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TECHNOLOGY
AND ARCHITECTURE

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Write here your dedication.

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Acknowledgments

Write here your acknowledgements and, if applicable, any grants or sources of funding.

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Resumo

Escreva aqui o resumo em Português. Existe um limite de 250 palavras. A tese deverá ter um Resumo em português e um em inglês (Abstract), contudo poderá também ter em outros idiomas, para além destes dois.

Palavras-Chave: *Palavras-chave; separadas; por; ponto-e-vírgula (de 3 a 6 palavras-chave)*

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Abstract

Write here the abstract in English. There is a 250 word limit. Your thesis should have an abstract in English and one in Portuguese (Resumo), however, it may have additional abstracts in other languages.

Keywords: *Keywords; separated; by; semicolons (3 to 6 keywords)*

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List of Acronyms

DSR: Design Science Research

IS: Information System

QAYT: Question About Your Thesis

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CHAPTER 1

Introduction

The thesis should be between 150 and 200 pages (maximum) from the beginning of the Introduction to the end of the Conclusions.

All chapters automatically begin on odd-numbered pages. If a chapter would start on an even-numbered page, a blank page is automatically added.

Don't forget:

- Rigor in form: grammatical correctness, sobriety, uniformity;
- Rigor in content: definitions of terms, citations;
- Choice of person of the verb: us, impersonal.

1.1. This is a Section

The first paragraph of a chapter or section is not indented, i.e. it is aligned with the title. All following paragraphs have an indentation of 0.7cm. This is done automatically.

We are currently in Chapter 1. When referring to chapters or sections this way, it's customary to write "Section", "Chapter", and so on in uppercase, as opposed to "section" or "chapter".

1.1.1. Subsection

You can have sub-sections within sections. Use these to better organise your content, if you feel like it's needed.

1.1.1.1. Sub-subsection

You can even have sub-subsections! These do not appear in the Table of Contents.

1.2. This is Another Section

This is another section. You can define as many as you want, and they are automatically numbered within their chapter.

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CHAPTER 2

Literature Review

References should be added to the references.bib file, in BibTeX format. They can then be cited in the text. Anything you cite in the text is automatically added to the list of References at the end of the document.

A paper by Peffers *et al.* [1] explores the usage of Design Science Research (DSR) for research in Information Systems (ISs).

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CHAPTER 3

Typesetting in L^AT_EX

3.1. Text, Images, and Tables

Your text can be written in *italics* or **bold**. If you’re feeling adventurous, you can even do **both** at the same time! There’s also monospaced and CAPITALISED text.

You can remove the indentation from a paragraph which isn’t the first of its chapter or section. If you need to do some extra sophisticated formatting, you may wrap your text in some special environments. For example, you can horizontally center some content on the page:

Isn’t that cool?

A lot of the time, you’ll want to list things out:

- This is a list with bullet points;
- You can add as many as you like!

Your lists can also be numbered:

- (1) This is the first item;
- (2) And so on...

Sometimes, it might be useful to change what is used as a “bullet point” within a list. For example, you might want your research questions labelled “RQ1” and “RQ2”. This one might be useful:

```
\begin{enumerate}[label=\textbf{RQ\arabic*}] ... \end{enumerate}
```

Here’s what that looks like:

RQ1 Are L^AT_EX documents difficult to use?

You can format tables using L^AT_EX, as seen in Table 3.1. There’s a lot of customisation options, so it helps to use a website that creates them for you. Here’s a good option: <https://www.tablesgenerator.com/>.

TABLE 3.1. Table captions should always appear **above** the table.

ID	Name	Email
1	Alice	alice@latex.com
2	Bob	bob@latex.com

Images can also be included, as you can see in Figure 3.1. You can make them smaller or larger by changing their `width`. L^AT_EX usually places them wherever it decides they will fit best, but you can try modifying this behaviour using placement modifiers.¹

¹https://www.overleaf.com/learn/latex/Positioning_images_and_tables

FIGURE 3.1. Figure captions should always appear **below** the figure.

3.2. Mathematical Objects

LaTeX lets you typeset nice-looking mathematical formulae. For example, let $x = 5$ and $y = 3$. Then, $xy = 15$.

Some equations are so important that you can number them. For example, the series expansion of the function $y = \exp x$ at $x = 0$ is given by the infinite sum

$$\sum_{n=0}^{\infty} \frac{x^n}{n!}. \quad (3.1)$$

This definition is one of the ways that we can check that the derivative of an exponential is itself. Actually, we can prove this as a *Theorem*.

THEOREM 3.1. *Let $y = \exp x$. The derivative is given by $y' = \exp x$.*

PROOF.

$$\frac{d}{dx} \exp x = \frac{d}{dx} \sum_{n=0}^{\infty} \frac{x^n}{n!} = \sum_{n=1}^{\infty} \frac{d}{dx} \frac{x^n}{n!} = \sum_{n=1}^{\infty} \frac{nx^{n-1}}{n!} = \sum_{n=1}^{\infty} \frac{x^{n-1}}{(n-1)!} = \exp x$$

□

COROLLARY 3.1. *The function $y = \exp x$ is an eigenfunction of the derivative operator.*

If you need to state a known, named theorem, you can also do that.

THEOREM 3.2 (Fundamental Theorem of Calculus). *For any continuous function f , we have*

$$\int_a^b f'(t)dt = f(b) - f(a).$$

Besides Theorem, Corollary, and Proof, you can use the following environments:

- Axiom
- Case
- Claim
- Conclusion
- Condition
- Conjecture
- Corollary
- Criterion
- Definition
- Example

- Exercise
- Lemma
- Notation
- Problem
- Proposition
- Remark
- Solution
- Summary
- Theorem

3.3. Computer Code

You can typeset code in your dissertation by using Listings², as in Figure 3.2, the Minted³ syntax highlighting package, as in Figure 3.3, or, if you need to write some pseudocode, the Algorithm environment, as in Algorithm 1.

```
public static void main(String[] args) {
    System.out.println("Hello world!");
}
```

FIGURE 3.2. Example of code formatting using listings.

```
public static void main(String[] args) {
    System.out.println("Hello world!");
}
```

FIGURE 3.3. Example of code formatting using minted.

Algorithm 1 Algorithm for Multiplying Two Integers

Require: $x \in \mathbb{N}$

Require: $y \in \mathbb{N}$

$i \leftarrow 0$

$z \leftarrow 0$

while $i < x$ **do**

$z \leftarrow z + y$

$i \leftarrow i + 1$

end while

return z

²https://www.overleaf.com/learn/latex/Code_listing

³https://www.overleaf.com/learn/latex/Code_Highlighting_with_minted

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CHAPTER 4

Further Chapters

You can write anything you want! It's your dissertation; go wild. If you have any more Questions About Your Thesis (QAYTs) or need some help with L^AT_EX, Overleaf has a great set of tutorials¹. Happy writing!

¹<https://www.overleaf.com/learn/latex/Tutorials>

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CHAPTER 5

Conclusions

L^AT_EX is a high-quality typesetting system; it includes features designed for the production of technical and scientific documentation.

This template conforms to ISTA's thesis style guidelines¹, accessed on May 15th 2025, and implements guidelines given to students by the school's staff.

¹<https://www.iscte-iul.pt/conteudos/academic-information/academic-journey/phd-area/2061/submission-of-thesis-or-compilation-of-articles>

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References

- [1] K. Peffers, T. Tuunanen, M. Rothenberger, and S. Chatterjee, “A design science research methodology for information systems research,” *Journal of Management Information Systems*, vol. 24, pp. 45–77, Jan. 2007.