The ufrgscca, and associated, Packages Version 2.4 (extended documentation)

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Abstract

This bundled is aimed at producing undergraduate students final work/report at UFRGS/EE (Engineering School at the Federal University of Rio Grande do Sul), closely following ABNT rules (Brazilian Association for Technical Norms). It is composed of a main class, ufrgscca, and a set of auxiliary packages, some of which can be used independently.

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^{*}https://github.com/alceu-frigeri/ufrgscca

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1 Introduction

ABNT rules can be quite challenging at times (read: bibliography style/references) and sometimes just odd (line spacing, front matter, page layout), nevertheless it is a *Brazilian Standard* for typography whose students at UFRGS should grow cherished to follow.

In short, as of version 2.4 the bundle is composed of a class, ufrgscca (based on report class), which pre-loads, as needed: ufrgscca-abnt, ufrgscca-core, ufrgscca-cover and ufrgscca-lists. The packages ufrgscca-forms, ufrgscca-corr, ufrgscca-coord and ufrgscca-ppc need to be loaded explicitly, thought.

N.B.: This bundle requires a quite recent LATEX2e kernel, at least as recent as June 2022, which allows to declare package options using the *key =value* system and declare commands with NewDocumentCommand, out-of-the-box.

Version 2.0: Starting with Version 2.0, this bundle has been fully re-written with *Exp13* and *starray*.

Version 1.12a: In case you need the old version, for some odd expl3 compatibility issue, you can find it at https://github.com/alceu-frigeri/ufrgscca/releases/tag/v1.12a

1.1 Current Version

For the sake of the "maintainer's sanity", since this is a bundle, all files are saved with the same version (bundle version: 2.4)

2 UFRGSCCA CLASS

The following packages are always pre-loaded: etex, etoolbox, lmodern, fontenc (T1), inputenc (utf8), silence and ufrgscca-abnt, ufrgscca-cover, ufrgscca-core and hyperref and (if it exists) a local.tex file.

Other, auxiliary, packages are also pre-loaded, depending on the class options used, and finally *report* class (the exception being in case of the article class option).

Being based on the report class, all report class options are valid, in addition to the ones below.

2.1 Class Options

- use: tocdepth=number, whereas (number) indicates the deepest sectioning to appears in the Table of Contents (0 being the top section, which is \chapter for report based classes, 1 being \section, and so on.) The default is 3 (\subsubsection).
- secdepth use: secdepth=number, whereas (number) indicates the deepest sectioning to be numbered. (0 being the top section, which is \chapter for report based classes, 1 being \section, and so on.) The default is 4 (\paragraph).
- english the default language being Portuguese, this option changes locale to English.
- brazilian in some rare cases (to be further investigated) babel seems to get confused about which language is active, this "shouldn't be necessary" but one can explicitly tell babel to use THIS language (which should, otherwise, be the default one).
 - relnum by default, figures, tables, etc. are numbered as a continuous series. With this switch, those lists are reset at each chapter, e.g. Figure 5.1 instead of Figure 23.
- openright in case of printed material, this assures that a \chapter always starts at an odd page, which is relevant in case of printing out (double sided) the document.
 - oneside in case the document will be printed in single side sheets, otherwise it's assumed a two-sided printing.
- to assure asymmetric margins, as defined by ABNT: inner ones greater than outer ones, which matters if you are going to print the doc and make a book of it, but makes it odd to look at in a computer screen, reason by which the current default setting is for symmetric margins (same text width).
- pretextontoc "pre-text" elements, like "list of..." will be inserted in the "table of contents".
 - yearsonly Approval page, at it's bottom, will display the years only (instead of the default mouth year construct).
 - will set the default font to Roman (using the obsolete mathptmx package, based on a free replacement of the proprietary Times New Roman (by Microsoft) and Times Roman (By Adobe)) instead of the default Latin Modern Roman font. As a side effect, the package microtype isn't loaded (can't be used), resulting in a sub-optimal overall layout. NB. The alternative (newer and maintained) packages newtxtext/newtxmath can't be used due to some packages incompatibilities.
- repeatfields in case of authors with multiple publications, their names will be repeated for each entry. In the default setting the author's name is written only in the first entry, and replaced by underscores in the other entries.
 - xlists this will load the ufrgscca-lists package, for the definition of new floats/lists.

this will load a series of packages, which can be handy when writing Engineering reports: relsize, keyval, graphicx, mathtools, mathrsfs, amsfonts, amssymb, empheq, amsthm, extarrows, mathfixs, bigdelim, circuitikz and steimenz and tikz libraries: fit, math, calc, shapes.geometry, shapes.misc, shapes.multipart, graphs, 3d, positioning, shadows and babel. One is advised to look after each package documentation (ctan.org) for further information.

chapternopagenum to suppress the page numbers at chapters begin.

nomicrotype in some rare cases, microtype might hurt page layout, this allows the suppression of microtype.

showframes for layout proof only, it will draw frames around each page main parts.

showlabels it will put a reference mark in each label created, and print out it's name.

nofontwarning in case of ufrgscca-ppc is loaded, it will suppress some font related warnings.

nolocal this will suppress the loading of any local tex file, which would, otherwise, be loaded.

article this will load the class article instead of report, it's meant to document the class itself.

nogeometry the package geometry won't be loaded. In case one wants to fully customize the page geometry

oldrenews Some, deprecated, renews will be in effect: \maketitle, \author \begin{abstract}. For backwards compatibility only.

texlive this is a reserved key, in case some workaround for texlive is needed.

overleaf this is a reserved key, in case some workaround for overleaf is needed.

miktex this is a reserved key, in case some workaround for miktex is needed.

2.2 Class Declared Commands

\autonameref \annexref \autoannexref

```
\label{label} $$\operatorname{autonameref} [\langle \operatorname{sep} \rangle] {\langle \operatorname{label} \rangle} [\langle \operatorname{spc} \rangle] $$ \\ \operatorname{annexref} {\langle \operatorname{label} \rangle} $$
```

 $\underbrace{\texttt{ef}} \quad \texttt{(sep)] \{(label)\} [(spc)]}$

The hyperref package, sometimes, gets the \autoref name wrong (when referencing an annex), the \annexref $\{\langle label \rangle\}$ will assure the correct annex name is used.

\autonameref { $\langle label \rangle \}$ produces an entry of the form '\autoref { $\langle label \rangle \}$ \sep\ \nameref { $\langle label \rangle \}$ \sepc\'

\autoannexref ${\langle label \rangle}$ produces an entry of the form '\annexref ${\langle label \rangle}$ \sep\ \nameref ${\langle label \rangle}$ \sep\'

The default $\langle sep \rangle$ being a comma, and the default $\langle spc \rangle$ being empty space.

2.3 Class Known Hooks

\miktexHack \overleafHack \livetexHack

\miktexHack
\overleafHack
\livetexHack

Case some workaround is needed due an unexpected error (when upgrading packages/TEXsystem) the class "knows" about those three hooks. They will be executed if, and only if, they are user defined and the corresponding package option is used, i.e., for example, for the hook \miktexHack to be used/called by the class ufrgscca, one has to: a) define it and b) use the class option miktex.

3 UFRGSCCA-ABNT PACKAGE

This package is the one that sets the page layout (using geometry, titlesec and titletoc) and adjusts the main float environments (figure, tables, captions). It can be used as a stand alone package, regardless of the underlying class.

The following packages are always pre-loaded: babel, csquotes, geometry, appendix, titlesec, titletoc, enumitem, chngctr, caption, biblatex, microtype, array, nicematrix, contour and soul.

Take note that biblatex is loaded with the biber option, to correctly handle ABNT biography style.

3.1 Package Options

strict-abnt

to assure asymmetric margins, as defined by ABNT: inner ones greater than outer ones, which matters if you are going to print the doc and make a book of it, but makes it odd to look at in a computer screen, reason by which the current default setting is for symmetric margins (same text width).

chapternopagenum

to suppress the page numbers at chapters begin.

relnur

by default, figures, tables, etc. are numbered as a continuous series. With this switch, those lists are reset at each chapter, e.g. Figure 5.1 instead of Figure 23.

repeatfields

in case of authors with multiple publications, their names will be repeated for each entry. In the default setting the author's name is written only in the first entry, and replaced by underscores in the other entries.

yearsonly

In some cover pages (like the ones for TCC) the bottom of the approval's page, will only displays the year (instead of the default mouth year construction).

nomicrotype in some rare cases, microtype might hurt page layout, this allows the suppression of microtype.

showframes for layout proof only, it will draw frames around each page main parts.

showlabels it will put a reference mark in each label created, and print out it's name.

tocdepth use: $tocdepth = \langle number \rangle$, whereas $\langle number \rangle$ indicates the deepest sectioning to appears in the Table of Contents (0 being the top section, which is \chapter for report based classes, 1 being \section, and so on.) The default value being 3 (\subsubsection).

secdepth use: $secdepth = \langle number \rangle$, whereas $\langle number \rangle$ indicates the deepest sectioning to be numbered. (0 being the top section, which is \chapter for report based classes, 1 being \section, and so on.) The default value being 4 (\paragraph).

3.2 Commands

\mainkeyword \otherkeyword \mainkeyword $\{\langle \text{keyword} \rangle\}$ \otherkeyword $\{\langle \text{keyword} \rangle\}$

new: 2023/11/18

These command can be invoked many times, it will construct a list of keywords to be used when printing out the (main/other)abstract environment.

Note: the old \keyword {\keyword\} gets defined, as an allias to \mainkeyword, in case one use the *oldrenews* class option is used.

\sourcecitation \note

```
\sourcecitation \{\langle source \rangle\}
\note \{\langle text \rangle\}
```

When describing floating elements (like figure, tables, circuits) one always has to cite the source of it, and in some cases it might be necessary to add a special note. Those assure uniformity when doing that.

 $\begin{tabular}{ll} $$ \nonum \rightarrow {\colorer{\ch}\colorer{\colorer{\colorer{\colorer{\colorer{\colorer{\colorer{$

In some cases, it might be necessary to create a numberless chapters or sections. Those two commands can be used as a *prefix* to any sectioning command. Whilst \nonum will just suppress the sectioning number, the \notoc will also suppress it from the table of contents.

LATEX Code:

```
\nonum\chapter{some title} %this one will appear in the toc
\notoc\section{some other title} %this won't even appear in the toc
```

\tightul

```
\tightul \{\langle text \rangle\}
```

This will underline a short text, take note that $\langle \text{text} \rangle$ 'can't be broken' (think paragraph justification), which can lead to text overflows and bad justification.

LATEX Code: LATEX Result:

Some text example

\NewChapListEnv

 $\label{listEnv} $$\operatorname{ChapListEnv} {\langle \operatorname{envname} \rangle} {\langle \operatorname{displayname} \rangle}$$

Creates those *chapter like* lists, like 'List of Symbols' or 'List of acronyms'. With it, a new environment is created, <code>(envname)</code>, with an associated 'numberless' chapter name <code>(displayname)</code>. The newly created environment will implement a *description* like environment (thanks to <code>enumitem)</code> with an optional and a mandatory argument (see below).

LATEX Code:

```
\def\listabbrvname{Lista de Abreviaturas}
\NewChapListEnv{listofabbrv}{\listabbrvname} % this is the actual code
   used in ufrgscca-abnt.sty
```

\pubdate \today \monthname $\label{eq:local_public_public_public} $$ \left(\frac{day}{day}\right) \left(\frac{day}{day}\right) $$ \mbox{ (wonth)} $$ (\mbox{ year}) $$ \mbox{ monthname} $$$

update: 2023/11/30

\pubdate sets the publication date. If not called by the user it defaults to current month / year. \today returns the current locale date, whilst \monthname returns the locale name of the current month.

N.B.: If the package option oldrenews is used, the command \date will be redefined as an allias to \pubdate.

3.3 Environments

mainabstract

new: 2023/11/18

mainabstract is defined as a numberless chapter based on the current locale (default: Portuguese), at the end of it the keywords list created with \mainkeyword will be added.

LATEX Code:

```
\mainkeyword{a keyword}
\mainkeyword{another keyword}
\begin{mainabstract} some short summary of things\ldots
\end{mainabstract}
```

otherabstract

```
\begin{otherabstract} [\langle lang \rangle] \{\langle ... \rangle\} \setminus \{otherabstract\}
```

update: 2023/11/18

This is the environment to create an abstract in a language other than the default one. The default value for $\langle lang \rangle$ is english, and it can be any value that babel understands. A keywords list created with $\langle otherkeyword \rangle$ will be added at the end of it.

LATEX Code:

```
\otherkeyword{a keyword}
\otherkeyword{another keyword}
\begin{otherabstract}[english] some short summary of things\ldots
\end{otherabstract}
```

listofabbrv listofsymbols

```
\label{listofabbrv} $$ [\langle enum-opt \rangle] {\langle ABBRV \rangle}...\end{listofabbrv} $$ \left[ \langle enum-opt \rangle] {\langle SYMB \rangle}...\end{listofsymbols} $$
```

Both environments create a description like list preceded by a numberless (\nonum) chapter. \(\langle \text{enum-opt} \rangle \) is any \(enumitem \) list valid key. Whereas \(\langle \text{ABBRV} \rangle \rangle \rangle \(\lambda \text{SYMB} \rangle \) are just the 'biggest' abbreviation/symbol to be used as a tab reference.

```
appendix \begin{appendix}.... \end{appendix}
annex \begin{annex}.... \end{annex}
```

Those two environments start the appendices and annex chapters (using locale). Chapters are alphabetic *numbered* (starting at A).

3.4 Tabular New Columns

Thanks to array some new columns types are defined:

- P $P\{\langle width \rangle\}$ Normal text, ragged left.
- B $B{\langle width \rangle}$ Bold text, ragged left.
- C $C\{\langle width \rangle\}$ Normal text, centered.
- $R = R\{\langle width \rangle\}$ Normal text, ragged left.
- L $L\{\langle width \rangle\}$ Normal text, ragged right.
- J $J{\langle width \rangle}$ Normal text, justified.

3.5 enumitem Extra Keys

Besides the *default* keys defined by the *enumitem* package a few others are defined for author's convenience:

ppc, tcc ppc and tcc are alias of each other, and just assure that lists indentation will be the same as paragraphs default.

parindent

with parindent, the list number/mark is aligned with paragraph indentation. noindent noindent removes the label indentation.

LATEX Code:

$\LaTeX \ \operatorname{Result:}$

\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
\begin{enumerate}[tcc]	1. some A
\item some A	1. Some 11
\item some B	0 D
\end{enumerate}	2. some B
\begin{enumerate}[tcc,parindent]	
\item some A	1. some A
\item some B	
\end{enumerate}	2. some B
\begin{enumerate}[parindent]	
\item some A	1. some A
\item some B	
\end{enumerate}	2. some B
\begin{enumerate}[noindent]	
\item some A	
\item some B	1. some A
\end{enumerate}	
(2. some B
New paragraph, for reference.	
paraorapii, 101 1010101000.	New paragraph, for reference.
	Tiew paragraph, for reference.

tight allows for very tight lists (no indentation) to be used, for instance, inside quotes. N.B. don't use it in normal paragraph mode, otherwise the labels will spill

miditemsep

outside the default text window.

miditemsep halves items separation, as an alternative to noitemsep from enumitem

LATEX Code:

LATEX Result:

```
\begin{enumerate}[tcc]
 \item some A
                                        1. some A
  \item some B
\end{enumerate}
                                        2. some B
\begin{enumerate}[tcc,miditemsep]
  \item some A
                                        1. some A
  \item some B
                                        2. some B
\end{enumerate}
\begin{enumerate}[tcc,noitemsep]
  \item some A
                                        1. some A
  \item some B
                                        2. some B
\end{enumerate}
```

bullet for simple itemized lists, it will replace the default black dot by an 'open bullet'

LATEX Code:

LaTeX Result:

```
\begin{itemize}[tcc,miditemsep]
 \item some A
                                          some A
 \item some B
                                          some B
 \item some C
\end{itemize}
                                           some C
\begin{itemize}[tcc,bullet,
   miditemsep]
                                           some A
  \item some A
                                           some B
 \item some B
 \item some C
                                          some C
\end{itemize}
```

arabic That's the default enumerate style. Arabic numbers, starting at 1, followed by

arabic) a dot. Label will be constructed as number followed by a parenthesis.

(arabic) Label will be enclosed by parenthesis.

arabic* (for secondary lists) Label will be constructed by the label of the outer list, this item number and a final dot.

arabic*) (for secondary lists) Label will be constructed by the label of the outer list, this item number and a final parenthesis.

roman This and below keys are the same as the arabic ones, but using lower case roman numbers.

roman) lower case roman number, followed by a parenthesis.

(roman) enclosed by parenthesis.

roman* preceding one followed by roman number and a final dot.

roman*) same, followed by a final parenthesis.

Roman This and below keys are the same as the arabic ones, but using upper case roman numbers.

Roman) upper case roman number, followed by a parenthesis.

(Roman) enclosed by parenthesis.

Roman* preceding one followed by roman number and a final dot.

Roman*) same, followed by a final parenthesis.

alpha This and below keys are the same as the arabic ones, but using lower case alpha numbers.

```
alpha) lower case alpha number, followed by a parenthesis.
(alpha)
        enclosed by parenthesis.
```

alpha* preceding one followed by alpha number and a final dot.

alpha*) same, followed by a final parenthesis.

Alpha This and below keys are the same as the arabic ones, but using upper case alpha numbers.

Alpha) upper case roman number, followed by a parenthesis.

(Alpha) enclosed by parenthesis.

Alpha* preceding one followed by roman number and a final dot.

Alpha*) same, followed by a final parenthesis.

LATEX Code:

LATEX Result:

```
i. some A
\begin{enumerate}[tcc,roman]
                                        ii. some B
  \item some A
  \item some B
                                       iii. some C
  \item some C
\end{enumerate}
                                        I. some A
\begin{enumerate}[tcc,Roman]
  \item some A
  \item some B
                                       II. some B
  \begin{enumerate}[tcc,alpha*]
    \item some A
                                            II.a. some A
    \item some B
                                            II.b. some B
    \item some C
  \end{enumerate}
                                            II.c. some C
  \item some C
\end{enumerate}
                                       III. some C
\begin{enumerate}[tcc,arabic]
  \item some A
                                        1. some A
  \item some B
  \begin{enumerate}[tcc,roman*)]
                                        2. some B
    \item some A
    \item some B
                                             2.i) some A
    \item some C
  \end{enumerate}
                                             2.ii) some B
  \item some C
```

4 UFRGSCCA-CORE PACKAGE

\end{enumerate}

The ufrgscca-core package defines a set of commands for student's and activity's related info. It is needed by most/all of the bundled packages.

2.iii) some C

3. some C

All data is stored in two main starray defined as follow:

Activity's Structure Definition:

```
{
  name , acronym ,
  coord . struct
  {
    name , title ,
    article , Article , narticle , Narticle , carticle , Carticle ,
  } ,
  calendar . struct
  {
    date , week , event ,
  } ,
    chkmarked , chkunmarked , chkref
}
```

Student's Structure Definition:

```
first , last , name , Nproc , ID , email , worktitle ,
       \mbox{\it article} , \mbox{\it Article} , \mbox{\it narticle} , \mbox{\it Narticle} , \mbox{\it carticle} , \mbox{\it Carticle} ,
remarks , checklist , brief , reason ,
board-local , board-date , board-time , gradeavrg , grade ,
flag-graded , %%% IF gradeavrg AND finalgrade already calculated (or defined)
flag-exam ,
flag-ff ,
{\tt flag\text{-}dismiss} , %%% IF it was the 1st semester.
 flag-newpage , %% if it should go in a new page (board)
flag-distinctboard , %% if advisor isn't in the board
flag-approved,
flag-coadvisor,
 advisor . struct {
  first , last , name , institution , title , email , phone ,
       article , Article , narticle , Narticle , carticle , Carticle ,
  assessment
},
coadvisor . struct {
  first , last , name , institution , title , email , phone ,
       article , Article , narticle , Narticle , carticle , Carticle ,
  reason
} ,
reviewer . struct {
  first , last , name , institution , title , email , phone
       article , Article , narticle , Narticle , carticle , Carticle ,
  pointA , pointB , pointC , pointD , grade , gradetype , flag-examreview ,
} ,
  first , last , name , institution , title , email , phone ,
       article , Article , narticle , Narticle , carticle , Carticle ,
internship . struct {
  company , field , start , end , length ,
tutor . struct {
  first , last , name , title , email , phone ,
      article , Article , narticle , Narticle , carticle , Carticle ,
 supervisor . struct {
  first , last , name , register , title , office , email , phone
       article, Article, narticle, Narticle, carticle, Carticle,
}
```

4.1 Core Commands

\NewActivity

\NewActivity {\act-hash\}

new: 2023/11/18

This will create a new 'activity'. Predefined ones being: course, tccI, tccII, internship and internship-opt.

\ActivitySet \ActivitySetCoordTitle \ActivitySetCoord

 $\Lambda \subset \{ (act-hash) \} \{ (acronym) \} \{ (name) \}$ \ActivitySetCoordTitle [\langle act-hash\rangle] {\langle title \rangle} $\Lambda ctivitySetCoord [\langle act-hash \rangle] {\langle name \rangle} [\langle gender \rangle]$

new: 2023/11/18

These will set an Activity many fields. (acronym) and (name) being the short (acronym) and long name of an activity. (title) is the coordinator formal title, and so on.

\ActivitySelect

 $\Lambda \subset \{(act-hash)\}$ \Activity [\langle act-hash\rangle] {\langle act-field\rangle}

\Activity \ActivityCoord

\ActivityCoord [\langle act-hash\rangle] {\langle coord-field\rangle}

new: 2023/11/18

\ActivitySelect just sets (act-hash) as the current activity (set's the starray iter). \Activity and \ActivityCoord gets the corresponding field. Possible values for (act-field) are: name and acronym. Possible values for (coord-field) are: name, title, article, Article, narticle, Narticle, carticle and Carticle, as defined by Activity's structure (see 4).

4.2 Core Auxiliary Commands

\studentselect

\studentselect {\student-hash\}

new: 2023/11/18

Select a student based on it's hash.

\DataFields \eDataSet

 $\Delta Fields {\langle starray-ref \rangle} {\langle field \rangle}$ \eDataSet [\langle act-hash\rangle] {\langle starray-ref\rangle}

\eDataFields

\eDataFields {\\field\\}

new: 2023/11/18

These are, respectively, \starray_get_prop:nn, \starray_term_syntax:n and \starray_parsed_get_prop:n from starray. One can reference/get any field from the main starray defined structures: student and activity as defined at chapter 4.

\studentiterate \studentadvisoriterate \studentiterate {\langle code \rangle} \studentadvisoriterate $\{\langle code \rangle\}$

new: 2023/11/18 update: 2023/12/02

> These are \starray_iterate_over:nn from starray. (code) will be executed for every defined student, \studentiterate or student's advisor, \studentadvisoriterate.

\ActivityCalendarIterate \ActivityCalendarIterate {\langle code \rangle}

new: 2023/11/29

This is \starray_iterate_over:nn from starray. <code \) will be executed for every defined calendar item.

4.3 Core Specific Commands

The following commands are more or less self-explanatory, $\langle ID \rangle$ is the student's university ID. $\langle Nproc \rangle$ is the process/request number. $\langle gender \rangle$ can be either 'm' or 'f'.

\student \studentinfo

 $\label{last} $$ \operatorname{(student-hash)} {\langle last \rangle} {\langle first \rangle} {\langle gender \rangle} \ \\ \operatorname{(Nproc)} {\langle ID \rangle} {\langle email \rangle}$

update: 2023/11/18

N.B.: If the package option oldrenews is used, the command \author and \authorinfo will be redefined as an allias to \student and \studentinfo.

\workbrief
\advisorreview

 $\mathsf{Workbrief}\ \{\langle \mathsf{work-summary}\rangle\}$

\coadvisorreason

\advisorreview {\advisor's-review\}
\coadvisorreason {\reason-for-a-coadvisor\}

\workchange

\workchange {\reason-for-the-change}}

new: 2023/11/18

Those commands are only of use when using ufrgscca-forms. \workbrief sets the work initial summary, \coadvisorreason sets the justification for having a co-advisor, \advisorreview sets the advisor's review, \workchange sets the reason for the work's theme change.

\advisor \advisorinfo

\coadvisor \coadvisorinfo $\label{eq:coadvisor} $$\operatorname{(\langle title \rangle) {\langle last \rangle} {\langle first \rangle} {\langle gender \rangle} \ \coadvisorinfo {\langle Institut \rangle} {\langle title-info \rangle} {\langle email \rangle} {\langle phone \rangle} $$$

\distinctboard

\distinctboard

new: 2023/11/18

For the rare case in which the advisor won't take part in the examiner's board.

\examiner \examinerinfo

\altexaminer \altexaminerinfo

N.B.: The commands \advisor, \coadvisor, \examiner and \altexaminer are meant to be used in a 'final work' doc. The Macros \internship, \tutor and \supervisor in case of an internship report.

5 UFRGSCCA-COVER PACKAGE

This package is the one that sets the front pages, depending on the kind of 'report' being generated.

5.1 Defined Commands

\MakeCoverPages \MakeCoverPages {\langle type \rangle} This is the main command, which will typeset the front matter, from the new: 2023/11/18 information already given. $\langle type \rangle$ sets the 'kind' of cover pages to be generated. Currently, it can be one of: tccI Generate 3 pages, a first cover one, a second with work's description and third last one with work's approval for TCC-I Generate 3 pages, a first cover one, a second with work's description and third last one with work's approval for TCC-II internship Generate 2 pages, a first cover one, a second with work's approval for internship internship-opt Generate 2 pages, a first cover one, a second with work's approval for optional internship report class-report Generate 1 cover page

N.B.: If the package option oldrenews is used, the command \maketitle will be redefined as an allias to \MakeCoverPages.

\location \location $\{\langle city \rangle\} \{\langle state \rangle\}$

To redefine the default values of (city) and (state) (Porto Alegre and RS).

new: 2023/11/18 To set the class code and name, for the cover page, in case of a class report.

 $\verb|\SetCoverFields {$\langle \texttt{type} \rangle$} {$\langle \texttt{field} \rangle$} {$\langle \texttt{value} \rangle$}$

This allows to redefine the aforementioned (types) and create new types of

cover pages. (field) is one of:

clist this defines which kind, and order, of pages will be generated. Possible values

are: cover, desc and approval.

top This will be the common top matter used.

students How students names, authors, will be presented

title The title to be used

bottom The bottom of the cover page.

text-descrage The text presented in the desc page.

advisor-descrage Advisor's matter.

bottom-descpage The bottom of the desc page.

text-approval page. The text presented in the approval page.

advisor-approval page. Advisor's matter in the approval page.

bottom-approvalpage The bottom of the approval page.

6 UFRGSCCA-FORMS PACKAGE

This package defines just two user commands to generate specific forms needed at UFRGS/EE.

6.1 Forms Defined Commands

update: 2023/05/29

The command \tcforms will generate the many forms (\formslist\) using the information from *local.tex*, whilst \tcemptyforms will generate said forms with 'blanks' (to be fulfilled by hand, for instance).

(formslist) is a csv list of:

reqform-I

reqform-II Registration requirement form.

coadvisor-I

coadvisor-II Coadvisor justification form.

boardapproval-I

boardapproval-II Boards approval form.

advisorsapproval-I

advisorsapproval-II Advisors approval form.

receipts-II Receipts forms (one per board member).

examinersforms-I

```
examinersforms-II Grades and correction forms (per board member).

rectifyapproval-II Corrections approval form.

internreqform Internship Registration requirement form.

internsupervisorform Internship Supervisor evaluation form.

interntutorform Internship tutor evaluation form.

Please note that those '-I' regards TCC-I, while '-II' regards TCC-II.
```

```
\SetForm
\MakeForm
```

```
\SetForm {\langle form-hash \rangle} {\langle field \rangle} {\langle code \rangle} \\ \\ MakeForm {\langle form-hash \rangle}
```

new: 2023/11/18

\SetForm can be used to set new forms (or redefine existent ones). \(\form-hash \) being a free identifier. Possible \(\form-hash \) values are heading, title, opening, body, closing and footnone. \(\text{MakeForm typesets the selected form.} \)

7 UFRGSCCA-LISTS PACKAGE

The following packages are always pre-loaded: newfloat, listings and xcolor. It defines a new floating environment codelist. Combined with listings one can typeset exempts of a code listing.

7.1 Environment

codelist

```
\begin{codelist}... \end{codelist}
```

\caption will be named 'Listing' (Listagem).

LATEX Code:

```
\begin{codelist}[htbp]
  \caption{sample C code}
  \label{code01}
  \begin{lstlisting}[language=C]
    struct i2c_msg
    {
        __u16 addr;    /* endereco do escravo */
        __u16 flags;
    }
  \end{lstlisting}
  {\sourcecitation{\textcite{Garg:SMA-2000}}}
\end{codelist}
```

7.2 Declared Commands

listofcodelist

\listofcodelist

This will create the 'List of ...' associated with the codelist environment.

\DeclareNewFloat

A new float environment, named env-name, will be created. Captions will be associated (numbered) as (listname) num:. Finally, an associated command \listof... will be defined, using (listofname) as a numberless \chapter title.

LATEX Code:

```
\def\listingname{Listing}%
\def\listlistingname{List of Listings}%
\DeclareNewFloat{codelist}{lox}{\listingname}{\listlistingname}%%
%% after that, one can do as in the previous example
%%
%% the list of, will be created as
\listofcodelist
```

8 <u>UFRGSCCA-COORD</u> PACKAGE (EXTENDED DOCUMENTATION)

This package defines a set of auxiliary commands meant to support the Professor coordinating students work. it will always pre-load the *longtable* and *ufrgscca-forms* packages.

N.B. It might be also useful to use the commands defined at subsection 6.1, Forms Defined Commands.

A report document is composed of 2 main parts:

- 1. A global preamble, where one sets
 - 1.a. the current semester, Course/TCC/internship coordinator's names, etc. .
 - 1.b. auxiliary data, like students *check list* items and
 - 1.c. students data.
- 2. A 'final part' whereas one set which reports are to be generated.

One can (should) use the commands listed at subsection 4.1, Core Commands, and these below:

Check List

\checkdef \checklist \checkdef $\{\langle LxCy \rangle\} \{\langle check-item \rangle\} \{\langle check-text \rangle\}$ \checklist {\check-items-list\}

update: 2023/11/18

Whereas one has a '5x5 matrix' (\langle checkLC \rangle being one of L1C1...L1C5, ..., L5C1...L5C5). (chek-item) is a free identifier (to be used with the \checklist), and (check-text) the text to appear in the 'check list report'. Note this is a list **per activity** (the current one being set).

\checklist set's those items for the current student. \check-items-list\rangle is a comma separated list of (check-item).

LATEX Code:

```
\checkdef{L1C1}{tcc-part}{Rel. Parcial} % this creates the '
  check item' tcc-part and associates it with the L1C1 position (first
 line, first column), display text 'Rel. Parcial'
\checkdef{L2C1}{partOK}{Aprov. Rel. Parcial}
                                             % this creates 'partOK'
 and associates it with L2C1 position
\checkdef{L1C2}{board}{Banca def.}
                                             % 'board-date' is
\checkdef{L2C2}{board-date}{Data defesa}
 associated with the L2C2 position
\checkdef{L1C5}{tcc-final}{TCC final}
\checkdef{L2C5}{approval}{Aprovação Correções} %
\checkdef{L4C5}{exam}{Em Exame}
                                             % 'exam' (display 'Em
 Exame') is associated with the L4C5 position
%%
%% later on, one can use (inside a \NewStudent command)
\checklist{tcc-part,partOK,exam}
                                                % this will, for a
 given student, 'mark' the 'tcc-part', 'partOK' and 'exam' items.
```

Auxiliary / Report Specific

\ActivitySetNewEvent \ActivitySetNewEvent [(act-hash)] {(event-hash)} {(event-desc)}

new: 2023/11/18

An activity may have a calendar/set of associated events. (event-hash) is just a hash to reference it (starray hash). (event-desc) is the text associated with it. $\langle day \rangle$ and $\langle week \rangle$ the associated date.

\studentremark \studentnewpage \distinctboard

\studentremark {\remarks\} \studentnewpage [\student-hash\] \distinctboard

new: 2023/11/18

Those commands are only of use when using ufrgscca-coord. \studentremark sets a free remark text (notes about). Whilst, \distinctboard and \studentnewpage set the flag-distinctboard and flag-newpage flags...

\studentCase $\{\langle if-FF \rangle\}$ \studentAdvCase \studentCoadvCase $\t \cdot \t AdvCase {\langle if-more-than-one \rangle} {\langle if-not \rangle}$ \studentDismissCase \studentNewPageCase $\mathsf{StudentDismissCase} \{ \langle \mathsf{if-dismiss} \rangle \} \{ \langle \mathsf{if-not} \rangle \}$ $\t \sum_{i=1}^{n} {\langle if-newpage \rangle} {\langle if-not \rangle}$ \studentDistinctBoardCase \studentReviewerCase \t \studentDistinctBoardCase {\langle if-distinct\rangle} {\langle if-not\rangle} $\t \text{`studentReviewerCase } \{ (if-marked) \} \{ (if-not) \}$ new: 2023/11/18

new: 2023/11/18 update: 2023/12/02 update: 2024/01/15

These are a set of auxiliary conditionals, for instance, \StudentCase will execute only one of the \(\if- \) accordingly.

new: 2023/11/30

\professor creates a \(\prof-\text{ref} \) alias to a person's full name. \advisorprof expands to a call for \advisor and \advisorinfo using the properties stored by \professor. Similarly, \coadvisorprof, \examinerprof and \altexaminerprof results in call to \coadvisor, \coadvisorinfo, \examiner, \examinerinfo, \altexaminer and \altexaminerinfo respectively.

Note: \professor creates/uses an auxiliary starray, just mapping names for users convenience.

\boardtitle \boardtitle $\{\langle \text{title} \rangle\}$ \boardobs \boardobs $\{\langle \text{obs} \rangle\}$ \semester \semester $\{\langle \text{semester} \rangle\}$

new: 2023/11/18

\boardobs allows to add an observation $(\langle obs \rangle)$ for the 'boards schedule report', and \semester sets the current semester value.

Student Specific Commands

\studentfate

\studentfate [\langle fate \rangle]

update: 2023/11/18 update: 2024/02/15 This assigns the $\langle \mathtt{fate} \rangle$ of a student, for those cases that one cannot rely on the 'calculated one' (from examiners individual grades). $\langle \mathtt{fate} \rangle$ can be either exam (if the student is in exam, but didn't got a grade yet) C or D (in case a student in exam got graded), FF for those that haven't finished the work or dismiss for those that, for whatever reason, got dismissed. The default is 'do nothing' (no $\langle \mathtt{fate} \rangle$ assigned)

Note: (updated in 2024/02/15) In case some other, odd, value is assigned, this command will record as if the student is in 'exam', with the given grade $\langle \text{fate} \rangle$ marked in bold red.

\studentaddtolist

 $\mathsf{tdentaddtolist} \{ \langle \mathsf{listID} \rangle \}$

new: 2023/12/04

Adds the student to a given list (defined by (listID)), to be later used by \sortstudentlist and \tcreport.

\checklist

\checklist {\csv-checkitems\}

(csv-checkitems) is a csv list of valid 'items' (the ones defined by \checkdef) and it will 'mark' (check) the corresponding items for a given student.

\timeslot

 $\timeslot [\langle local \rangle] {\langle date \rangle} {\langle time \rangle}$

update: 2023/11/29

To set the (local), (date) and (time) of a student's presentation work.

Note: $\langle \text{date} \rangle$ must be given in numerical form, either $\langle \text{day} \rangle / \langle \text{month} \rangle$ or $\langle \text{day} \rangle / \langle \text{month} \rangle / \langle \text{year} \rangle$. The day-of-the-week will be obtained using pgfcalendar.

Likewise, $\langle \text{time} \rangle$ must be given in a (24h) $\langle \text{hour} \rangle : \langle \text{min} \rangle$ format.

\worktitle \studentremark

\worktitle $\{\langle title \rangle\}$ \studentremark $\{\langle remark \rangle\}$

update: 2023/11/18

\worktitle sets the current student "work's title". \studentremark just inserts a \remark\rangle, which will appear in the report's report.

\distinctboard

\distinctboard

update: 2023/11/18

Normally, the default, it's assumed that the student's advisor will also be a member of the student's exam board. For the ones in which this doesn't holds true, one should use the \distinctboard after setting a student's name (via \student) and before setting its advisor name (via \advisor).

For example:

LATEX Code:

\examinergrades

```
\examinersgrades \{\langle N1 \rangle\} \{\langle N2 \rangle\} \{\langle N3 \rangle\} [\langle N4 \rangle] *
```

update: 2023/11/18 update: 2024/02/15 Quite obvious, this set the grades given by an examiner (the one defined by the 'last' \examiner before this.). In case $\langle N4 \rangle$ is given it's assumed the TCC-I case, otherwise TCC-II. (update:2024/02/15) The 'star' at the end will mark said reviewer, in red, when generating a report.

Reports Command

 $\verb|\setstudentlist| \setstudentlist {\langle listID \rangle} {\langle list \rangle}$

update: 2023/11/29

This command will define/create a list named $\langle listID \rangle$ composed of a csv $\langle list \rangle$ of student hashes (as defined by $student [\langle student-hash \rangle] \{\langle ... \rangle\}$).

\sortstudentlist

new: 2023/12/04

```
\scalebox{$\scalebox{$\sim$}} \scalebox{$\sim$} \scaleb
```

These will sort (and classify) a given student list defined by $\langle \mathtt{listID} \rangle$. The star version sorts the list by student's full name, the *plus* version sorts the list by student's presentation date. By default, the list remains unchanged (no sort).

 $\tcreports \tcreports \[\langle report-list \rangle] \ \{\langle listID \rangle\}$

This will typeset the many reports, using the student list defined by $\langle listID \rangle$. Where $\langle report-list \rangle$ is a csv list of keys as follow:

calendar-I Calendar for the period, TCC-I.

report-I a student control report, for TCC-I.

checklist-I a student check list, for TCC-I.

revforms-I per student reviews forms, TCC-I.

referral-I per student referral letters, TCC-I.

calendar-II Calendar for the period, TCC-II.

report-II a student control report, for TCC-II.

checklist-II a student check list, for TCC-II.

revforms-II per student reviews forms, TCC-II.

referral-II per student referral letters, TCC-II.

boards exam board dates, TCC-II.

attendance a simple student's attendance list.

cocertificate per student coadvisor certificate letter (if any).

9 <u>UFRGSCCA-PPC</u> PACKAGE (EXTENDED DOCUMEN-TATION)

This contains a set of auxiliary commands to keep track of many *indicators* whilst writing a *PPC document* (which is going to be evaluated based on said *indicators*, though the track of those *indicators* themselves shall not appear in the final version of it). Keep in mind, when considering the use of it: "it works as is" but it hasn't being properly debugged, and it might change "as needed locally".

The packages longtable, pdfcomment, mdframed and ufrgscca-curr will always be pre-loaded.

9.1 Package Options

showind (for drafts) it will display the report indicators, of those indicators whose family wasn't set to hide.

indlong nocomments

(for drafts) when displaying an indicator, the long version of them will be used. (for drafts) comments (created with the command $\{\langle \rangle\}$ will be suppressed.

9.2 Defined Commands

The next few commands use a finite set of $\langle status \rangle$ which are a predefined list of:

tbd "To Be Done"

done "Done"

review "to be reviewed" attention Needs Attention

NSA (portuguese for "do not apply")

noref no references

EAD (portuguese for "distance learning")

MDi course ware (portuguese for "didactic material")

DOCs other DOCs default everything else

\declareindicator \indicatorDesc \indicatorText

```
\label{lem:declared} $$ \ \end{are} $$ \ \end{are} {\ \end{are} } {\ \end{are}
```

\declareindicator is the command to create/define a given "indicator". \langle set's its family group, \langle ID \rangle is the particular ID/term used to reference it (in a family of indicators), \langle text \rangle is a short text describing it (it is the text displayed when using the \indref below.). \indicatorDesc adds a \langle longdesc \rangle (long description) and \langle extra \rangle (extra long description) to a defined \declareindicator (it will add those text fields to the "last declared one"). \langle longdesc \rangle will also be displayed when using the \indref commands, but only if the indlong option was used. The \langle extra \rangle will only be used/displayed with the \PrintIndicators command. Finally, \indicatorText adds a remark \langle text \rangle, which will be also printed out when using \lstind (akin of an explanation/remark field.)

\indsetstatus \indsetview \indsethide

```
\indsetstatus [\langle \text{status} \rangle] {\langle \text{fam} \rangle} {\langle \text{ID} \rangle} \indsetview {\langle \text{fam} \rangle} \indsethide {\langle \text{fam} \rangle}
```

indsetstatus sets the $\langle \text{status} \rangle$ of a given indicator defined by $\langle \text{fam} \rangle$ and $\langle \text{ID} \rangle$. \indsetview and indsethide $\{\langle \text{s} \rangle\}$ et the visibility (or not) of a given "family" of indicators, meaning, if those indicators are going to be visible or not (command \indref, for instance) if the option showind is in use.

\lstind will produce a sectioning like list, \(\seclv11 \) defaults to \section and \(\seclv12 \) defaults to \subsection, those indicators marked with an * (when creating them) will be issued with \(\seclv11 \), those marked with an + will be issued with \(\seclv12 \). The indicator's short text will be the sectioning title, whilst the indicator's 'text' (the one assigned with indicatorText will be the sectioning body.)

\PrintIndicators

```
\PrintIndicators [\langle fam \rangle]
```

\PrintIndicators will produce a "list of contents" like list (with cross reference to all used \indref pages). It will either issue a list of all \declareindicator or just the ones belonging to \(\frac{fam}{} \). \(\frac{fam}{} \) can be a csv list of families. Each entry will be composed by indicator's "family", "ID", "short text", "long text" and "extra description" but not the text issued with \indicatorText.

\helpindicators

\helpindicators

This will just prints, middle text, a quick "help text" listing the few main "indicators related command" (to help out those less \LaTeX 2 ε savvy writers.)

\ifshowind

```
\ifshowind \{\langle code-ifshow \rangle\} \{\langle code-ifnot \rangle\}
```

Just a helping command, based on the package options. If the option showind was used, \(\cdot \

Those are annotation, remark commands. The difference being that \textmark will just highlight the \(\text\) (using \(\status\) "format"), whilst comment will create a "remark box" (the same used when inserting an indicator's reference, commands below).

N.B.: The command \comment is suppressed unless the option showind is used.

```
\indref \indref \{\langle \langle \rangle\} *> [status] fam, ID, comment \indreflst <math>\{\langle \langle \rangle\} *> [status] fam, ID | ist, comment \]
```

\indref creates a box (TikZ based mdframed) of the indicator denoted by $\langle fam \rangle$ and $\langle ID \rangle$. The family and IDs will be issued as the "frame title", the current indicator's $\langle status \rangle$ will be printed out (the whole box will be highlighted accordly), the short version of the indicator will be used (the long version will "appear" as a pdfcomment), finally any $\langle comment \rangle$ will be added to the text box. Each \indref box will have a link to the indicator's list (issued with \PrintIndicators). If the optional argument $\langle status \rangle$ is used, the indicator's status will be updated accordly. The star version also prints the indicator's long text.

\indreflst behaves similarly, with the difference that $\langle \mathtt{IDlist} \rangle$ is a csv list of IDs (same family), moreover, each item of said list can have the form either just $\langle \mathtt{ID} \rangle$ or $\langle \mathtt{status:ID} \rangle$, in the last form, that ID will have its status updated, as well.

```
\fancyquote
```

```
\fancyquote [\langle vspc \rangle] \{\langle text \rangle\} \{\langle author \rangle\} \{\langle dateref \rangle\}
```

As quick "quote" hack, \fancyquote will typesets a \text\ (small size, italic text, in a minipage environment) followed by \(\author\) and \(\dathatterf\). This is meant to be used after a \chapter or \section commands. \(\text{vspc}\) is to be used in case one has to adjust the vertical space between the sectioning command, and the quote one.

\labelhack

```
\label{text}
```

As the name implies, it is a hack. In some cases (which we haven't manage to found why/what), hyperref would fail miserably when using the \nameref (in some cases getting the sectioning correct, but not the name!). This just assures that \nameref will use the correct sectioning name in those cases.

For Example:

\section{this section}\labelhack{this section}\label{somelabel}

```
\label{eq:condef} $$ \acrodef $$ \acroID$ \acronymlong $$ \acrol $$ \acroID$ \acroID$ \acroIS $$ \acroIS $$ \acroID$ \acroSI $$ \acroID$ \acroSI $$ \acroID$ \acrofoot $$ \acrofoot $$ \acroID$ \acrofoot $$ \acroID$ \acrofoot $$ \acroID$ \acroID$ \acrofoot $$ \acroID$ \acroID$ \acroSI $$ \acroSID$ \acroSI
```

Those are yet another acronym hack. \acrodef "creates" an acronym, identified by \(\acrolD \), whose short (acronym) version is \(\acronym \) and the long version in \(\long \). \acro just typesets the \(\acronym \), \acrol the \(\long \) version. \acrols typesets the long version followed by the short (using a comma as separator). \acrosl prints the short version first. Finally, \acrofoot typesets the short version in text and the long as a footnote. \printacrolist creates a description list based on the listofabbrv environment.

9.3 Environments

```
ppc.quote \begin{ppc.quote} ... \end{ppc.quote}
```

This is just a tailored "quote" environment, using almost all page width, just in a smaller font size.

10 <u>UFRGSCCA-CURR</u> PACKAGE (EXTENDED DOCUMEN-TATION)

The background of it: To have the ability to "describe" (store the information in a "structured way") an University Course Curricula and have the possibility, later, to presented that same information in many different ways (including a dependence graph). All data is captured/stored in a set of 3 starrays:

topics' Structure Definition:

```
{
   self = , name = , color = , class lst = , %list (sequence) of classes
}
```

Classes' Structure Definition:

```
{
  cred = , self = , name = , summary = , topic = , remark = ,
  bib seq = , bib basic seq = , bib compl seq = ,
  ref . struct = {
    curr = , sem = , kind = ,
  } ,
}
```

Curricula's Structure Definition:

The following commands "describe" a curricula, whereas one is a sequence of semesters (semID), each semester is composed by a list of classes, (classID), and each class has a list of dependencies, (classID) as \depdef. All those lists are stored as csv lists, so "processing them" can be systematized.

\topicdef \defaulttopic

```
\label{topicdef} $$ \color{\color}{\color{\color}} {\color{\color}} {\color{\color}} {\color{\color}} {\color{\color}} $$ \color{\color}{\color}$$
```

\topicdef defines \langle topicID \rangle (to be used when describing a class) and associates a \langle text \rangle description and a \langle color \rangle (for topic highlight). \defaulttopic sets the default one (if not explicitly given when describing a class).

\classdef \classset

```
\classdef [\langle topicID \rangle] \{\langle classID \rangle\} \{\langle cred \rangle\} \{\langle name \rangle\} \\ \classset \{\langle classID \rangle\}
```

update: 2023/11/18

\classdef defines a class \(\classID \) (with a given \(\name \) and number of \(\name \)) associated with a given \(\tautopicID \)). \\(\classset \) sets the current class.

The following commands always refer to the "last defined" \classdef unless \setclass is used, which changes the "current class" for the following commands.

```
\csummary
\classremark
\bibdef
```

```
\label{eq:csummary } $$ \operatorname{\langle csummary \{\langle desc \rangle\}} $$ \operatorname{\langle classremark \{\langle remark \rangle\}} $$ \left[\langle type \rangle\right] {\langle text \rangle} $$
```

new: 2023/11/18

\csummary sets a class summary, whilst \classremark annotates a 'note/remark'. \bibdef is used to set a list of bibliographies, one per issued command. The default \(\text{type} \) value is main, other possible values basic and comp1.

\currdef \semdef

```
\currdef {\langle curr-ID \rangle} {\langle short name \rangle} {\langle long name \rangle} \\ semdef {\langle semID \rangle} {\langle name \rangle} {\langle pos \rangle}
```

update: 2023/11/18

\currdef creates a curricula (with a set of semesters defined as following). \semdef creates a semester, \langle semID \rangle, \langle position 'hint' when creating a dependency graph (see below).

\depdef \altdep $\label{eq:classID} $$\depdef*<\langle pos\rangle> {\langle classID\rangle}$$ \altdep$

update: 2023/11/18

 \dependency inserts/creates a "class dependency" list. $\langle pos \rangle$ is used as a 'hint' for the incident (dependency) line angle. The starred version is meant to be used when the 'dependency' isn't another class but rather, for instance, a number of credits.

\altdep defines/start and alternate dependency list.

\TabEtp \TabTopic $\label{top:conting} $$ $$ TabEtp* [\langle sectioning \rangle] {\langle semID \rangle} [\langle font-fmt \rangle] $$ $$ TabTopic {\langle topicID \rangle} $$$

update: 2023/11/18

\TabEtp will construct a longtable with all classes associated with \(semID \). The default 'font size', \(font-fmt \), is \(footnotesize \). The default \(sectioning \) is \(notoc \section \). The non-star version includes the bibliography lists as well. \(TabTopic \) will construct a longtable with all classes associated with a \(topicID \).

\GraphEtp

 $\verb|\GraphEtp {$\langle \mathtt{semID} \rangle$}|$

update: 2023/11/18

It will create a dependency graph for a given (semId). N.B. to start with, it is highly dependent on the semester sequence, one shall start with first semester and go from there.