

Group 1

Lubrication with shear-thinning fluids

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Abstract

This template LaTeX file provides instructions for typesetting the students' reports from the ECMI modelling week. The front page should include the title of the project, the names and affiliations of the students, and the name and affiliation of the instructor. This template includes typical text examples encountered in writing a mathematical report such as equations, equation arrays, and references. Please copy the template and overwrite this text for your report.

The template relies on the $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ package. In the unlikely event that you do not have this package, it can be obtained by FTP from `ftp://ftp.tex.ac.uk/macros/latex/required/amslatex/`.

There should be a documentation file `amsl.doc.tex` (or the corresponding `amsl.doc.dvi`) available.

The abstract should be sufficiently short not to spill over onto the next page.

1.1 Introduction

Write a suitable introduction which provides the background for your work, goal, and main results. The introduction should be written for non specialists.

1.2 Actual contents

The contents of the report is written in a small number of sections. The first section includes a detailed description of the industrial problem which is considered. In the same section the mathematical modelling is presented with appropriate equations. A section may be devoted to the numerical analysis. The following sections describe the results together with interpretations.

The reference list contains three examples of ordinary papers in journals [?, ?, ?], one proceedings contribution [?], and one book [?].

1.3 Equations

Below you see examples of typical equations and equation arrays. First we show the equation governing the damped driven pendulum

$$\frac{d^2\phi}{dt^2} + \alpha \frac{d\phi}{dt} + \sin(\phi) = A \sin(\omega t) \quad . \quad (1.1)$$

For this instruction for typesetting, the definitions of the variables and parameters in Eq.(1.1) is not important. However, comprehensive definitions and explanations should always be included. Note also the reference to Eq.(1.1) using the label “pendulum” (see the source file).

An example of aligned equations is

$$u(x, y) = x + y^2, \quad (1.2)$$

$$v(x, y) = x - y,$$

$$w(x, y) = \sin(xy), \quad (1.3)$$

In this system of equations we can refer to e.g. the definition of $w(x, y)$ in Eq.(1.3).

Below is an example showing subequation numbering (see the source file).

$$u(z, t) = \eta \operatorname{sech}[\eta\theta] \exp[i\xi\theta + i\sigma], \quad (1.4a)$$

$$\theta = t - 2\xi z - t_0, \quad (1.4b)$$

$$\sigma = (\eta^2 + \xi^2)z - \sigma_0. \quad (1.4c)$$

In the system of equations (1.4) we can refer to each individual subequation as e.g. (1.4b).

1.4 Figures

A comprehensive but short figure caption is mandatory for all figures. Remember axis labels. The figures should be inserted close to the text where it is first mentioned. Similarly, all tables, if any, should have appropriate captions (see Figure 1.1, as an example). Make sure the details of the figure are not too small.

Figure 1.1: The most efficient way to wrap marsipan in an A4 sheet?

Use the standard \LaTeX package `graphicx` for graphics inclusion. Most standard \LaTeX distributions these days contain a documentation file named `grfguide.dvi` for the graphics package.

1.5 Conclusion

Always remember the conclusion.

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