



POLITECNICO
MILANO 1863

**SCUOLA DI INGEGNERIA INDUSTRIALE
E DELL'INFORMAZIONE**

EXECUTIVE SUMMARY OF THE THESIS

Title of the thesis

LAUREA MAGISTRALE IN PHYSICS ENGINEERING - INGEGNERIA FISICA

Author: MATTEO VENTURELLI

Advisor: PROF. GIACOMO CLAUDIO GHIRINGHELLI

Co-advisor: MATILDA FRANSSON

Academic year: 2023-2024

1. Introduction

This document is intended to be both an example of the Polimi L^AT_EX template for the Executive Summary of your thesis, as well as a short introduction to its use.

The Executive Summary is required only if the thesis has been assigned to a reviewer (*controrelatore*) for an independent evaluation of its quality, scientific/technical relevance and original contribution.

2. Guidelines

The Executive Summary is a critical overview of your thesis with a focus on the main achievements that have emerged from your research.

The Executive Summary should be organized in sections/paragraphs in order to better highlight the major points of your work. The length should range from four to six pages depending on the length of the thesis manuscript. Keep the Executive Summary concise enough to be effective but long enough to allow it to be complete. It should be written after completing the thesis manuscript as a stand-alone independent document of sufficient clarity and detail to ensure that the reader can figure out the overall objectives, the methodology employed and the results/impact of your research.

In writing the Executive Summary, keep in mind that it is not an abstract, it is not a preface, and it is not a random collection of highlights. With a few exceptions, do not simply cut and paste whole sections or paragraphs of the thesis manuscript into a disorganized and cluttered Executive Summary. You should reorganize information to be informative as well as concise.

The Executive Summary could contain a few important equations related to your work. It could also include the most relevant figures and tables taken or elaborated from the thesis manuscript. You should also include in the Executive Summary the very essential bibliography of your study. The number of selected references should range from three to five depending on the type of work.

The Executive Summary should contain a final section reporting the main conclusions drawn from your research.

3. Sections and subsections

It is convenient to organize the Executive Summary of your thesis into sections and subsections. If necessary, subsubsections, paragraphs and subparagraphs can be also used. A new section or subsection can be included with the commands

`\section{Title of the section}`

`\subsection{Title of the subsection}`

It is recommended to give a label to each section by using the command

`\label{sec:section_name}%`

where the argument is just a text string that you'll use to reference that part as follows: *Section 3 contains* SECTIONS AND SUBSECTIONS

4. Equations, Figures, Tables and Algorithms

All Figures, Tables and Algorithms have to be properly referred in the text. Equations have to be numbered only if they are referred in the text.

4.1. Equations

A few important equations related to your work might be reported in the Executive Summary. For example, the Maxwell's equations read:

$$\left\{ \begin{array}{l} \nabla \cdot \mathbf{D} = \rho, \\ \nabla \times \mathbf{E} + \frac{\partial \mathbf{B}}{\partial t} = \mathbf{0}, \\ \nabla \cdot \mathbf{B} = 0, \\ \nabla \times \mathbf{H} - \frac{\partial \mathbf{D}}{\partial t} = \mathbf{J}. \end{array} \right. \quad \begin{array}{l} (1a) \\ (1b) \\ (1c) \\ (1d) \end{array}$$

Equation (1) is automatically labeled by `cleveref`, as well as Equation (1a) and Equation (1c). Thanks to the `cleveref` package, there is no need to use `\eqref`.

4.2. Figures

To include Figures in your text you can use `TikZ` for high-quality hand-made figures [1], or just include them with the command

`\includegraphics[options]{filename.xxx}`

where xxx is the format (`.png`, `.jpg`, `.eps`, ...). An example is shown in Figure 1.



POLITECNICO
MILANO 1863

Figure 1: Caption of the Figure.

4.3. Tables

Within the environments `table` and `tabular` you can create very fancy tables like the one shown in Table 1.

Example of Table

	column1	column2	column3
row1	1	2	3
row2	α	β	γ
row3	alpha	beta	gamma

Table 1: Caption of the Table.

4.4. Algorithms

Pseudo-algorithms can be written in \LaTeX with the `algorithm` and `algorithmic` packages. One example follows.

Algorithm 1 Name of the Algorithm

```

1: Initial instructions
2: for for – condition do
3:   Some instructions
4:   if if – condition then
5:     Some other instructions
6:   end if
7: end for
8: while while – condition do
9:   Some further instructions
10: end while
11: Final instructions

```

5. Some further useful recommendations

Theorems and Propositions have to be formatted as follows:

Theorem 5.1. *Write here your theorem.*

Proof. If useful you can report here the proof.

How to write propositions:

Proposition 5.1. *Write here your proposition.*

How to insert itemized lists:

- first item;
- second item.

How to insert numbered lists:

1. first item;
2. second item.

6. Bibliography

The Executive Summary should contain the very essential bibliography of your study. It is suggested to use the BibTeX package [2] and save the bibliographic references in the file `bibliography.bib`.

7. Conclusions

A final section containing the main conclusions of your research/study have to be inserted here.

8. Acknowledgements

Here you might want to acknowledge someone.

References

- [1] CTAN. `pgf` – create PostScript and PDF graphics in TEX.
- [2] CTAN. BiBTeX documentation, 2017.