@auxout{%
790 \string\newlabel{bib:begin}{\arabic{page}}}%
791 \def\coppe@mainBegin{%
792 \immediate\write\@auxout{%
793 \string\newlabel{front:pageno}{\Roman{page}}}%
794 \def\coppe@hasLof{%
795 \immediate\write\@auxout{%
796 \string\newlabel{cat:lofflag}{~il.}}}%
797 }%
798 }
799 \newdimen\bibindent%
800 \setlength\bibindent{1.5em}%
801 \renewenvironment{thebibliography}[1]%
802 {\onehalfspacing%
803 \chapter*{\bibname}%
804 \addcontentsline{toc}{chapter}{\bibname}%
805 \coppe@bibBegin
806 \list{\@biblabel{\arabic{enumiv}}%
807 \setlength{\labelwidth}{0ex}%
808 \setlength{\leftmargin}{9.0ex}%
809 \setlength{\itemindent}{-9.0ex}%
810 \advance\leftmargin\labelsep%
811 \@openbib@code%
812 \usecounter{enumiv}%
813 \let\p@enumiv\empty%
814 \renewcommand\theenumiv{\arabic{enumiv}}%
815 \sloppy%
816 \clubpenalty4000%
817 \@clubpenalty \clubpenalty%
818 \widowpenalty4000%
819 \sfcode'\. \@m}%
820 {\def\@noitemerr%
821 {\@latex@warning{Empty 'thebibliography' environment}}%
822 \coppe@bibEnd
823 \endlist}

```

longquote (*env.*)

```

824 \newlength{\recuolongquote}%
825 \setlength{\recuolongquote}{4cm}%
826 \newenvironment*{longquote}[1][default]{%
827 \list{}%
828 \footnotesize%
829 \addtolength{\leftskip}{\recuolongquote}%
830 \item[]%
831 \singlespacing%
832 \ifthenelse{\not\equal{#1}{default}}{\itshape\selectlanguage{#1}}{}%
833 }\endlist}%

834 \newenvironment{theglossary}{%
835 \if@twocolumn%

```

```

836 \@restonecoltrue\onecolumn%
837 \else%
838 \@restonecolfalse%
839 \fi%
840 \@mkboth{\MakeUppercase\glossaryname}%
841 {\MakeUppercase\glossaryname}%
842 \chapter*{\glossaryname}%
843 \addcontentsline{toc}{chapter}{\glossaryname}
844 \list{}
845 {\setlength{\listparindent}{0in}%
846 \setlength{\labelwidth}{1.0in}%
847 \setlength{\leftmargin}{1.5in}%
848 \setlength{\labelsep}{0.5in}%
849 \setlength{\itemindent}{0in}}%
850 \sloppy}%
851 {\if@restonecol\twocolumn\fi%
852 \endlist}
853 %
854 \renewenvironment{theindex}{%
855 \if@twocolumn
856 \@restonecolfalse
857 \else
858 \@restonecoltrue
859 \fi
860 \twocolumn[\@makeschapterhead{\indexname}]{%
861 \@mkboth{\MakeUppercase\indexname}%
862 {\MakeUppercase\indexname}%
863 \thispagestyle{plain}\parindent\z@
864 \addcontentsline{toc}{chapter}{\indexname}
865 \parskip\z@ \@plus .3\p@\relax
866 \columnseprule \z@
867 \columnsep 35\p@
868 \let\item\@idxitem}
869 {\if@restonecol\onecolumn\else\clearpage\fi}
870 \if@english
871 \newcommand\listabbreviationname{List of Abbreviations}
872 \newcommand\listsymbolname{List of Symbols}
873 \newcommand\glossaryname{Glossary}
874 \else
875 \newcommand\listabbreviationname{Lista de Abreviaturas}
876 \newcommand\listsymbolname{Lista de S{\`i}mbolos}
877 \newcommand\glossaryname{Gloss{\`a}rio}
878 \fi
879 %
880 \newcommand\local@advisorstring{Orientador}
881 \newcommand\foreign@advisorstring{Advisor}
882 \ifthenelse{\boolean{maledoc}}{%
883 \newcommand\local@approvedname{Examinado por}%
884 }{%
885 \newcommand\local@approvedname{Examinada por}%
886 }
887 \newcommand\local@universityname{Universidade Federal do Rio de Janeiro}
888 \newcommand\local@deptstring{Programa}
889 \newcommand\foreign@deptstring{Department}

```

```

890 \newcommand\local@cityname{Rio de Janeiro}
891 \newcommand\local@statename{RJ}
892 \newcommand\local@countryname{Brasil}
893 %
894 \newcommand\frontcover@maintext{
895   \sloppy\nohyphens{\local@doctype\ de \@degree\name\
896   \ifthenelse{\boolean{maledoc}}{apresentado}{apresentada}
897   ao Programa de P{\' o}s-gradua{\c c}{\~ a}o em \local@deptname,
898   COPPE, da \local@universityname, como parte dos requisitos
899   necess{\' a}rios {\' a} obten{\c c}{\~ a}o do t{\' i}tulo de
900   \local@degname\ em \local@deptname.}
901 }
902 %
903 \newcommand\frontpage@maintext{
904   \noindent {\MakeUppercase\local@doctype}
905   \ifthenelse{\boolean{maledoc}}{SUBMETIDO}{SUBMETIDA}
906   \sloppy\nohyphens{AO CORPO DOCENTE DO INSTITUTO ALBERTO LUIZ COIMBRA
907   DE P{\' O}S-GRADUA{\c C}{\~ A}O E PESQUISA DE ENGENHARIA DA
908   UNIVERSIDADE FEDERAL DO RIO DE JANEIRO COMO PARTE DOS REQUISITOS
909   NECESS{\' A}RIOS PARA A OBTEN{\c C}{\~ A}O DO GRAU DE
910   {\MakeUppercase\local@degname} EM CI{\^E}NCIAS EM
911   {\MakeUppercase\local@deptname.\par}}%
912 }
913 %
914 \newcommand\frontpage@bottomtext{%
915   \begin{center}
916     {\MakeUppercase{\local@cityname, \local@statename\ -- \local@countryname}}\par
917     {\MakeUppercase\local@monthname\ DE \number\year}
918   \end{center}%
919 }
920 %
921 \newcommand\abstract@toptext{%
922   \noindent Resumo \ifthenelse{\boolean{maledoc}}{do}{da}
923   \local@doctype\ \ifthenelse{\boolean{maledoc}}{apresentado}{apresentada}
924   \sloppy\nohyphens{{\\' a} COPPE/UFRJ como parte dos requisitos
925   necess{\' a}rios para a obten{\c c}{\~ a}o do grau de
926   \local@degname\ em Ci{\^ e}ncias (\@degree)}
927 }
928 \newcommand\foreignabstract@toptext{%
929   \noindent \sloppy\nohyphens{Abstract of \foreign@doctype\ presented to
930   COPPE/UFRJ as a partial fulfillment of the requirements for the
931   degree of \foreign@degname\ of Science (\@degree)}
932 }
933 %
934 </class>
935 <*glossary>
936 actual '='
937 quote '!'
938 level '>'
939 %%% delim_0 " , p. "
940 delim_0 "\\dotfill "
941 lethead_flag 0
942 headings_flag 0

```



```

943 preamble
944 "\n\\begin{theglossary}\n  \\\makeatletter"
945 postamble
946 "\n  \\\end{theglossary}\n"
947 </glossary>

```

Acknowledgments

Thanks to all COPPE \TeX users who have reported their experience with this class. We also thank to professor Fernando Lizarralde and Heiko Oberdiek for their helpful comments. The authors would like to thank the National Council for Scientific and Technological Development (CNPq) of Brazil.

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