HOW TO PREPARE YOUR SHORT PAPER FOR THE SCIENTIFIC WRITING SESSION

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1 Introduction

This short paper is intended to introduce a self-explained tutorial on how to prepare summarised texts to be presented in the form of internal seminars of the Graduate Program in Mechanical Engineering (now on PPGEM) from Federal University of Paraíba (UFPB). In order to suggest a standard formatting for better organization and registration at PPGEM as well as to help incoming students to be acquainted with the LATEX typesetting, this paper also dismembers into a few goals, such as: i) to work as an introductory text for training in scientific writing among the PPGEM's students and seminar attendees; ii) to strengthen the practical use of English language over the academic environment; iii) to provide guidelines to outline the first version of those research issues that will may be turned into extended abstracts and/or conference papers, and iv) to enhance the PPGEM's academic competitiveness worldwide.

2 Text elements and organization

Basically, your paper should have five major parts: i) Introduction; ii) Methodology; iii) Results; iv) Discussion and v) Conclusion, although the parts iv) e v) may be combined into a unique section.

You are free to set out the title of your paper provided that you have good reasons to support your choice. It should be totally capitalised. All the sections and subsections should have only the first letter capitalised, except when a proper noun is required. The following examples could be used for titles:

- *ROBUST METHODS TO CALCULATE ERROR ESTIMATES IN DIV- FORMULATIONS*,

- *WEAK DISTURBANCES FORMED FROM PULSATING WAVE SOURCES* or

- *CONTINUUM MECHANICS BOOKSHELF: FROM TRUESDELL TO MASE*,

whereas

- *Supercritical flows for $10 < Fr < 100$*,

- *Physicochemistry of copper nanoparticules* or

- *Action of the gradient vector*

could be applied to sections or subsections.

3 Model and data presentation

This section explains how to insert equations, figures and tables into your text as well as references to them.

3.1 Equations

If you need to write equations in your text, whether to represent a model based on differential equations, whether to define expressions of lower complexity, the usual LATEX environments are applicable to whatever you intend to do, *e.g.* a uniquely labelled equation

$$\frac{L}{A}\frac{dW}{dt} = \rho_0\beta g \oint T dz - f\frac{L}{D}\frac{W^2}{2\rho_0 A^2} \tag{1}$$

or multi-line labelled equations like

$$\frac{\partial T_1}{\partial t} + \frac{W}{A\rho_0}\frac{\partial T_1}{\partial s} = \frac{4q}{D\rho_1 c_p} \tag{2a}$$

$$\frac{\partial T_2}{\partial t} + \frac{W}{A\rho_1}\frac{\partial T_2}{\partial s} = -\frac{4U(\overline{T} - T_s)}{D\rho_2 c_p} \tag{2b}$$

$$\frac{\partial T_3}{\partial t} + \frac{W}{A\rho_2}\frac{\partial T_3}{\partial s} = \sum_{n=-\infty}^{\infty} \sin(n\lambda_3)T_3 \tag{2c}$$

or

$$f = 8\left[\left(\frac{8}{\Re}\right)^{12} + (A + B^{-1,5})\right]^{1/12}$$

$$A = \left\{-2,457\ln\left[\left(\frac{7}{\Re}\right)^{0,9} + \frac{0,27e}{D}\right]\right\}^{16} \tag{3}$$

$$B = \left(\frac{37530}{\Re}\right)^{16}.$$

To reference equations, you may use the commands `\ref{<ref>}` or `\eqref{<ref>}`. "Equation (1)" is the way how you should refer to an equation at the beginning of a statement. "Equations (2a-2c)" is the second

way, for multi-line cases. If you need refer to another equation in the middle of the text, then you should write "Eq. (2a-2c)" or just "Eq. (3)".

3.2 Figures

Figures are added to your paper as a *nonfloat* element by calling

```
\begin{center}\includegraphics[...]
{figs/<fig_name>}
(...)
\end{center}
```
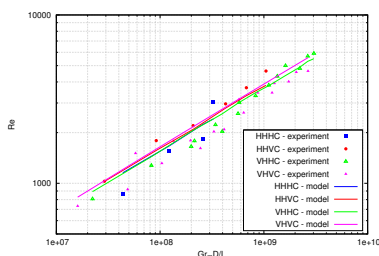
so that

Figure 1: Mass flow with time.

is a good example of well placed figure. Reference to figures follow the examples given in Subsection 3.1. That is to say, "Figure (1)" is the way how you should refer to a figure at the beginning of a statement. If you need refer to a figure in the middle of the text, then you should write "Fig. 1". In this case, parentheses are not required.

3.3 Tables

Tables like 1 can also be inserted into your text through the environment `tabular`.

	lower bound	upper bound
Ambrosini et al. [1]	285 W	480 W
present model	390 W	707 W

Table 1: Stability thresholds using Churchill's friction correlation, with external fluid temperature of 30ºC.

Reference to tables should not be abbreviated. That is to say, "Table 1" is the way how you should refer to a figure both at the beginning and in the middle of a statement. Parentheses are not required here as well.

3.4 Citations

To cite other authors or references, use the textual and parenthetical commands provided by `natbib` package `\cite{<ref1>}` or `\citep{<ref1>}`. Add your references to the file `refs.bib` and compile the document by calling `bibtex`. The usual `bib` entries are available (see file `refs.bib` in the root directory). This paper's bibliography, for instance, is formed by: a M.Sc. thesis [5], a tech report [4], a book [2], an inproceedings [3], a Ph.D. thesis [6] and a miscellaneous-like reference [7].

4 Conclusions

Here, you will end up your text by drawing conclusions and comments about future work. In order to reduce the contents, we encourage you to summarize the main results by using an itemised list as follows:

- this tutorial has discussed the PPG-EM's paper template;

- the usability of LaTeX typesetting was presented;

- a standârd template for internal seminars was suggested;

- to develop other presentation templates is a future goal.

5 Acknowledgments

(This section is optional). However, a simple remark like "The authors thank to Prof. Gustavo R. dos Anjos for sharing insights and ideas in developing the PPGEM's academic templates." may be included.

References

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[6] J. B. R. Loureiro. *Escoamento Turbulento sobre Colinas Abruptas Lisas e Rugosas com Extensas Regiões de Separação*. Tese de doutorado, COPPE/UFRJ, Rio de Janeiro - RJ, 2008.

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