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A demonstration of the LaTeX 2ε class file for the *International Journal for Numerical Methods in Engineering*†

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SUMMARY

This paper describes the use of the LaTeX 2ε nmeauth.cls class file for setting papers for the *International Journal for Numerical Methods in Engineering*. Copyright © 2000 John Wiley & Sons, Ltd.

KEY WORDS: *Int. J. Numer. Meth. Engng*; LaTeX 2ε; class file

1. INTRODUCTION

Many authors submitting to research journals now use LaTeX 2ε to prepare their papers, so that their code can be used by the publisher. This paper describes the nmeauth.cls class file which can be used to convert articles produced with other LaTeX 2ε class files into the correct form for publication in the *International Journal for Numerical Methods in Engineering*.

The nmeauth.cls class file preserves much of the standard LaTeX 2ε interface so that any document which was produced using the standard LaTeX 2ε article style can easily be converted to work with the nmeauth style. However, the width of text and typesize may vary from that of article; therefore *line breaks will change* and it is possible that computer listings and displayed mathematics may need re-setting. This is an important consideration for a complex journal and authors are urged to make allowance for this fact.

In the following sections we describe how to lay out your code to use nmeauth.cls to reproduce the typographical look of the *Journal*. However, this paper is not a guide to using LaTeX 2ε and we would refer you to any of the many books available (see, for example, References [1, 2, 3]).

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†Please ensure that you use the most up to date class file, available from the NME Home Page at
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2. THE THREE GOLDEN RULES

Before we proceed, we would like to stress *three golden rules* that need to be followed to enable the most efficient use of your code at the typesetting stage:

(i) keep your own macros to an absolute minimum;
(ii) as TEX is designed to make sensible spacing decisions by itself, do *not* use explicit horizontal or vertical spacing commands, except in a few accepted (mostly mathematical) situations, such as `\,` before a differential d, or `\quad` to separate an equation from its qualifier;
(iii) follow the *International Journal for Numerical Methods in Engineering* reference style, as shown at the end of this document. As the style of references has changed recently, do *not* rely on past issues of the journal.

3. GETTING STARTED

The nmeauth class file should run on any standard LATEX 2_ε installation. If any of the fonts, class files, or packages it requires are missing from your installation, they can be found on CTAN or the *TEX Live* CD-ROMs.

The *Journal* is published using Times fonts; but as some authors will not have these installed on their local TEX systems, nmeauth.cls uses Computer Modern fonts by default. If you have Times fonts installed, you need only uncomment the two lines `\RequirePackage{times}` and `\RequirePackage[mtbold]{mathtime}` to print in Times instead of Computer Modern.

4. THE ARTICLE HEADER INFORMATION

The heading for any file using nmeauth.cls is like this; for explanations see the *Remarks* on the next page.

```
\documentclass{nmeauth}
\begin{document}

\NME{<first page>}{<last page>}{<volume>}{<issue>}
{<year (two digit)>}

\runningheads{<Initials and surname>}{<Short title>}

\received{<Date>}
\revised{<Date>}
\accepted{<Date>}

%\noreceived{}
%\norevised{}
%\noaccepted{}

\title{Minimal use of capitals, as in an ordinary sentence}
```

```
\author{An Author\affil{1}, Someone Else\affil{2}\comma\corrauth\
and Perhaps Another\affil{1}}


\address{\affilnum{1}\ First author's address
(in this example it is the same as the third author)\\
\affilnum{2}\ Second author's address}

\corraddr{<Corresponding author's address
(the second author in this example)>}

%\cgs{<Contract/grant sponsor name (no number)>}
%\cgsn{<Contract/grant sponsor name>}{<number>}

\begin{abstract}
text
\end{abstract}

\keywords{<list keywords>}
```

Remarks.

(i) In `\runningheads`, keep the short title and the authors' details to no more than 50 characters each; use '*et al.*' if necessary.
(ii) `\received{<Date>}` gives 'date received'; use `\noreceived{}` if this date is missing. Use `\revised` and `\accepted` similarly.
(iii) Note the use of `\affil` and `\affilnum` to link names and addresses. The author for correspondence is marked by `\corrauth` and `\corraddr` is used to give that author's address, which will be printed as a footnote, prefaced by 'Correspondence to:'.
(iv) Use `\cgs` for giving details of financial sponsors; alternatively use `\cgsn` if the grant number is also to be included. These details will be printed as a footnote, with 'Contract/grant sponsor:' and 'contract/grant number:' inserted in the appropriate places.
(v) The abstract should be capable of standing by itself, in the absence of the body of the article and of the bibliography. It must therefore contain no citations, and no *numbered* equations.

5. THE BODY OF THE ARTICLE

Articles are normally divided into sections and possibly subsections and subsubsections. The command `\section*{<title>}` is used to start a section and `\subsection*{<title>}` a subsection. Omitting the asterisks gives *numbered* sections. If an article is not divided into sections `\nosections` is inserted at the start of the first paragraph of the text.

An Acknowledgement section is started with `\acks` or `\ack` for *Acknowledgements* or *Acknowledgement*, respectively. It must be placed just before the references.

5.1. *Mathematics*

nmeauth.cls makes the full functionality of $\mathcal{A}\mathcal{M}\mathcal{S}$TEX available. We encourage the use of the `align`, `gather` and `multline` environments for displayed mathematics, and the bm package (which is on the *TEX Live CDs*) for bold mathematical symbols.

5.2. *Figures and tables*

nmeauth.cls uses the graphicx package for handling figures. The default device driver is dvips. You may need to change the option in the line

```
\RequirePackage[dvips]{graphicx}
```

to match your system.

Figures are called in as follows:

```
%\figcap{<caption width>}
\begin{figure}
\centering\includegraphics{<figure eps name>}
\caption{<Figure caption>}
\end{figure}
```

Where there is a turnover line in the caption the width should be reduced so as to avoid the final line appearing too short (e.g. fewer than 30 characters). The caption width can be set using `\figcap{<caption width>}`

For further details on how to size figures, etc, with the graphicx package, see References [1, 2]. If figures are available in an acceptable format (for example, .eps, .ps) they will be used but a printed version should always be provided.

The standard coding for a table is:

```
\tabcap{<table caption width>}
\begin{table}
\caption{<Table caption>}
\begin{center}
\begin{small}
\begin{tabular}{<table alignment>}
\toprule
<column headings>\\
\midrule
<table entries (separated by & as usual)\\
<table entries>\\
\bottomrule
\end{tabular}
\end{small}
\end{center}
\end{table}
```

The caption width needs to be set to the measure of the table. Where there is a turnover line the caption width should be reduced so as to avoid the final line appearing too short (e.g. fewer than 30 characters). The table caption width is set using `\tabcap{<table caption width>}`.

5.3. Cross-referencing

The use of the LaTeX cross-reference system for figures, tables, equations and citations is encouraged (using `\ref{<name>}`, `\label{<name>}`, `\cite{<name>}`).

5.4. Bibliography

The normal commands for the start of the reference list are:

```
\begin{thebibliography}{99}
```

Each reference that follows is preceded by `\bibitem{x-ref label}` corresponding to `\cite{x-ref label}` in the body of the article. These labels are automatically replaced by numbers when the article is typeset. `{99}` is the widest such number expected and determines the width of the number column in the reference list; it rarely needs changing.

In references, titles of books and journals have capital initials for important words, but titles of articles and electronic documents are written like ordinary sentences, with minimal capitalisation. For the general style of references, see the end of this document, and study the LaTeX code of the bibliography section.

The reference list is completed with `\end{thebibliography}` and finally the whole article ends with `\end{document}`

6. COPYRIGHT STATEMENT

Please be aware that the use of this LaTeX 2_ε class file is governed by the following conditions:

6.1. Copyright

6.2. Rules of use

This class file is made available for use by authors who wish to prepare an article for publication in the *International Journal for Numerical Methods in Engineering* published by John Wiley & Sons, Ltd. The user may not exploit any part of the class file commercially.

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