

# The coppe document class

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## 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 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 L<sup>A</sup>T<sub>E</sub>X 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 typesetted in L<sup>A</sup>T<sub>E</sub>X. This demand motivated the creation of the COPPETeX project, which tries to facilitate and encourage the use of L<sup>A</sup>T<sub>E</sub>X 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 BIB<sub>T</sub>E<sub>X</sub> 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

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 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 three-parts: *front*, *main* and *back* matters [?]. 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 [?]. 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 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.

`\foreigntitle`

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

`\examiner`

```

\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` As stated by the Academic Registry [?], abstracts must be in one page each, with  
`foreignabstract` 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)

<code>\abbrev</code> <code>\syml</code>	<p>The lists of symbols and abbreviations are optional, although highly recommended. It is a good practice to define a symbol/abbreviation in its first occurrence in the text. To define a symbol use <code>\syml[alphabetic symbol]{Symbol}{Symbol Definition}</code>, and for abbreviations <code>\abbrev{Abbreviation}{Abbreviation Definition}</code>. These commands are called <i>dummy</i>, since they don't output anything at the place they are executed, just an entry in the correspondent list.</p>
<code>\makeloabbreviations</code> <code>\makelosymbols</code> <code>\printloabbreviations</code> <code>\printlosymbols</code>	<p>These lists are lexicographically sorted by using the MakeIndex program, which is part of any L<sup>A</sup>T<sub>E</sub>X implementation. For <code>\syml</code>, if the optional parameter is provided, it will be used as sort key, otherwise <code>Symbol</code> will be used as sort key, what can result in an undesirable order if it contains L<sup>A</sup>T<sub>E</sub>X commands. 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 <code>coppe</code> class provides the commands <code>\makeloabbreviations</code> and <code>\makelosymbols</code>, respectively. They must be called in the document preamble. The commands <code>\printlosymbols</code> and <code>\printloabbreviations</code> 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 <code>latex</code>, it will be created two files with extensions <code>abx</code> and <code>syx</code>, which contain MakeIndex input data. They must be processed with <code>makeindex</code> in order to get the lists correctly produced, redirecting the output to files with extension <code>lab</code> and <code>los</code> respectively:</p> <pre> makeindex -s coppe.ist -o example.lab example.abx makeindex -s coppe.ist -o example.los example.syx </pre>

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 BIB<sub>T</sub>E<sub>X</sub>. Thus, the COPPE<sub>T</sub>E<sub>X</sub> project designed two BIB<sub>T</sub>E<sub>X</sub> 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 BIB<sub>T</sub>E<sub>X</sub> style and include your BIB<sub>T</sub>E<sub>X</sub> references without the `bib` extension, as in the following example:

```

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

```

Run in sequence L<sup>A</sup>T<sub>E</sub>X, BIB<sub>T</sub>E<sub>X</sub>, and twice again L<sup>A</sup>T<sub>E</sub>X 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, dsceexam, msceexam** The `coppe` class is able to produce thesis, dissertations, and qualifying exams, which are enabled by the `dsc`, `msc`, `msceexam`, and `dsceexam` 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<sup>A</sup>T<sub>E</sub>X is the Encapsulated PostScript (EPS). If you use pdfL<sup>A</sup>T<sub>E</sub>X, 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<sup>A</sup>T<sub>E</sub>X 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{PEC}
25   \date{02}{2011}
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 \begin{longquote}
73 Um exemplo de citação longa nas regras da ABNT (4cm de recuo e fonte menor)
74 feita com o ambiente \verb=longquote= The primary objective of this
75 investigation was to determine the feasibility of detecting corrosion in
76 aluminum Naval aircraft components with neutron radiographic interrogation
77 and the use of standard corrosion penetrameters. Secondary objectives
78 included the determination of the effect of object thickness on image quality,
79 the defining of minimum levels of detectability and a preliminary investigation
80 of a means whereby the degree of corrosion could be quantified with neutron
81 radiographic data. \cite{article-example}
82 \end{longquote}
83
84
85 \chapter{Revis\~ao Bibliogr\~afica}
86
87 Para ilustrar a completa ades\~ao ao estilo de cita{\c c}\~oes e listagem de
88 refer\~encias bibliogr\~aficas, a Tabela\ref{tab:citation} apresenta cita{\c
89 c}\~oes de alguns dos trabalhos contidos na norma fornecida pela CPGP da
90 COPPE, utilizando o estilo num\~erico.
91
92 \begin{table}[h]
93 \caption{Exemplos de cita{\c c}\~oes utilizando o comando padr\~ao
94 \texttt{\textbackslash cite} do \LaTeX\ e
95 o comando \texttt{\textbackslash cite},
96 fornecido pelo pacote \texttt{natbib}.}
97 \label{tab:citation}
98 \centering
99 {\footnotesize
100 \begin{tabular}{|c|c|c|}

```

```

101 \hline
102 Tipo da Publica{\c c}\~ao & \verb|\cite| & \verb|\citet|\
103 \hline
104 Livro & \cite{book-example} & \citet{book-example}\
105 Artigo & \cite{article-example} & \citet{article-example}\
106 Relat\’orio & \cite{techreport-example} & \citet{techreport-example}\
107 Relat\’orio & \cite{techreport-exampleIn} & \citet{techreport-exampleIn}\
108 Anais de Congresso & \cite{inproceedings-example} &
109 \citet{inproceedings-example}\
110 S\’eries & \cite{incollection-example} & \citet{incollection-example}\
111 Em Livro & \cite{inbook-example} & \citet{inbook-example}\
112 Disserta{\c c}\~ao de mestrado & \cite{mastersthesis-example} &
113 \citet{mastersthesis-example}\
114 Tese de doutorado & \cite{phdthesis-example} & \citet{phdthesis-example}\
115 \hline
116 \end{tabular}}
117 \end{table}
118
119 \chapter{M\’etodo Proposto}
120 \chapter{Resultados e Discuss\~oes}
121 A Lista de S\'ımbolos precisa usar comandos espec\'ıficos. Aqui vamos usar os s\'ımbolos $\alpha$
122 \syml[beta]{Beta}{A palavra Beta more e corrigida}
123 \syml[zbeta]{\beta}{A letra $\beta$ corrigida}
124 \syml[beta]{A palavra beta}
125 \syml[alpha]{A palavra alpha}
126 \syml[alpha]{Alpha}{A palavra Alpha}
127 \syml[zalpha]{\alpha}{A letra $\alpha$ corrigida}
128 \syml[marco]{Marco}{A palavra Marco corrigida}
129 \chapter{Conclus\~oes}
130
131 \backmatter
132 \bibliographystyle{coppe-unsrc}
133 \bibliography{example}
134
135 \appendix
136 \chapter{Algumas Demonstra{\c c}\~oes}
137 \end{document}
138 \example

```

## 8 Implementation

### 8.1 The ‘coppe.cls’ file

```

139 \class
140 \def\filename{coppe.dtx}
141 \def\fileversion{v3.1}
142 \def\filedate{2022/03/07}
143 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
144 \ProvidesClass{coppe}[\filedate\ \fileversion\ COPPE Dissertations and Thesis]
145 \LoadClass[12pt,a4paper,oneside]{book}
146 \RequirePackage[sort&compress]{natbib}
147 \RequirePackage{hyphenat}
148 \RequirePackage{lastpage}
149 \RequirePackage{ifthen}

```



```

150 \RequirePackage{graphicx}
151 \RequirePackage{setspace}
152 \RequirePackage{tabularx}
153 \RequirePackage{etoolbox}
154 \RequirePackage{eqparbox}
155 \RequirePackage{ltxcmds}
156 \RequirePackage[T1]{fontenc}
157 \RequirePackage[a4paper, bindingoffset=0.0cm, vcentering=true, %
158 top=2.5cm, bottom=2.5cm, left=3.0cm, right=3.0cm]{geometry}
159 \def\CoppeTeX{\rm C\kern-.05em\sc o\kern-.025em p\kern-.025em
160 p\kern-.025em e}\kern-.08em
161 T\kern-.1667em\lower.5ex\hbox{E}\kern-.125emX\spacefactor1000}

162 \newboolean{maledoc}
163 \setboolean{maledoc}{false}
164 %
165 % Class options.
166 % If you are writing a text in English, you must turn ‘‘English’’ on.
167 % Otherwise, Portuguese is considered the main language.
168 \newif\if@english\@englishfalse
169 \DeclareOption{english}{\@englishtrue}
170 \DeclareOption{msc}{%
171   \newcommand{\@degree}{M.Sc.}
172   \newcommand{\@degreename}{Mestrado}
173   \newcommand{\@local@degname}{Mestre}
174   \newcommand{\@foreign@degname}{Master}
175   \newcommand\local@doctype{Disserta{\c c}{\~ a}o}
176   \newcommand\foreign@doctype{Dissertation}
177 }
178 \DeclareOption{dscexam}{%
179   \newcommand{\@degree}{D.Sc.}
180   \newcommand{\@degreename}{Doutorado}
181   \newcommand{\@local@degname}{Doutor}
182   \newcommand{\@foreign@degname}{Doctor}
183   \setboolean{maledoc}{true}
184   \newcommand\local@doctype{Exame de Qualifica{\c c}{\~ a}o}
185   \newcommand\foreign@doctype{Qualifying Exam}
186 }
187 \DeclareOption{mscexam}{%
188   \newcommand{\@degree}{M.Sc.}
189   \newcommand{\@degreename}{Mestrado}
190   \newcommand{\@local@degname}{Mestre}
191   \newcommand{\@foreign@degname}{Master}
192   \setboolean{maledoc}{true}
193   \newcommand\local@doctype{Exame de Qualifica{\c c}{\~ a}o}
194   \newcommand\foreign@doctype{Qualifying Exam}
195 }
196 \DeclareOption{dsc}{%
197   \newcommand{\@degree}{D.Sc.}
198   \newcommand{\@degreename}{Doutorado}
199   \newcommand{\@local@degname}{Doutor}
200   \newcommand{\@foreign@degname}{Doctor}
201   \newcommand\local@doctype{Tese}
202   \newcommand\foreign@doctype{Thesis}
203 }

```

```

204 \DeclareOption{numbers}{%
205   \PassOptionsToPackage{numbers}{natbib}
206 }

```

Here is the default one-and-a-half line spacing. Users can change to double spacing by passing the `doublespacing` option.

```

207 \onehalfspacing
208 \DeclareOption{doublespacing}{%
209   \doublespacing
210 }
211 \ProcessOptions\relax
212 \if@english
213   \RequirePackage[english]{babel}
214 \else
215   \RequirePackage[english,brazil]{babel}
216 \fi
217 \addto{\captionsenglish}{%
218   \renewcommand{\bibname}{References}
219 }

```

**\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.

```

220 \newcommand\department[1]{%
221   \ifthenelse{equal{#1}{PEB}}{
222     {\global\def\local@deptname{Engenharia Biom{\` e}dica}
223     \global\def\foreign@deptname{Biomedical Engineering}}{
224     \ifthenelse{equal{#1}{PEC}}{
225       {\global\def\local@deptname{Engenharia Civil}
226       \global\def\foreign@deptname{Civil Engineering}}{
227       \ifthenelse{equal{#1}{PEE}}{
228         {\global\def\local@deptname{Engenharia El{\` e}trica}
229         \global\def\foreign@deptname{Electrical Engineering}}{
230         \ifthenelse{equal{#1}{PEM}}{
231           {\global\def\local@deptname{Engenharia Mec{\` a}nica}
232           \global\def\foreign@deptname{Mechanical Engineering}}{
233           \ifthenelse{equal{#1}{PEMM}}{
234             {\global\def\local@deptname{Engenharia Metal{\` u}rgica e de Materiais}
235             \global\def\foreign@deptname{Metallurgical and Materials Engineering}}{
236             \ifthenelse{equal{#1}{PEN}}{
237               {\global\def\local@deptname{Engenharia Nuclear}
238               \global\def\foreign@deptname{Nuclear Engineering}}{
239               \ifthenelse{equal{#1}{PEN0}}{
240                 {\global\def\local@deptname{Engenharia Oce{\` a}nica}
241                 \global\def\foreign@deptname{Ocean Engineering}}{
242                 \ifthenelse{equal{#1}{PPE}}{
243                   {\global\def\local@deptname{Planejamento Energ{\` e}tico}
244                   \global\def\foreign@deptname{Energy Planning}}{
245                   \ifthenelse{equal{#1}{PEP}}{
246                     {\global\def\local@deptname{Engenharia de Produ{\` c}{\` a}o}
247                     \global\def\foreign@deptname{Production Engineering}}{
248                     \ifthenelse{equal{#1}{PEQ}}{
249                       {\global\def\local@deptname{Engenharia Qu{\` i}mica}
250                       \global\def\foreign@deptname{Chemical Engineering}}{

```

```

251 \ifthenelse{\equal{#1}{PESC}}
252   {\global\def\local@deptname{Engenharia de Sistemas e Computa{\c c}{\~ a}o}
253   \global\def\foreign@deptname{Systems Engineering and Computer Science}}{}
254 \ifthenelse{\equal{#1}{PET}}
255   {\global\def\local@deptname{Engenharia de Transportes}
256   \global\def\foreign@deptname{Transportation Engineering}}{}
257 \ifthenelse{\equal{#1}{PENT}}
258   {\global\def\local@deptname{Engenharia de Nanotecnologia}
259   \global\def\foreign@deptname{Nanotechnology Engineering}}{}
260 }

\title Used to enter the title in Brazilian Portuguese.
261 \renewcommand\title[1]{%
262   \global\def\local@title{#1}%
263 }

\foreigntitle Used to enter the foreign title.
264 \newcommand\foreigntitle[1]{%
265   \global\def\foreign@title{#1}%
266 }

\advisor Defines globally the title, name and academic degree of the advisors.
267 \newcount\@advisor\@advisor0
268 \newcommand\advisor[4]{%
269   \global\@namedef{CoppeAdvisorTitle:\expandafter\the\@advisor}{#1}
270   \global\@namedef{CoppeAdvisorName:\expandafter\the\@advisor}{#2}
271   \global\@namedef{CoppeAdvisorSurname:\expandafter\the\@advisor}{#3}
272   \global\@namedef{CoppeAdvisorDegree:\expandafter\the\@advisor}{#4}
273   \global\advance\@advisor by 1
274   \ifnum\@advisor>1
275     \renewcommand\local@advisorstring{Orientadores}
276     \renewcommand\foreign@advisorstring{Advisors}
277   \fi
278 }

\examiner
279 \newcount\@examiner\@examiner0
280 \newcommand\examiner[3]{%
281   \global\@namedef{CoppeExaminer:\expandafter\the\@examiner}{#1\ #2}
282   \global\advance\@examiner by 1
283 }

\author It was redefined to allow the identification of the author's first names and surname.
284 \renewcommand\author[2]{%
285   \global\def\@authname{#1}
286   \global\def\@authsurn{#2}
287 }

\date This code makes easy to switch from dates in different languages.
288 \renewcommand\date[2]{%
289   \month=#1
290   \year=#2
291 }

```

`\local@monthname`

```
292 \newcommand\local@monthname{\ifcase\month\or
293   Janeiro\or Fevereiro\or Mar{\c c}\o\or Abril\or Maio\or Junho\or
294   Julho\or Agosto\or Setembro\or Outubro\or Novembro\or Dezembro\fi}
```

`\foreign@monthname`

```
295 \newcommand\foreign@monthname{\ifcase\month\or
296   January\or February\or March\or April\or May\or June\or
297   July\or August\or September\or October\or November\or December\fi}
```

`\keyword`

```
298 \newcounter{keywords}
299 \newcommand\keyword[1]{%
300   \global\@namedef{CoppeKeyword:\expandafter\the\c@keywords}{#1}
301   \global\addtocounter{keywords}{1}
302 }
```

`\freeconfig` This command allows easy changing of core class parameters.

```
303 \newcommand\freeconfig[6]{%
304 \providecommand\@degree{}
305 \renewcommand\@degree{#1}
306 \providecommand\@degreename{}
307 \renewcommand\@degreename{#2}
308 \providecommand\local@degname{}
309 \renewcommand\local@degname{#3}
310 \providecommand\foreign@degname{}
311 \renewcommand\foreign@degname{#4}
312 \providecommand\local@doctype{}
313 \renewcommand\local@doctype{#5}
314 \providecommand\foreign@doctype{}
315 \renewcommand\foreign@doctype{#6}%
316 }
317 % \end{macrocode}
318 % \end{macro}
319 %
320 % \begin{macro}{\frontmatter}
321 % The number of pages for both frontmatter and mainmatter printed
322 % in the cataloging details page is computed by means of simple
323 % \LaTeX\ labels.
324 % \begin{macrocode}
325 \renewcommand\frontmatter{%
326   \cleardoublepage
327   \@mainmatterfalse
328   \pagenumbering{roman}
329   \thispagestyle{empty}
330   \setcounter{page}{2}
331   \makefrontpage
332   \clearpage
333   \pagestyle{plain}
334   \ifthenelse{\boolean{maledoc}}{\}{\makecatalog}%
335 }
```

`\mainmatter`

```

336 \renewcommand\mainmatter{%
337   \coppe@mainBegin
338   \cleardoublepage
339   \@mainmattertrue
340   \pagestyle{plain}
341   \pagenumbering{arabic}}

\backmatter

342 \renewcommand\backmatter{%
343   \if@openright
344     \cleardoublepage
345   \else
346     \clearpage
347   \fi}
348 %

\maketitle

349 \renewcommand\maketitle{%
350   \pagenumbering{alph}
351   \ltx@ifpackageloaded{hyperref}{\coppe@hypersetup}{}%
352   \begin{titlepage}
353   \begin{flushleft}
354     \vspace*{1.5mm}
355     \setlength\baselineskip{0pt}
356     \setlength\parskip{1mm}
357     \makebox[20mm][c]{\hspace{4.8cm}\includegraphics{coppe-logo}}
358   \end{flushleft}
359   \vspace{1.05cm}
360   \begin{center}
361     \nohyphens{%
362       \if@english
363         \MakeUppercase\foreign@title
364       \else
365         \MakeUppercase\local@title
366       \fi}\par
367     \vspace*{3cm}
368     \nohyphens{\@authname\ \@authsur}\par
369   \end{center}
370   \vspace*{2.1cm}
371   \begin{flushright}
372     \begin{minipage}{8.45cm}
373       \frontcover@maintext
374     \end{minipage}\par
375     \vspace*{7.5mm}
376     \nohyphens{%
377       \begin{tabularx}{8.45cm}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
378         \local@advisorstring: &
379         \count1=0
380         \toks@={}
381         \@whilenum \count1<\@advisor \do{%
382           \ifcase\count1 % same as \ifnum0=\count1
383             \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
384               \expandafter\endcsname\expandafter\space%
385               \csname CoppeAdvisorSurname:\the\count1\endcsname\\}

```

```

386 \else
387 \toks@=\expandafter\expandafter\expandafter{%
388 \expandafter\the\expandafter\toks@%
389 \expandafter&\expandafter\space%
390 \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
391 \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
392 }%
393 \fi
394 \advance\count1 by 1}
395 \the\toks@
396 \end{tabularx}}\par
397 \end{flushright}
398 \vspace*{\fill}
399 \begin{center}
400 \local@cityname\par
401 \local@monthname\ de \number\year
402 \end{center}
403 \end{titlepage}
404 \global\let\maketitle\relax%
405 \global\let\and\relax}

406 \newcommand\makefrontpage{%
407 \begin{center}
408 \sloppy\nohyphens{
409 \if@english
410 \MakeUppercase\foreign@title
411 \else
412 \MakeUppercase\local@title
413 \fi}\par
414 \vspace*{7mm}
415 {\@authname\ \@authsur}\par
416 \end{center}\par
417 \vspace*{4mm}
418 \frontpage@maintext
419 \vspace*{16mm}
420 \nohyphens{%
421 \noindent\begin{tabularx}{\textwidth}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
422 \local@advisorstring: &
423 \count1=0
424 \toks@={}
425 \@whilenum \count1<\@advisor \do{%
426 \ifcase\count1 % same as \ifnum0=\count1
427 \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
428 \expandafter\endcsname\expandafter\space%
429 \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
430 \else
431 \toks@=\expandafter\expandafter\expandafter{%
432 \expandafter\the\expandafter\toks@%
433 \expandafter&\expandafter\space%
434 \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
435 \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
436 }%
437 \fi
438 \advance\count1 by 1}

```

```

439 \the\toks@
440 \end{tabularx}\par
441 \vspace*{20mm}
442 \noindent\begin{tabularx}{\textwidth}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
443   Aprovada por: &
444   \count1=0
445   \toks@={}
446   \@whilenum \count1<\@examiner \do{%
447     \ifcase\count1 % same as \ifnum0=\count1
448       \toks@=\expandafter{\csname CoppeExaminer:\the\count1%
449         \expandafter\endcsname\expandafter\}}
450     \else
451       \toks@=\expandafter\expandafter\expandafter{%
452         \expandafter\the\expandafter\toks@%
453         \expandafter&\expandafter\space%
454         \csname CoppeExaminer:\the\count1\expandafter\endcsname%
455         \expandafter\space\}
456     }%
457   \fi
458   \advance\count1 by 1}
459 \the\toks@
460 \end{tabularx}}\par
461 \vspace*{\fill}
462 \frontpage@bottomtext}

463 \newcommand\coppe@hypersetup{%
464 \begingroup
465   % changes to \toks@ and \count@ are kept local;
466   % it's not necessary for them, but it is usually the case
467   % for \count1, because the first ten counters are written
468   % to the DVI file, thus you got lucky because of PDF output
469   \toks@={} % in this special case not necessary
470   \count@=0 %
471   \@whilenum\count@<\value{keywords}\do{%
472     % * a keyword separator is not necessary,
473     %   if there is just one keyword
474     % * \csname CoppeKeyword:\the\count@\endcsname must be expanded
475     %   at least once, to get rid of the loop depended \count@
476     \ifcase\count@ % same as \ifnum0=\count@
477       \toks@=\expandafter{\csname CoppeKeyword:\the\count@\endcsname}%
478     \else
479       \toks@=\expandafter\expandafter\expandafter{%
480         \expandafter\the\expandafter\toks@
481         \expandafter;\expandafter\space
482         \csname CoppeKeyword:\the\count@\endcsname
483       }%
484     \fi
485     \advance\count@ by 1 %
486   }%
487 \edef\x{\endgroup
488   \noexpand\hypersetup{%
489     pdfkeywords={\the\toks@}%
490   }%
491 }%

```

```

492 \x
493 \hypersetup{%
494   pdfauthor={\@authname\ \@authsurname},
495   pdftitle={\local@title},
496   pdfsubject={\local@doctype\ de \@degreename\ em \local@deptname\ da COPPE/UFRJ},
497   pdfcreator={LaTeX with CoppeTeX toolkit},
498   breaklinks={true},
499   raiselinks={true},
500   pageanchor={true},
501 }}

```

`\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` [?].

```

502 \newcommand\makecatalog{%
503   \vspace*{\fill}
504   \begin{center}
505     \setlength{\fboxsep}{5mm}
506     \framebox[120mm][c]{\makebox[5mm][c]{%
507       \begin{minipage}[c]{105mm}
508         \setlength{\parindent}{5mm}
509         \noindent\sloppy\nohyphens\@authsurname,
510         \nohyphens\@authname\par
511         \nohyphens{%
512           \if@english
513             \foreign@title%
514           \else
515             \local@title%
516           \fi/\@authname\ \@authsurname. -- \local@cityname:
517           UFRJ/COPPE, \number\year.}\par
518           \pageref{front:pageno},
519           \pageref{LastPage}
520           p.\@ifundefined{r@cat:lofflag}{\pageref{cat:lofflag}} $29,7$cm.\par
521           % There is an issue here. When the last entry must be split between lines,
522           % the spacing between it and the next paragraph becomes smaller.
523           % Should we manually introduce a fixed space? But how could we know that
524           % a name was split? Is this happening yet?
525           \nohyphens{%
526             \begin{tabularx}{100mm}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
527               \local@advisorstring: &
528               \count1=0
529               \toks@={}
530               \@whilenum \count1<\@advisor \do{%
531                 \ifcase\count1 % same as \ifnum0=\count1
532                   \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
533                     \expandafter\endcsname\expandafter\space%
534                     \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
535                 \else
536                   \toks@=\expandafter\expandafter\expandafter{%
537                     \expandafter\the\expandafter\toks@
538                     \expandafter&\expandafter\space
539                     \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
540                     \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\

```



```

541     }%
542     \fi
543     \advance\count1 by 1}
544     \the\toks@
545     \end{tabularx}}\par
546     \nohyphens{\local@doctype\ ({\MakeLowercase\@degreename}) --
547     UFRJ/COPPE/Programa de \local@deptname, \number\year.}\par
548     Refer{\^ e}ncias Bibliogr{\' a}ficas: p. \pageref{bib:begin} -- \pageref{bib:end}.\par
549     \count1=0
550     \count2=1
551     \nohyphens{\@whilenum \count1<\value{keywords} \do {%
552     \number\count2. \csname CoppeKeyword:\the\count1 \endcsname.
553     \advance\count1 by 1
554     \advance\count2 by 1}
555     I. \csname CoppeAdvisorSurname:0\endcsname,%
556     \ \csname CoppeAdvisorName:0\endcsname%
557     \ifthenelse{\@advisor>1}{\ \emph{et~al.}}{}}.
558     II. \local@universityname, COPPE, Programa de \local@deptname.
559     III. T{\' i}tulo.}
560     \end{minipage}}
561     \end{center}
562     \vspace*{\fill}}

```

\dedication

```

563 \newcommand\dedication[1]{
564     \gdef\@dedic{#1}
565     \cleardoublepage
566     \vspace*{\fill}
567     \begin{flushright}
568     \begin{minipage}{60mm}
569     \raggedleft \it \normalsize \@dedic
570     \end{minipage}
571     \end{flushright}}

```

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

```

572 \newenvironment{abstract}{%
573     \clearpage
574     \thispagestyle{plain}
575     \abstract@top\text\par
576     \vspace*{8.6mm}
577     \begin{center}
578     \sloppy\nohyphens{\MakeUppercase\local@title}\par
579     \vspace*{13.2mm}
580     \@authname\ \@authsurn \par
581     \vspace*{7mm}
582     \local@monthname/\number\year
583     \end{center}\par
584     \vspace*{\fill}
585     \noindent%
586     \begin{tabularx}{\textwidth}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
587     \local@advisorstring: &
588     \count1=0
589     \toks@={}
590     \@whilenum \count1<\@advisor \do{%

```

```

591 \ifcase\count1 % same as \ifnum0=\count1
592 \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
593 \expandafter\endcsname\expandafter\space%
594 \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
595 \else
596 \toks@=\expandafter\expandafter\expandafter{%
597 \expandafter\the\expandafter\toks@
598 \expandafter&\expandafter\space
599 \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
600 \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
601 }%
602 \fi
603 \advance\count1 by 1}
604 \the\toks@
605 \end{tabularx}\par
606 \vspace*{2mm}
607 \noindent\local@deptstring: \local@deptname\par
608 \vspace*{7mm}}{\vspace*{\fill}}

```

#### foreignabstract

```

609 \newenvironment{foreignabstract}{%
610 \clearpage
611 \thispagestyle{plain}
612 \begin{otherlanguage}{english}
613 \foreignabstract@toptext\par
614 \vspace*{8.6mm}
615 \begin{center}
616 \sloppy\nohyphens{\MakeUppercase\foreign@title}\par
617 \vspace*{13.2mm}
618 \@authname \ \@authsurn \par
619 \vspace*{7mm}
620 \foreign@monthname/\number\year
621 \end{center}\par
622 \vspace*{\fill}
623 \noindent%
624 \begin{tabularx}{\textwidth}[b]{@{}l@{ }>{\raggedright\arraybackslash}X@{}}
625 \foreign@advisorstring: &
626 \count1=0
627 \toks@={}
628 \@whilenum \count1<\@advisor \do{%
629 \ifcase\count1 % same as \ifnum0=\count1
630 \toks@=\expandafter{\csname CoppeAdvisorName:\the\count1%
631 \expandafter\endcsname\expandafter\space%
632 \csname CoppeAdvisorSurname:\the\count1\endcsname\\}
633 \else
634 \toks@=\expandafter\expandafter\expandafter{%
635 \expandafter\the\expandafter\toks@
636 \expandafter&\expandafter\space
637 \csname CoppeAdvisorName:\the\count1\expandafter\endcsname%
638 \expandafter\space\csname CoppeAdvisorSurname:\the\count1\endcsname\\
639 }%
640 \fi
641 \advance\count1 by 1}
642 \the\toks@

```

```

643 \end{tabularx}\par
644 \vspace*{2mm}
645 \noindent\foreign@deptstring: \foreign@deptname\par
646 \vspace*{7mm}}{%
647 \end{otherlanguage}
648 \vspace*{\fill}
649 \global\let\@author\@empty
650 \global\let\@date\@empty
651 \global\let\foreign@title\@empty
652 \global\let\foreign@title\relax
653 \global\let\local@title\@empty
654 \global\let\local@title\relax
655 \global\let\author\relax
656 \global\let\author\relax
657 \global\let\date\relax}

\listoffigures
658 \renewcommand\listoffigures{%
659 \coppe@hasLof
660 \if@twocolumn
661 \@restonecoltrue\onecolumn
662 \else
663 \@restonecolfalse
664 \fi
665 \chapter*{\listfigurename}%
666 \addcontentsline{toc}{chapter}{\listfigurename}%
667 \mkboth{\MakeUppercase\listfigurename}%
668 {\MakeUppercase\listfigurename}%
669 \@starttoc{lof}%
670 \if@restonecol\twocolumn\fi
671 }

\listoftables
672 \renewcommand\listoftables{%
673 \if@twocolumn
674 \@restonecoltrue\onecolumn
675 \else
676 \@restonecolfalse
677 \fi
678 \chapter*{\listtablename}%
679 \addcontentsline{toc}{chapter}{\listtablename}%
680 \mkboth{%
681 \MakeUppercase\listtablename}%
682 {\MakeUppercase\listtablename}%
683 \@starttoc{lot}%
684 \if@restonecol\twocolumn\fi
685 }

\printlosymbols
686 \newcommand\printlosymbols{%
687 \renewcommand\glossaryname{\listsymbolname}%
688 \@input@{\jobname.los}}

\makelosymbols

```

```

689 \def\makelosymbols{%
690   \newwrite\@losfile
691   \immediate\openout\@losfile=\jobname.syx
692   \newcommand\syml[3][\@bsphack\beginngroup
693   \ifstrepty{#1}{\def\@tempsymb1{##2=}}{\def\@tempsymb1{##1=}}%
694       \@sanitize%
695       \wrls{\@tempsymb1}{##2}{##3}\typeout%
696   {Writing index of symbols file \jobname.syx}%
697   \let\makelosymbols\@empty%
698 }%
699 \@onlypreamble\makelosymbols

700 \AtBeginDocument{%
701 \@ifpackageloaded{hyperref}{%
702   \newcommand\@wrls[3]{%
703     \protected@write\@losfile{%
704       {\string\indexentry{#1[#2] #3|hyperpage}{\thepage}}%
705     \endgroup%
706     \@esphack}}{%
707   \newcommand\@wrls[3]{%
708     \protected@write\@losfile{%
709       {\string\indexentry{#1[#2] #3}{\thepage}}%
710     \endgroup%
711     \@esphack}}}%

\printloabbreviations

712 \newcommand\printloabbreviations{%
713 \renewcommand\glossaryname{\listabbreviationname}%
714 \@input@{\jobname.lab}}

\makeloabbreviations

715 \def\makeloabbreviations{%
716   \newwrite\@labfile
717   \immediate\openout\@labfile=\jobname.abx
718   \def\abbrev{\@bsphack\beginngroup
719       \@sanitize
720       \wrlab\typeout
721   {Writing index of abbreviations file \jobname.abx}%
722   \let\makeloabbreviations\@empty
723 }
724 \@onlypreamble\makeloabbreviations

725 \AtBeginDocument{%
726 \@ifpackageloaded{hyperref}{%
727   \def\@wrlab#1#2{%
728     \protected@write\@labfile{%
729       {\string\indexentry{[#1] #2|hyperpage}{\thepage}}%
730     \endgroup
731     \@esphack}}{%
732   \def\@wrlab#1#2{%
733     \protected@write\@labfile{%
734       {\string\indexentry{[#1] #2}{\arabic{page}}}%
735     \endgroup
736     \@esphack}}

```

```

737 % Some macros used to generate cataloging information.
738 \AtBeginDocument{%
739   \ltx@ifpackageloaded{hyperref}{
740     \def\coppe@bibEnd{%
741       \immediate\write\@auxout{%
742         \string\newlabel{bib:end}{\arabic{page}}{page.\arabic{page}}}}}%
743     \def\coppe@bibBegin{%
744       \immediate\write\@auxout{%
745         \string\newlabel{bib:begin}{\arabic{page}}{page.\arabic{page}}}}}%
746     \def\coppe@mainBegin{%
747       \immediate\write\@auxout{%
748         \string\newlabel{front:pageno}{\Roman{page}}{page.\roman{page}}}}}%
749     \def\coppe@hasLof{%
750       \immediate\write\@auxout{%
751         \string\newlabel{cat:lofflag}{\il. ;}{page.\roman{page}}}}}%
752   }{%
753     \def\coppe@bibEnd{%
754       \immediate\write\@auxout{%
755         \string\newlabel{bib:end}{\arabic{page}}}}}%
756     \def\coppe@bibBegin{%
757       \immediate\write\@auxout{%
758         \string\newlabel{bib:begin}{\arabic{page}}}}}%
759     \def\coppe@mainBegin{%
760       \immediate\write\@auxout{%
761         \string\newlabel{front:pageno}{\Roman{page}}}}}%
762     \def\coppe@hasLof{%
763       \immediate\write\@auxout{%
764         \string\newlabel{cat:lofflag}{\il. ;}}}%
765   }%
766 }
767 \newdimen\bibindent%
768 \setlength\bibindent{1.5em}%
769 \renewenvironment{thebibliography}[1]%
770   {\onehalfspacing%
771     \chapter*{\bibname}%
772     \addcontentsline{toc}{chapter}{\bibname}%
773     \coppe@bibBegin
774     \list{\@biblabel{\@arabic{c@enumiv}}}%
775       {\setlength{\labelwidth}{0ex}%
776         \setlength{\leftmargin}{9.0ex}%
777         \setlength{\itemindent}{-9.0ex}%
778         \advance\leftmargin\labelsep%
779         \@openbib@code%
780         \usecounter{enumiv}%
781         \let\p@enumiv\empty%
782         \renewcommand\theenumiv{\@arabic{c@enumiv}}}%
783     \sloppy%
784     \clubpenalty4000%
785     \@clubpenalty \clubpenalty%
786     \widowpenalty4000%
787     \sfcode'\.\@m}%
788   {\def\@noitemerr%
789     {\@latex@warning{Empty 'thebibliography' environment}}%
790     \coppe@bibEnd

```

```

791         \endlist}

longquote
792 \newlength{\recuolongquote}%
793 \setlength{\recuolongquote}{4cm}%
794 \newenvironment*{longquote}[1][default]{%
795 \list{}%
796 \footnotesize%
797 \addtolength{\leftskip}{\recuolongquote}%
798 \item[]%
799 \singlespacing%
800 \ifthenelse{\not\equal{#1}{default}}{\itshape\selectlanguage{#1}}{}%
801 }\endlist}%

802 \newenvironment{theglossary}{%
803   \if@twocolumn%
804     \@restonecoltrue\onecolumn%
805   \else%
806     \@restonecolfalse%
807   \fi%
808   \@mkboth{\MakeUppercase\glossaryname}%
809   {\MakeUppercase\glossaryname}%
810   \chapter*{\glossaryname}%
811   \addcontentsline{toc}{chapter}{\glossaryname}
812   \list{}
813   {\setlength{\listparindent}{0in}%
814    \setlength{\labelwidth}{1.0in}%
815    \setlength{\leftmargin}{1.5in}%
816    \setlength{\labelsep}{0.5in}%
817    \setlength{\itemindent}{0in}}%
818   \sloppy}%
819   {\if@restonecol\twocolumn\fi%
820 \endlist}
821 %
822 \renewenvironment{theindex}{%
823   \if@twocolumn
824     \@restonecolfalse
825   \else
826     \@restonecoltrue
827   \fi
828   \twocolumn[\@makeschapterhead{\indexname}]%
829   \@mkboth{\MakeUppercase\indexname}%
830   {\MakeUppercase\indexname}%
831   \thispagestyle{plain}\parindent\z@
832   \addcontentsline{toc}{chapter}{\indexname}
833   \parskip\z@ \@plus .3\p@\relax
834   \columnseprule \z@
835   \columnsep 35\p@
836   \let\item\@idxitem}
837   {\if@restonecol\onecolumn\else\clearpage\fi}
838 \if@english
839   \newcommand\listabbreviationname{List of Abbreviations}
840   \newcommand\listsymbolname{List of Symbols}
841   \newcommand\glossaryname{Glossary}

```

```

842 \else
843 \newcommand\listabbreviationname{Lista de Abreviaturas}
844 \newcommand\listsymbolname{Lista de S{\` i}mbolos}
845 \newcommand\glossaryname{Gloss{\` a}rio}
846 \fi
847 %
848 \newcommand\local@advisorstring{Orientador}
849 \newcommand\foreign@advisorstring{Advisor}
850 \ifthenelse{\boolean{maledoc}}{%
851 \newcommand\local@approvedname{Examinado por}%
852 }{%
853 \newcommand\local@approvedname{Examinada por}%
854 }
855 \newcommand\local@universityname{Universidade Federal do Rio de Janeiro}
856 \newcommand\local@deptstring{Programa}
857 \newcommand\foreign@deptstring{Department}
858 \newcommand\local@cityname{Rio de Janeiro}
859 \newcommand\local@statename{RJ}
860 \newcommand\local@countryname{Brasil}
861 %
862 \newcommand\frontcover@maintext{
863 \sloppy\nohyphens{\local@doctype\ de \@degreename\
864 \ifthenelse{\boolean{maledoc}}{apresentado}{apresentada}
865 ao Programa de P{\` o}s-gradua{\c c}{\~ a}o em \local@deptname,
866 COPPE, da \local@universityname, como parte dos requisitos
867 necess{\` a}rios {\` a} obten{\c c}{\~ a}o do t{\` i}tulo de
868 \local@degname\ em \local@deptname.}
869 }
870 %
871 \newcommand\frontpage@maintext{
872 \noindent {\MakeUppercase\local@doctype}
873 \ifthenelse{\boolean{maledoc}}{SUBMETIDO}{SUBMETIDA}
874 \sloppy\nohyphens{AO CORPO DOCENTE DO INSTITUTO ALBERTO LUIZ COIMBRA
875 DE P{\` O}S-GRADUA{\c C}{\~ A}O E PESQUISA DE ENGENHARIA DA
876 UNIVERSIDADE FEDERAL DO RIO DE JANEIRO COMO PARTE DOS REQUISITOS
877 NECESS{\` A}RIOS PARA A OBTEN{\c C}{\~ A}O DO GRAU DE
878 {\MakeUppercase\local@degname} EM CI{\` E}NCIAS EM
879 {\MakeUppercase\local@deptname.\par}}%
880 }
881 %
882 \newcommand\frontpage@bottomtext{%
883 \begin{center}
884 {\MakeUppercase{\local@cityname, \local@statename\ -- \local@countryname}}\par
885 {\MakeUppercase\local@monthname\ DE \number\year}
886 \end{center}%
887 }
888 %
889 \newcommand\abstract@toptext{%
890 \noindent Resumo \ifthenelse{\boolean{maledoc}}{do}{da}
891 \local@doctype\ \ifthenelse{\boolean{maledoc}}{apresentado}{apresentada}
892 \sloppy\nohyphens{{\` a} COPPE/UFRJ como parte dos requisitos
893 necess{\` a}rios para a obten{\c c}{\~ a}o do grau de
894 \local@degname\ em Ci{\` e}ncias (\@degree)}
895 }

```

```

896 \newcommand\foreignabstract@toptext{%
897   \noindent \sloppy\nohyphens{Abstract of \foreign@doctype\ presented to
898   COPPE/UFRJ as a partial fulfillment of the requirements for the
899   degree of \foreign@degname\ of Science (\@degree)}
900 }
901 %
902 </class>
903 <*glossary>
904 actual '='
905 quote '!'
906 level '>'
907 delim_0 " , p. "
908 lethead_flag 0
909 headings_flag 0
910 preamble
911 "\n\\begin{theglossary}\n \\makeatletter"
912 postamble
913 "\n \\end{theglossary}\n"
914 </glossary>

```

## Acknowledgments

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