POLITECNICO
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SCUOLA DI INGEGNERIA INDUSTRIALE
E DELL'INFORMAZIONE

Executive Summary of the Thesis

Radioactive Wastes Characterization, Shielding and Dose Assessment

Laurea Triennale in Ingegneria Energetica - Energetic Engineer

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1. Introduction

The aim of this project is to give a first complete overview of Radioactive Wastes management. The project will be structured in this way: In the first part will be discussed the production of radioactive wastes by human activities in different sectors, with a study of the isotopic composition, over the time, of the most relevant ones; The second part will be focused mainly on the analysis of suitable materials for the shielding of radioactive wastes, to both optimize their disposal and the dose assessment limits, using *Montecarlo Simulations*; Last but not least, a study over the materials properties with the report of an experimental γ-spectroscopy of a radioactive source.

2. Waste Characterization

3. Shielding and Dose Assessment

4. Materials Properties and Experimental γ-spectroscopy

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* **??** *contains* SECTIONS AND SUBSECTIONS ....

5. 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.

5.1. Equations

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

$$\begin{cases} \nabla \cdot \boldsymbol{D} = \rho, & \text{(1a)} \\ \nabla \times \boldsymbol{E} + \dfrac{\partial \boldsymbol{B}}{\partial t} = \boldsymbol{0}, & \text{(1b)} \\ \nabla \cdot \boldsymbol{B} = 0, & \text{(1c)} \\ \nabla \times \boldsymbol{H} - \dfrac{\partial \boldsymbol{D}}{\partial t} = \boldsymbol{J}. & \text{(1d)} \end{cases}$$

Equation (1) is automatically labeled by `cleveref`, as well as Equation (1a) and Equa-

tion (1c). Thanks to the `cleveref` package, there is no need to use `\eqref`.

5.2. 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.

Figure 1: Caption of the Figure.

5.3. 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.

5.4. Algorithms

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

Algorithm 1 Name of the Algorithm

```
Initial instructions
for for − condition do
    Some instructions
    if if − condition then
        Some other instructions
    end if
end for
while while − condition do
    Some further instructions
end while
Final instructions
```

6. Some further useful recommendations

Theorems and Propositions have to be formatted as follows:

Theorem 6.1. *Write here your theorem.*

Proof. If useful you can report here the proof.

How to write propositions:

Proposition 6.1. *Write here your proposition.*

How to insert itemized lists:

- first item;
- second item.

How to insert numbered lists:

1. first item;
2. second item.

7. 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`.

8. Conclusions

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

9. Acknowledgements

Here you might want to acknowledge someone.

References

[1] CTAN. pgf – create PostScript and PDF graphics in TEX.

[2] CTAN. BiBTeX documentation, 2017.