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<Author's Full Name>



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Supervisor: Prof. <Name of the Supervisor>

November 18, 2024

<**Dissertation Title**>

<**Author's Full Name**>

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Resumo

Este documento ilustra o formato a usar em dissertações na Feup. São dados exemplos de margens, cabeçalhos, títulos, paginação, estilos de índices, etc. São ainda dados exemplos de formatação de citações, figuras e tabelas, equações, referências cruzadas, lista de referências e índices. Este documento não pretende exemplificar conteúdos a usar. É usado o *Loren Ipsum* para preencher a dissertação. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam vitae quam sed mauris auctor porttitor. Mauris porta sem vitae arcu sagittis facilisis. Proin sodales risus sit amet arcu. Quisque eu pede eu elit pulvinar porttitor. Maecenas dignissim tincidunt dui. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec non augue sit amet nulla gravida rutrum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Nunc at nunc. Etiam egestas. Donec malesuada pede eget nunc. Fusce porttitor felis eget mi mattis vestibulum. Pellentesque faucibus. Cras adipiscing dolor quis mi. Quisque sagittis, justo sed dapibus pharetra, lectus velit tincidunt eros, ac fermentum nulla velit vel sapien. Vestibulum sem mauris, hendrerit non, feugiat ac, varius ornare, lectus. Praesent urna tellus, euismod in, hendrerit sit amet, pretium vitae, nisi. Proin nisl sem, ultrices eget, faucibus a, feugiat non, purus. Etiam mi tortor, convallis quis, pharetra ut, consectetur eu, orci. Vivamus aliquet. Aenean mollis fringilla erat. Vivamus mollis, purus at pellentesque faucibus, sapien lorem eleifend quam, mollis luctus mi purus in dui. Maecenas volutpat mauris eu lectus. Morbi vel risus et dolor bibendum malesuada. Donec feugiat tristique erat. Nam porta auctor mi. Nulla purus. Nam aliquam.

Abstract

Here goes the abstract written in English. Should say the same.

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UN Sustainable Development Goals

The United Nations Sustainable Development Goals (SDGs) provide a global framework to achieve a better and more sustainable future for all. It includes 17 goals to address the world's most pressing challenges, including poverty, inequality, climate change, environmental degradation, peace, and justice.

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The specific Sustainable Development Goals mentioned have the following names:

SDG 7 Ensure access to affordable, reliable, sustainable and modern energy for all

SDG 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

SGD	Target	Contribution	Performance Indicators and Metrics
7	7.1	Enhancing the efficiency of SCADA systems can help increase the reliability of solar energy production, facilitating universal access to clean energy.	Percentage of solar plants with improved ...
	7.2	Improving the management of solar plants helps enhance the efficiency and reliability of renewable energy ...	Increase in renewable energy share ...
8	8.1	Enhancing renewable energy infrastructure promotes resilience against climate-related hazards and supports sustainable energy sources.	Increase in resilience metrics ...

Acknowledgements

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<O Nome do Autor>

“Our greatest glory is not in never falling, but in rising every time we fall”

Confucius

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List of Acronyms

ADT	Abstract Data Type
ANDF	Architecture-Neutral Distribution Format
API	Application Programming Interface
CAD	Computer-Aided Design
CASE	Computer-Aided Software Engineering
CORBA	Common Object Request Broker Architecture
UNCOL	UNiversal COmpiler-oriented Language
Loren	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed vehicula lorem commodo dui
WWW	<i>World Wide Web</i>

Chapter 1

2 Introduction

This document illustrates the format to be used for dissertations at FEUP. Examples of margins
4 are given, headings, titles, pagination, index styles, etc. are given. It also gives examples of
formatting citations, figures and tables, equations, cross-references, reference lists and indexes.
6 This document is not intended to exemplify content to be used.

A collection of existing standards can be found in Matos [9].

8 This first chapter illustrates the use of citations and references.

1.1 Section Example

10 As well as giving an example of how to use a quotation, the following paragraph introduces a
reference that can be consulted, among many other interesting bibliographical references [11, 12].

12 “Like the Abstract, the Introduction should be written to engage the interest of the
reader. It should also give the reader an idea of how the dissertation is structured, and
14 in doing so, define the thread of the contents.” [12, chap. Introduction]

16 Lorem ipsum Lipsum [6] dolor sit amet, consectetur adipiscing elit. Sed eget nunc. Phasellus
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1.4 Section Example

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24 lobortis rhoncus. Curabitur vitae diam sed sem aliquet tempus. Sed scelerisque nisi nec sem.

1.5 Dissertation Structure

26 In addition to the introduction, this dissertation contains x more chapters.

In Chapter 2, the state of the art is described and related work is presented. Chapter 3, ipsum
28 dolor sit amet, consectetur adipiscing elit.

Chapter 2

Chapter Example

1 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec a eros. Phasellus non nulla non
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2.1 Introduction

6 Fusce risus mi, tristique eu, consectetur id, auctor sed, elit. Donec laoreet. Duis consectetur
interdum libero Marinho, Viegas, and Lopes [8].

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26 2.2.2 Subsection Example

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¹Example of a footnote.

2.3 Summary

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Chapter 3

Chapter Example

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3.1 Introduction

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$$CIF_1 : \quad F_0^j(a) = \frac{1}{2\pi i} \oint_{\gamma} \frac{F_0^j(z)}{z-a} dz \quad (3.1)$$

$$CIF_2 : \quad F_1^j(a) = \frac{1}{2\pi i} \oint_{\gamma} \frac{F_0^j(x)}{x-a} dx \quad (3.2)$$

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porta metus, et cursus leo metus eget nibh.

¹<https://en.wikipedia.org/wiki/Equation>

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

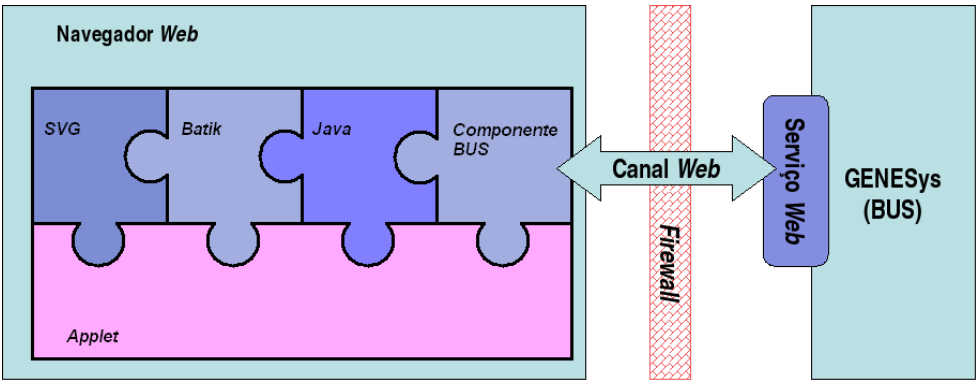


Figure 3.1: Architecture

3.2 Section Example

2 Curabitur ac massa vel ante tincidunt placerat[16]:

- **Components** — Suspendisse auctor mattis augue *push*;
- **Praesent** — Sit amet sem maecenas eleifend facilisis leo;
- **Pellentesque** — Habitant morbi tristique senectus et netus.

3.2.1 Subsection Example

Suspendisse elementum sodales felis in Figure 3.1 on page 8 is a floating figure.

Loren ipsum dolor sit amet, consectetur adipiscing elit. Praesent sit amet sem. Maecenas eleifend facilisis leo. Vestibulum et mi. Aliquam posuere, ante non tristique consectetur, dui elit scelerisque augue, eu vehicula nibh nisi ac est. Nullam laoreet fermentum urna.

Duis eget diam. In est justo, tristique in, lacinia vel, feugiat eget, quam. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Fusce feugiat, elit ac placerat fermentum, augue nisl ultricies eros, id fringilla enim sapien eu felis. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Sed dolor mi, porttitor quis, condimentum sed, luctus in.

3.2.2 Subsection Example

Suspendisse elementum sodales felis in Table 3.1 is a floating table.

Loren ipsum dolor sit amet, consectetur adipiscing elit. Praesent sit amet sem. Maecenas eleifend facilisis leo. Vestibulum et mi. Aliquam posuere, ante non tristique consectetur, dui elit scelerisque augue, eu vehicula nibh nisi ac est. Suspendisse elementum sodales felis. Nullam laoreet fermentum urna.

Duis eget diam. In est justo, tristique in, lacinia vel, feugiat eget, quam. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Fusce feugiat, elit ac placerat fermentum, augue nisl ultricies eros, id fringilla enim sapien eu felis. Vestibulum ante

Table 3.1: A table

<i>k</i>	Iteration <i>k</i> de <i>f</i> (<i>x_n</i>)			comments
	<i>x</i> ₁ ^{<i>k</i>}	<i>x</i> ₂ ^{<i>k</i>}	<i>x</i> ₃ ^{<i>k</i>}	
0	-0.3	0.6	0.7	-
1	0.47102965	0.04883157	-0.53345964	$\delta < \varepsilon$
2	0.49988691	0.00228830	-0.52246185	$\delta < \varepsilon$
3	0.49999976	0.00005380	-0.523656	<i>N</i>
4	0.5	0.00000307	-0.52359743	
⋮	⋮	⋱	⋮	
7	0.5	0.0	-0.52359878	$\delta < 10^{-8}$

ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Sed dolor mi, porttitor quis,
2 condimentum sed, luctus in.

3.3 Section Example

4 Loren ipsum dolor sit amet, consectetur adipiscing elit. Praesent sit amet sem. Maecenas
eleifend facilisis leo. Vestibulum et mi. Aliquam posuere, ante non tristique consectetur, dui
6 elit scelerisque augue, eu vehicula nibh nisi ac est. Suspendisse elementum sodales felis. Nullam
laoreet fermentum urna.

8 3.4 Summary

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Fusce
10 feugiat, elit ac placerat fermentum, augue nisl ultricies eros, id fringilla enim sapien eu felis.
Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Sed dolor
12 mi, porttitor quis, condimentum sed, luctus in.

Chapter 4

2 Another chapter

Integer nec quam. Sed fermentum. Nunc vitae leo. Etiam sit amet quam. Nunc vestibulum massa
4 in mauris. Duis eget nulla.

4.1 Section Example

6 Fusce ultricies arcu eu nibh volutpat feugiat. Maecenas urna pede, commodo quis, porta eu,
bibendum elementum, pede.

8 4.2 Section Example

Sed eros massa, molestie eget, mattis non, rutrum ac, magna. Duis dui. Maecenas eget tortor ut
10 dolor semper mattis. Maecenas auctor, tellus et ultricies tempor, elit est placerat lacus, in posuere
mauris lorem et arcu.

12 4.2.1 Subsection Example

Nulla nec eros et pede vehicula aliquam. Aenean sodales pede vel ante. Fusce sollicitudin sodales
14 lacus. Maecenas justo mauris, adipiscing vitae, ornare quis, convallis nec, eros.

4.2.2 Subsection Example

16 Pellentesque pulvinar fringilla dolor. In sit amet pede. Proin orci justo, semper vel, vulputate quis,
convallis ac, nulla. Nulla at justo. Mauris feugiat dolor. Etiam posuere fermentum eros. Morbi nisl
18 ipsum, tempus id, ornare quis, mattis id, dolor. Aenean molestie metus suscipit dolor. Aliquam id
lectus sed nisl lobortis rhoncus. Curabitur vitae diam sed sem aliquet tempus. Sed scelerisque nisi
20 nec sem.

4.3 Section Example

2 Sed eros massa, molestie eget, mattis non, rutrum ac, magna. Duis dui. Maecenas eget tortor ut
dolor semper mattis. Maecenas auctor, tellus et ultricies tempor, elit est placerat lacus, in posuere
4 mauris lorem et arcu.

4.3.1 Subsection Example

6 Nulla nec eros et pede vehicula aliquam. Aenean sodales pede vel ante. Fusce sollicitudin sodales
lacus. Maecenas justo mauris, adipiscing vitae, ornare quis, convallis nec, eros.

4.3.2 Subsection Example

8 Aliquam id lectus sed nisl lobortis rhoncus. Curabitur vitae diam sed sem aliquet tempus. Sed
10 scelerisque nisi nec sem Khakipoor, Khani, and Karimian [5] and Liu et al. [7].

4.4 Section Example

12 Maecenas urna pede, commodo quis, porta eu, bibendum elementum, pede. Sed eros massa,
molestie eget, mattis non, rutrum ac, magna. Duis dui. Maecenas eget tortor ut dolor semper
14 mattis. Maecenas auctor, tellus et ultricies tempor, elit est placerat lacus, in posuere mauris lorem
et arcu [2, 3, 10, 15].

4.4.1 Subsection Example

16 Nulla nec eros et pede vehicula aliquam. Aenean sodales pede vel ante. Fusce sollicitudin sodales
18 lacus. Maecenas justo mauris, adipiscing vitae, ornare quis, convallis nec, eros.

4.4.2 Subsection Example

20 Aliquam id lectus sed nisl lobortis rhoncus. Curabitur vitae diam sed sem aliquet tempus. Sed
scelerisque nisi nec sem Khakipoor, Khani, and Karimian [5] and Liu et al. [7] scelerisque.

22 Nulla nec eros et pede vehicula aliquam. Aenean sodales pede vel ante. Fusce sollicitudin
sodales lacus. Maecenas justo mauris, adipiscing vitae, ornare quis, convallis nec, eros. Etiam
24 laoreet venenatis ipsum. In tellus odio, eleifend ac, ultrices vel, lobortis sed, nibh. Fusce nunc
augue, dictum non, pulvinar sed, consectetur eu, ipsum. Vivamus nec pede.

4.5 Listing example

- 2 Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Fusce feugiat, elit ac placerat fermentum, augue nisl ultricies eros, id fringilla enim sapien eu felis.

Listing 4.1: Python example

```
4
1 # Take the user's input
2 words = input("Enter the text to translate to pig latin: ")
3 print(f"You entered: {words}")
4
5 # Break apart the words into a list
6 words = words.split(' ')
7
8
9 # Use a list comprehension to translate words greater than or equal to 3 characters
10 translated_words = [(w[1:] + w[0] + "ay") for w in words if len(w) >= 3 ]
11
12 # Print each translated word
13 for word in translated_words:
14     print(word)
```

- Listing 4.1 uis eget diam. In est justo, tristique in, lacinia vel, feugiat eget, quam. Pellentesque
- 20 habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Fusce feugiat, elit ac placerat fermentum, augue nisl ultricies eros, id fringilla enim sapien eu felis. Vestibulum ante
- 22 ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Sed dolor mi, porttitor quis, condimentum sed, luctus in.

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Appendix A

2 Lorem Ipsum

After the conclusions and bibliographical references, the text used to complete the dissertation is
4 presented in this numbered annex.

A.1 What is *Lorem Ipsum*?

6 *Lorem Ipsum* is simply dummy text of the printing and typesetting industry. Lorem Ipsum has
been the industry's standard dummy text ever since the 1500s, when an unknown printer took
8 a galley of type and scrambled it to make a type specimen book. It has survived not only five
centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was
10 popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages,
and more recently with desktop publishing software like Aldus PageMaker including versions of
12 Lorem Ipsum [6].

A.2 Where does *Lorem* come from?

14 Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of
classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin
16 professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words,
consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical
18 literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and
1.10.33 of “de Finibus Bonorum et Malorum” (The Extremes of Good and Evil) by Cicero, written
20 in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The
first line of Lorem Ipsum, “Lorem ipsum dolor sit amet. . .”, comes from a line in section 1.10.32.

22 The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those inter-
ested. Sections 1.10.32 and 1.10.33 from “de Finibus Bonorum et Malorum” by Cicero are also
24 reproduced in their exact original form, accompanied by English versions from the 1914 transla-
tion by H. Rackham.

A.3 Why is *Lorem* used?

2 It is a long established fact that a reader will be distracted by the readable content of a page
when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal
4 distribution of letters, as opposed to using “Content here, content here”, making it look like read-
able English. Many desktop publishing packages and web page editors now use Lorem Ipsum
6 as their default model text, and a search for “lorem ipsum” will uncover many web sites still in
their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on
8 purpose (injected humour and the like).

A.4 Where can you find examples?

10 There are many variations of passages of Lorem Ipsum available, but the majority have suffered
alteration in some form, by injected humour, or randomised words which don’t look even slightly
12 believable. If you are going to use a passage of Lorem Ipsum, you need to be sure there isn’t any-
thing embarrassing hidden in the middle of text. All the Lorem Ipsum generators on the Internet
14 tend to repeat predefined chunks as necessary, making this the first true generator on the Internet.
It uses a dictionary of over 200 Latin words, combined with a handful of model sentence struc-
16 tures, to generate Lorem Ipsum which looks reasonable. The generated Lorem Ipsum is therefore
always free from repetition, injected humour, or non-characteristic words etc.