ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Master Project

Latex template for student project accomplished in IPESE

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Abstract

A brief introduction to latex will be made in this report. The main sources of information and the way to include figures, tables and equation will be shortly describe.

Contents

1 Introduction

This report is a latex template for people making a master/semester project in the IPESE group. The purpose is not to deliver a latex tutorial since there is already a lot of documentation on the web (don't forget that google is your friend). Some more information can be found in [6, 5].
The global structure (abstract, introduction, ...) and the purpose of each part is described in [1, 4].

2 Bibliography

The references are stored in the file template.bib. Some examples are given concerning:

- Books [3]
- Article [2]
- PhD Thesis [2]

More information about how to correctly cite look at `http://citation.epfl.ch/`

3 Structure

The hierarchy in the latex code is:

4 Section

4.1 Subsection

4.1.1 Subsubsection

Paragraph

Subparagraph

5 Figures

Figures can be added the following way:

5.1 One figure

If there is only one figure:

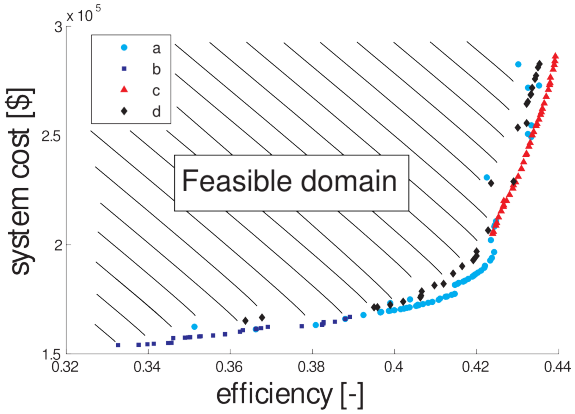
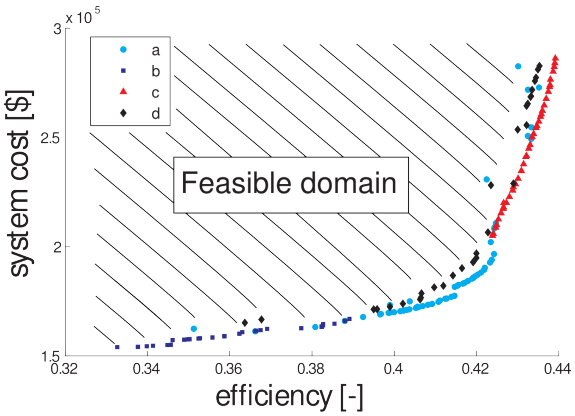


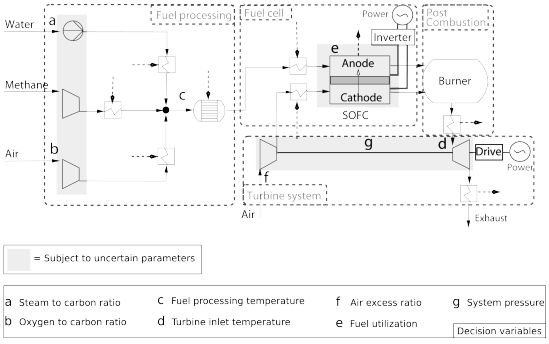
Figure 1: Example with one figure

When inserting the figure 1 in the subsection 5.1, the "[H]" placed after "begin-figure" allows to placed the figure where it appears in the text when combined with the package "float".

5.2 Two figures



(a) First figure



(b) Then another one

Figure 2: Example with two figures

6 Table

The same trick ("[H]" with float package) can be used for table placement. The table 1 shows different option for table, like multirow or multiline

Column title 1	Column title 2	Column title 3
Still column 1	Joining column 2 and 3	
Joining line 1 and 2	line1 column2 line2 column2	the width of this column is limited by p3cm line2 column3
line3 column1	line3 column2	line3 column3

Table 1: Example of table with multicolumn and multirow

7 Equation

There are several ways to include equations. Small expression can be included in the text, like $A = B + C$, by placing expression between two $. However, by this way, equation won't be numbered.
In other cases, equations can be written as following:

$$t_{i,j} = \frac{P_j \cdot t_{tot}}{\sum_{j=1}^{n_{period}} P_j} \tag{1}$$

Finally, the "split" environment allows to set equation on several line under the same numerotation as in equation 2.

$$\begin{aligned} &\max_X F(X, O, U) \\ &g(X, O, U) = 0 \\ &h(X, O, U) \geqslant 0 \end{aligned} \tag{2}$$

8 Recommendation

Here a few "tricks" to build and compile a latex file:

1. Depending on the editor in use, it may be necessary to compile several times the latex file, so that the references of figures and tables appear correctly.

2. The bibliography has to be compiled separately on several editors.

3. As you can see, the references (citation like [1], figures like 1, tables like 1, equation 2 and chapter like 5.1) are framed. This allows to move in the document by clicking on the link. Normally it does not appear when the document is printed, but if it is the case, the solution is to comment the package "hyperref".

References

[1] Sylvain Baumann. Written and oral communications: Analysis, synthesis, and design of chemical processes. Technical report, LENI-EPFL, 2005.

[2] O. Bolland, H. Kvamsdal, and J. C. Boden. A comparison of the efficiencies of the oxy-fuel power cycles water-cycle, graz-cycle and matiant-cycle carbon dioxide capture for storage in deep geologic formations. *Elsevier Science*, pages 499–511, 2005.

[3] R. Kehlhofer. *Combined-Cycle Gas and Steam Turbine Power Plant*. PennWell, South Sheridan, 1997.

[4] LENI. General guidelines for writing a scientific report. Technical report, LENI-EPFL, 2010.

[5] Andy Roberts. http://www.andy-roberts.net/misc/latex/index.html.

[6] Wikipedia. http://en.wikibooks.org/wiki/LaTeX.