



UNIVERSIDAD DE VALLADOLID

MÁSTER
GESTIÓN FORESTAL BASADA EN CIENCIA DE DATOS
FOREST MANAGEMENT BASED ON DATA SCIENCE
(DATAFOREST)

LYX template for DATAFOREST master

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LOGO de otras instituciones y/o empresas

LOGO from other institutions and/or companies

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Resumen del TFM

Palabras clave

LYX, LATEX, DATAFOREST

Abstract

LYX template for DATAFOREST master.

Keywords

LYX, LATEX, DATAFOREST

Chapter 1

INTRODUCTION

1.1 **TEX,LATEX and LYX**

What is LyX?

LyX is a WYSIWYM (WhatYouSeeIsWhatYouMean) DocumentProcessor. Its homepage is at <http://www.lyx.org/> and you can probably get a much better description of what it is there.

The basic idea of LyX is that you do not need to handle style, or actually, you use a set of predefined styles and concentrate on your document content, This makes sure that your resulting document will be typographically correct and good looking visually. You can of course apply various style changes and order LyX to do things differently, but you only need to do it once for each option and the same style will be used throughout the document, making sure that your document is consistent in its look (we are still working on the AI to make sure the document is consistent in the content too :-)).

LyX uses LATEX as its backend typesetting mechanism. LATEX is a very powerful system that gives great results. By using LATEX, LyX can produce Postscript and PDF output. In addition, by using latex2html, you can get HTML output.

TEX? LATEX?

TEX is a typesetting computer program created by Donald Knuth, originally for his magnum opus, The Art of Computer Programming. It takes a "plain" text file and converts it into a high-quality document for printing or on-screen viewing. LATEX is a macro system built on top of TEX, written by Leslie Lamport, that aims to simplify its use and automate many common formatting tasks. It is the de-facto standard for academic journals and books, and provides some of the best typography free software has to offer.

1.2 Why I need a typesetting computer program?

- You can concentrate purely on the structure and contents of the document. \LaTeX will automatically ensure that the typography of your document fonts, text sizes, line heights, and other layout considerations are consistent according to the rules you set.
- Indexes, footnotes, citations and references are generated easily and automatically.
- Mathematical formulae can be easily typeset. (Quality mathematics was one of the original motivations of \TeX .)
- Since the document source is plain text:
 - Document sources can be read and understood with any text editor, unlike the complex binary and XML formats used with WYSIWYG programs.
 - Tables, figures, equations, etc. can be generated programmatically with any language.
 - Changes can be easily tracked with version control software.
- Some academic journals only accept or strongly recommend submissions in the form of \LaTeX documents. Publishers offer \LaTeX templates.
- When the source file is processed by the \LaTeX program, or engine, it can produce documents in several formats. \LaTeX natively supports DVI and PDF, but by using other software you can easily create PostScript, PNG, JPEG, etc.

1.3 Objectives

This isn't a manual of \LyX , the aim of this document is to supply a reference to use the template documentation of the Forest Management Master end course work in \LaTeX or \TeX .

- \LyX installation and general program configuration
- Document configuration
- \LaTeX preamble
- Images, tables and equations...

1.4 Alternatives?

If you don't have a stable computer to work at, then you have an alternative: a on-line L^AT_EX editor and compiler: Overleaf¹

Overleaf is an on-line collaborative L^AT_EX editor, easy to use, you can access anywhere through Internet and includes a history of all of your changes so you can see exactly who changed what, and when.

¹<https://www.overleaf.com/>

Chapter 2

L_YX installation and general program configuration

2.1 Installation

L_YX download url: <https://www.lyx.org/Download>

- On Windows, at present time (Oct19), we recommend 2.3.3 version.
- On Linux install the version provided with your distribution.

Depending on the operating system, it is probably that you need additional software from: <https://www.lyx.org/AdditionalSoftware>:

- Qt - user interface toolkit Qt 4.8 or 5.6 is recommended.
- Python - scripting language Required for configuration and conversion scripts
- L_AT_EX distribution: In order to properly use L_YX to create documents, you'll need to have a L_AT_EX installation. You can use T_EXLive or MikT_EX on Windows and *nix, or MacT_EX on Mac OS.

2.1.1 Some documentation

Once the installation is terminated, you can begin to use L_YX since it's a visual tool for typesetting, however you will need some reference documentation in order to include mathematical equations, graphics, tables...

- You can begin with «The not so short introduction to L_AT_EX 2_E»¹
- For specialities in graphics inclusion «Using Imported Graphics in L_AT_EX and pdfL_AT_EX»²

¹<https://osl.ugr.es/CTAN/info/lshort/english/lshort.pdf>

²<https://osl.ugr.es/CTAN/info/epslatex/english/epslatex.pdf>

- When using equations could be useful the «User’s Guide for the amsmath Package»³
- To insert very special symbols, take a look at «The Comprehensive LATEX Symbol List»⁴

2.2 General recommendations about large documents in LATEX and LYX

- Large documents require planning, often multiple LATEX files are used, and many image files are required. The use of multiple folders inside your document project is a must.
- Don’t mind about format. Worry about *content and structure*. Take decisions on WHAT YOU WANT TO WRITE, and where in the document structure: use plain text if possible.
- Don’t start working in LYX until you have the main part of the document typed in text. Otherwise you will spend lot of time compiling, and viewing the output and the main focus: *the content* will be lost.

³<https://osl.ugr.es/CTAN/macros/latex/required/amsmath/amsldoc.pdf>

⁴<https://osl.ugr.es/CTAN/info/symbols/comprehensive/symbols-a4.pdf>

Chapter 3

Document configuration

3.1 Template overview

This template is very simple.

Este equipo > DATOS (D:) > DATAFOREST > MiTFM				
	Nombre	Fecha de modificación	Tipo	Tamaño
	img	15/10/2019 13:34	Carpeta de archivos	
	logos	15/10/2019 13:34	Carpeta de archivos	
	plantillaTFM.sty	11/10/2019 8:22	Archivo STY	6 KB
	plantillaTFMnueva.lyx	10/10/2019 13:39	LyX Document	19 KB

Figure 3.1.1: Files and folders

- The file .STY contains the style definitions defined in the template
- The file .LYX is the LyX main work document.
- The LOGOS folder contains the image files used for the institutions and companies page after the first page.
- The IMG folder contains the image files used in the document

3.1.1 Template download

The URL to download the template:

dataforest.uva.es/miTFM-Win10.zip
dataforest.uva.es/miTFM-Lyx224.zip
dataforest.uva.es/miTFM-Lyx20x.zip

3.2 New document: the start point

To start working in your document:

1. Make a copy of the file and folder structure: a copy-paste.
2. In the LyX menu FILE choose OPEN FILE and browse in the recent copied folder structure the .LYX file.
3. In the LyX menu FILE choose SAVE As an give a new file name. This will be your work document.

To view the PDF result of your work document use de shortcut CTRL-R. This will copile the L^AT_EX source code and generate PDF output file.

Then main document structure has been written for you, as some simple examples of image, equation and table insertions.

3.3 Document configuration

You can find all the configuration options in the menu DOCUMENT - CONFIGURATION.

All configuration options had been defined in the template, so its probably you don't need to do any changes. You must think than every change you do will affect the whole document, so be careful and recompile after each one.

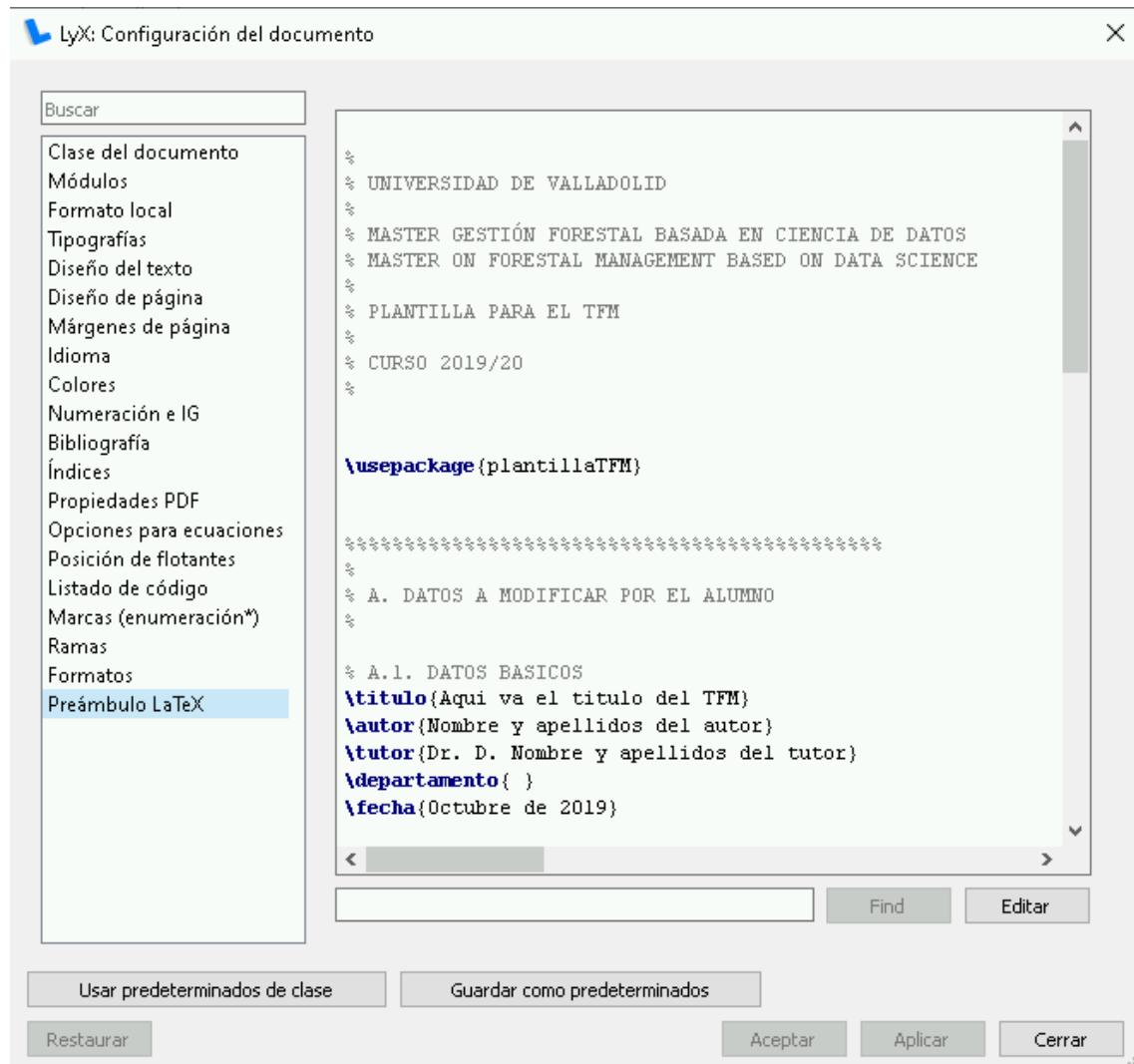


Figure 3.3.1: Document configuration options

Chapter 4

LATEX preamble

The LATEX preamble can be found as the las option in the DOCUMENT - CONFIGURATION dialog box, as can be seen in the figure 3.3.1

The LATEX preamble is the core of the template for the Dataforest TFM. Here you will find all fields you have to personalize for your document. This data will be used by LyX to compose the first pages of your document PDF output.

4.1 Basic data

The basic data are the title, your name, the advisor name, and the date.

```
% A.1. DATOS BASICOS
\titulo{Aqui va el titulo del TFM}
\autor{Nombre y apellidos del autor}
\tutor{Dr. D. Nombre y apellidos del tutor}
\departamento{ }
\fecha{Octubre de 2019}
```

4.2 Abstract and keywords

You must replace the abstract and keywords:

```
% A.3. RESUMEN Y PALABRAS CLAVE EN ESPAÑOL E INGLES
\resumen{ Resumen en español.

Este trabajo debe ser escrito con el tipo de letra ARIAL 11. Interlineado
sencillo. El encabezado y el pie de página deben aparecer desde la segunda
página hasta la última. Los textos de figuras, tablas y pies de figuras deben
ser legibles y no menores de 8 puntos. En la segunda página aparecerán los
logos del iuFOR y de la ETSIIAA en los tamaños y posiciones indicadas en
esta guía. Además, podrán aparecer otros logos de empresas y/o instituciones
implicadas en la realización del TFM. Es aconsejable que el TFM no supere
las 100 páginas. Se podrá presentar a doble cara. Se debe entregar encuader-
nado en espiral con la tapa de portada translúcida y la tapa de contraportada
negra.

}

\abstract{ Summary in English
The master thesis must be written in ARIAL 11, single-spaced lines. Header
and footer must be included from the second page to the last one Figures and
tables must be written in size no lower than 8 In the second page the logos of
iuFOR and ETSIIAA must be included in the size and positions as this guide
shown. Additionally, other logos from companies or institutions collaborat-
ing in the master thesis can be included. Ideally master thesis length should
be under 100 page. Master thesis can be both sides page printed. Master the-
sis must be spiral binder with transparent front page and black for the back
page.

}

\palabrasClave{Manejo sostenible, prevencion, biodiversidad, datos, progra-
macion, etc}
\keywords{Sustainable management, prevention, diversity, etc}
```

4.3 Optional pages and data

This section describes optional pages your document may include.

4.3.1 Aknowledges

If you want your document to have a aknowledges page in the first pages, you will find useful to use this option. If the parameter *paginaAgradece* is set to “no” the page will not be generated. Otherwise, fill the *agradecimientos* parameter with your own dedication.

```
% A.4. AGRADECIMIENTOS  
\paginaAgradece{si}  
\agradecimientos{ Dedicado a quien sea  
Dedicated to whoknows }
```

4.3.2 Tribunal composition

This information is only used if the parameter *paginaEval* is set to “si” to generate a evaluation page with data of the document and the tribunal composition.

```
% A.2. COMPOSICION DEL TRIBUNAL  
\tribunalPresidente{Dr. D. Nombre y apellidos del Presidente del Tribunal}  
\tribunalVocal{Dr. D. Nombre y apellidos del Vocal del Tribunal}  
\tribunalSecretario{Dr. D. Nombre y apellidos del Secretario del Tribunal}  
% A.6. OPCIONAL: Página cuadro de evaluación y tribunal  
\paginaEval{no}
```

4.3.3 Index of figures and tables

This two pages are also optional, will contain a figure list and a table list.

```
% A.6. OPCIONAL: LISTA DE FIGURAS Y/O CUADROS  
\listaFiguras{si}  
\listaCuadros{si}
```


Chapter 5

Images, tables, equations and other delicatessen

Desafortunately we use to think that the output will be exactly what we see as we write in the editor. This is not the philosophy of LyX. If you want a enhanced output for you document you must provide some degree of freedom for LyX to allocate images, tables, equations and other objected. Keep this in mind while you write your document: you must thing in what you want to mean, don't worry about the output untill you have finished the writing.

Table of contents and sectioning

The table of contents is automatically generated, as the section numbering, but not for free: you must use the predefined styles. Thought there is the possibility to insert sections without numberig¹.

5.1 Labels and crossreferences

In your document will be crossreferences to images, tables, equations... to do so you need to inform the item that will be referenced; that's a LABEL.

Whenever you want to do reference to the item labeled you wil have to insert a CROSSREFERENCE. When the crossreference is inserted it is possible to choose to reference the text of the item, the page where is located...

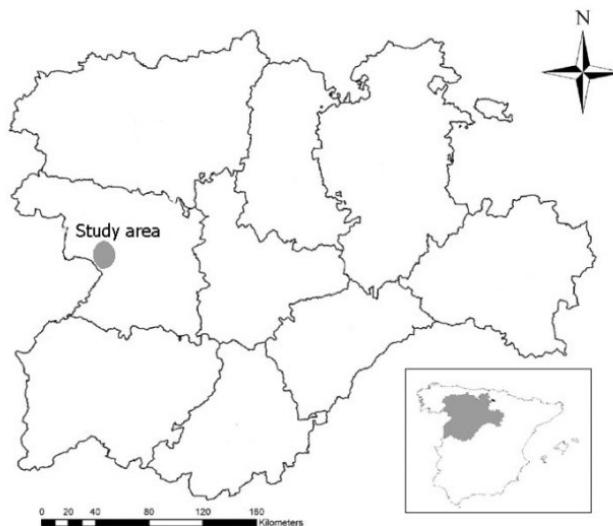
All objects inserted are not labeled by default in this way, keep in mind that you have to label every item inserted if a reference to it must be done further.

¹

Enumerates, itemization and many other content are generated using the predefined styles

5.2 Study site: figures

If a figure is inserted don't forget to insert the apropriate label if it is to be referenced; Figure:



5.3 Data on tables

If we add a table:

Mean temperature (°C)		Precipitation (mm)		First frost date	Frost days			
Annual	O-N-D	Annual	O-N-D		October	November	December	
2010	11,49	7,30	827,5	320,1	10/10/2010	3	8	16
2011	12,72	9,51	575,5	171,0	27/11/2011	1	2	19

Table 5.3.1: Frost data, mean temperature and precipitation for each sampling year and for the production period (October, November and December)

Here we add more text.

If labeled, crossreference can be done: Table:5.3.1 in page:16

5.4 Equations

Ecuations can be as simple as:

$$\int_a^b F(x)dx = F(a) - F(b) \quad (5.4.1)$$

Other:

$$L' = L\sqrt{1 - \frac{v^2}{c^2}} \quad (5.4.2)$$

And one more:

$$\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} \stackrel{\frac{0}{0}}{=} \lim_{x \rightarrow 0} \frac{e^x}{2} = \frac{1}{2} \quad (5.4.3)$$

Other possiblity, to do reference to a equation as in equation 5.4.4

$$\lim_{x \rightarrow 0} \frac{e^x}{2} = \frac{1}{2} \quad (5.4.4)$$

5.5 Other options

Although LyX provides a visual menu to insert equations, images and more, it is possible to include L^AT_EX commands directly. If possible, try to use the INSERT menu before searching L^AT_EX commands.

Other usefull tool can be found in the DOCUMENT CONFIGURATION menu: PDF properties. This must be activated and properly configurated in order to insert the apropiate schema of links inside the PDF file output.

Chapter 6

References to bibliography

References list will follow the APA [Thomas et. al.,2004]standards. Theses links show different guides about APA style:

1. <https://guides.libraries.psu.edu/apaquickguide/intext>
2. <https://www.apastyle.org/learn/quick-guide-on-references>

ANNEX 1: Template commands for document design

This chapter is a short description of the document's page composition and the template L^AT_EX code to generate them. The template is stored in the file .STY as could be seen in figure 3.1.1 (page 7)

This file contains the necessary definitions and first pages design. This chapter is only for documentation purpose, you will have to change commands here only if there are format requirements that the template not match.

Template definitions

Global definitions as page margins, paper size and default font size:

```
\usepackage{times}
\usepackage{graphicx}
\usepackage{ifthen}
% % MARGENES
%
\usepackage{vmargin}
\setpapersize{A4}
\setmarginsrb{3cm}{2.5cm}{3cm}{2.0cm}{14pt}{0.4cm}{14pt}{1cm}
```

Definitions of the basic data for the document:

```
% DATOS BASICOS DEL TFM
\newcommand{\tituloTxt}{Título}
\newcommand{\titulo}[1]{\renewcommand{\tituloTxt}{#1}}
\newcommand{\autorTxt}{Autor}
\newcommand{\autor}[1]{\renewcommand{\autorTxt}{#1}}
\newcommand{\tutorTxt}{Tutor}
\newcommand{\tutor}[1]{\renewcommand{\tutorTxt}{#1}}
\newcommand{\departamentoTxt}{ }
\newcommand{\departamento}[1]{\renewcommand{\departamentoTxt}{#1}}
\newcommand{\fechaTxt}{Fecha}
\newcommand{\fecha}[1]{\renewcommand{\fechaTxt}{#1}}
%
% COMPOSICION DEL TRIBUNAL
\newcommand{\tribunalPresidenteTxt}{Dr. D.}
\newcommand{\tribunalPresidente}[1]{\renewcommand{\tribunalPresidenteTxt}{#1}}
\newcommand{\tribunalVocalTxt}{Dr. D.}
\newcommand{\tribunalVocal}[1]{\renewcommand{\tribunalVocalTxt}{#1}}
\newcommand{\tribunalSecretarioTxt}{Dr. D.}
\newcommand{\tribunalSecretario}[1]{\renewcommand{\tribunalSecretarioTxt}{#1}}
%
% RESUMEN Y PALABRAS CLAVE EN ESPAÑOL E INGLES
\newcommand{\resumenTxt}{}
\newcommand{\resumen}[1]{\renewcommand{\resumenTxt}{#1}}
\newcommand{\abstractTxt}{}
\newcommand{\abstract}[1]{\renewcommand{\abstractTxt}{#1}}
\newcommand{\palabrasClaveTxt}{}
\newcommand{\palabrasClave}[1]{\renewcommand{\palabrasClaveTxt}{#1}}
\newcommand{\keywordsTxt}{}
\newcommand{\keywords}[1]{\renewcommand{\keywordsTxt}{#1}}
```

Optional pages' definitions:

```
% AGRADECIMIENTOS
% paginaAgradece [si,no]
\newcommand{\paginaAgradeceTxt}{no}
\newcommand{\paginaAgradece}[1]{\renewcommand{\paginaAgradeceTxt}{#1}}
% agradecimientos [Texto de agradecimientos]
\newcommand{\agradecimientosTxt}{}
\newcommand{\agradecimientos}[1]{\renewcommand{\agradecimientosTxt}{#1}}
%
% OPCIONALES: LISTA DE FIGURAS, LISTA DE TABLAS, PAGINA DE EVALUACION
\newcommand{\listaFigurasTxt}{no}
\newcommand{\listaFiguras}[1]{\renewcommand{\listaFigurasTxt}{#1}}
\newcommand{\listaCuadrosTxt}{no}
\newcommand{\listaCuadros}[1]{\renewcommand{\listaCuadrosTxt}{#1}}
\newcommand{\paginaEvalTxt}{no}
\newcommand{\paginaEval}[1]{\renewcommand{\paginaEvalTxt}{#1}}
%
% % TAMAÑOS DE FUENTE INTERNOS %
\newcommand{\tfmTamPeq}{\fontsize{12}{14}\selectfont}
\newcommand{\tfmTamNormal}{\fontsize{14}{16}\selectfont}
\newcommand{\tfmTamMedio}{\fontsize{16}{18}\selectfont}
\newcommand{\tfmTamMEDIO}{\fontsize{18}{20}\selectfont}
\newcommand{\tfmTamGrande}{\fontsize{20}{22}\selectfont}
```

Definitions for especial font sizes that can be used throughout the document:

```
% % TAMAÑOS DE FUENTE INTERNOS %
\newcommand{\tfmTamPeq}{\fontsize{12}{14}\selectfont}
\newcommand{\tfmTamNormal}{\fontsize{14}{16}\selectfont}
\newcommand{\tfmTamMedio}{\fontsize{16}{18}\selectfont}
\newcommand{\tfmTamMEDIO}{\fontsize{18}{20}\selectfont}
\newcommand{\tfmTamGrande}{\fontsize{20}{22}\selectfont}
```

First pages

The template store the L^AT_EX commands necessary for preliminary pages' design and composition.

Front page

This the first page, with the UVa emblem, document tittle, and author's name:

```
\thispagestyle{empty}
\frontmatter
\begin{center}
\includegraphics[width=4.5cm]{logos/escudoColor}
{ \rule[0.5mm]{100mm}{1pt}
\sc
\tfmTamMEDIO
\vspace{0.25cm} \textbf{Universidad} de \textbf{Valladolid}
\vspace{15mm}
\tfmTamNormal Máster
Gestión Forestal basada en Ciencia de Datos
Forest Management based on Data Science (DATAFOREST) }
\end{center}
\vspace{.25cm}
\begin{center}
\tfmTamGrande \baselineskip=1.3\baselineskip
\textbf{\tituloTxt}
\end{center}
\end{center}
\vfill
\tfmTamNormal Autor: \autorTxt
\vspace{0.3cm}
Tutor: \tutorTxt
\vspace{0.4cm}
\fechaTxt
\pagebreak
```

Logo's page

The logos' page:

```
\thispagestyle{empty}
\begin{center} \includegraphics[width=10cm]{logos/logoifor}
{ \vspace{2.5cm} }
\includegraphics[width=10cm]{logos/logoetsiiaa}
{ \vspace{2.5cm} }
LOGO de otras instituciones y/o empresas
LOGO from other institutions and/or companies
\end{center}
```

Table of contents page

This page ins generated automatically by L^AT_EX:

```
\tableofcontents
\vfill
\pagebreak
```

Abstract page

Abstract page with the abstract text and keywords (in spanish too):

```
\thispagestyle{empty}
\vspace{0.75cm}
\noindent{\large\bf \ Resumen del TFM}
\vspace{0.25cm}
\resumenTxt
\vspace{0.5cm}
\noindent{\large\bf \ Palabras clave}
\vspace{0.25cm}
\palabrasClaveTxt
\vspace{0.5cm}
\noindent{\large\bf \ Abstract}
\vspace{0.25cm}
\abstractTxt
\vspace{0.5cm}
\noindent{\large\bf \ Keywords}
\vspace{0.25cm}
\keywordsTxt
\vfill
\pagebreak
```

Optional pages

Those are the optional pages' design:

```
%% % PAGINA OPCIONAL CUADRO DE EVALUACIÓN Y TRIBUNAL %
\ifthenelse{\equal{\paginaEvalTxt}{si}}{
\thispagestyle{empty}
{ \vspace{2.5cm} }
\noindent \begin{tabular}{p{.225\linewidth}p{.75\linewidth}}
\hline \[-3pt]
{\sc\tfm\tamPeq Título:} & {\tfm\tamNormal\bf\tituloTxt} \\
\[-8pt]
{\sc\tfm\tamPeq Autor:} & {\tfm\tamNormal\bf\autorTxt} \\
\[-8pt]
{\sc\tfm\tamPeq Tutor:} & {\tfm\tamNormal\bf\tutorTxt} \\
\[-8pt]
{\sc\tfm\tamPeq Departamento:} & {\tfm\tamNormal\bf\departamentoTxt} \\
\[-10pt] \hline
\end{tabular}
\vspace{1.4cm}
\noindent{\large\bf \ Tribunal}
\vspace{0.075cm}
\noindent\begin{tabular}{p{.225\linewidth}p{.75\linewidth}}
\hline \[-10pt]
{\sc\tfm\tamPeq Presidente:} & {\tfm\tamNormal\bf\tribunalPresidenteTxt} \\
\[-10pt] {\sc\tfm\tamPeq Vocal:} & {\tfm\tamNormal\bf\tribunalVocalTxt} \\
\[-10pt] {\sc\tfm\tamPeq Secretario:} & {\tfm\tamNormal\bf\tribunalSecretarioTxt} \\
\[-12pt] \hline \[-8pt] {\sc\tfm\tamPeq Fecha:} & {\tfm\tamNormal\bf\fechaTxt} \\
\[-10pt]
{\sc\tfm\tamPeq Calificación:} & \\
\[-12pt]
\hline
\end{tabular}
\fill
\pagebreak
}{}}

% % PAGINA OPCIONAL AGRADECIMIENTOS/ACKNOWLEDGEMENT %
\ifthenelse{\equal{\paginaAgradeceTxt}{si}}{
\thispagestyle{empty}
{ \vspace{10cm} }
\begin{flushright}
\tfm\tamPeq
\agradecimientosTxt
\end{flushright}
\fill
\pagebreak
}
```

Index of figures and tables

The index of figures and tables pages' are generated automatically by L^AT_EX:

```
\ifthenelse{\equal{\listaFigurasTxt}{si}}{\listoffigures} {}
\ifthenelse{\equal{\listaCuadrosTxt}{si}}{\listoftables} {}
```


Bibliography

- [Derwing et. al.,2002] Derwing, T. M., Rossiter, M. J., & Munro, M. J. (2002). Teaching native speakers to listen to foreign-accented speech. *Journal of Multilingual and Multicultural Development*, 23(4), 245-259.
- [Thomas et. al.,2004] Thomas, H. K. (2004). Training strategies for improving listeners' comprehension of foreign-accented speech (Doctoral dissertation). University of Colorado, Boulder.