People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

University of Abdelhamid Mehri – Constantine 2

Faculty of New Technologies of Information and Communication (NTIC)

Department of Fundamental Computing and its Applications (IFA)

MASTER'S THESIS

to obtain the diploma of Master degree in Computer Science

Option: Sciences and Technologies of Information and Communication (STIC)

Cybersecurity of smart grid infratsructure communication

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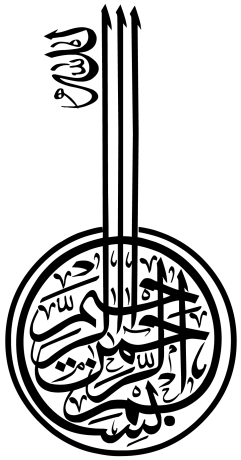

Chapter 1

Template Items

This part contains the typographical elements of the template, to be used in writing your Master's thesis. A course on scientific writing using LaTeX is available at: `https://drive.google.com/file/d/1coBxyvq-XRw5Sr3GO-VDJhYsPSLOQpRD/`

This chapter aims to give you examples of the template. You must absolutely remove it during the final version of the thesis.

1.1 Title - Level 2

1.1.1 Title - Level 3

1.1.1.1 Title - Level 4

Title - Level 2 (Unnumbered)

Title - Level 3 (Unnumbered)

Title - Level 4 (Unnumbered)

1.2 Lists of Items

This is normal text. followed by a list of items:

- Item 1
- Item 2
  - Item A
  - Item B
    - Item I

- Item II
- ...

And here is an enumerated list of items:

1. Item 1
2. Item 2
    a) Item A
    b) Item B
        i. Item I
        ii. Item II
        iii. ...

1.3 Figures, Tables and Algorithms

You can define several types of floating elements: Figures, tables, and algorithms.

Figure 1.1: An example of figures

Table 1.1: An example of tables

Colonne 1	Colonne 2	Colonne 3
Ligne 1	Ligne 1	Ligne 1
Ligne 2	Ligne 2	Ligne 2
...	...	...
...	...	...
...	...	...

1.4 Cross-Referencing

By using labels, it is possible to reference different elements of the document. As examples, Chapter 1, Section 1.1, Figure 1.1, Table 1.1, Algorithm 1.1 and Definition 1.1.

Algorithm 1.1 An example of algorithms

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

1: $i \leftarrow 10$
2: **if** $i \geq 5$ **then**
3: $\quad i \leftarrow i - 1$
4: **else**
5: $\quad$ **if** $i \leq 3$ **then**
6: $\quad\quad i \leftarrow i + 2$
7: $\quad$ **end if**
8: **end if**

Definition 1.1 *(Title of the definition)*
An example of definitions, $E = mc^2$*...*

In addition to definitions, you can use theorems, proofs, remarks, notations, lemmas, or propositions.

1.5 Source Codes

You can also introduce source codes, like the following example which is written in Java language (The syntax highlighting can be customized in the file "`/macros.tex`"):

`/src/A.java`

```
1 public class A {
2    public String a1;
3    package String a2;
4    protected String a3;
5    private String a4;
6
7    public void op1() { ... }
8    public void op2() { ... }
9 }
```

1.6 Bibliographic Citations

References are managed using the BibTEX tool. The sources are stored and organized in the file "`bibliography.bib`". To cite a source in the text, there are several possibilities:

- `\citet{bar73}` ⇒ **?**]
- `\citep{bar73}` ⇒ [**?**]
- `\citep[see][]{bar73}` ⇒ [see **?**]
- `\citet*{bar73}` ⇒ **?**]

- \citep*{bar73} ⇒ [?]
- \citealt{bar73} ⇒ ?
- \citeauthor{bar73} ⇒ ?
- \citeauthor*{bar73} ⇒ ?
- \citeyear{bar73} ⇒ ?
- \citeyearpar{bar73} ⇒ [?]

Chapter 2

Intrusion detection for smart grids

2.1 Introduction

An intrusion detection system is a piece of hardware or software that is responsible for detecting suspicious and malicious activity, and in a network or an information system, the anomaly can either be reported to a systems administrator or saved to a security information and even management system (SIEM), the SIEM combines the output from multiple sources, then uses some filtering techniques to decide if the reported activity is malicious. [1]Intrusion detection systems are categorized into 2 categories based on the location of the detection, which are either network or host-based (HIDS or NIDS), There are also two primary methods of intrusion detection: signature-based and anomaly-based. [2]

Bibliography

[1] Stanislav Abaimov and Maurizio Martellini. Selected issues of cyber security practices in cbrnecy critical infrastructure. page 31, 2017.

[2] John R. Vacca. Computer and information security handbook. 2009.