A demonstration of the \LaTeX\textsuperscript{2e} class file for the Encyclopedia of Computational Mechanics

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ABSTRACT

This paper describes the use of the \LaTeX\textsuperscript{2e} \texttt{ecmauth.cls} class file for preparing articles for the Encyclopedia of Computational Mechanics.

KEY WORDS: Encyclopedia of Computational Mechanics; \LaTeX\textsuperscript{2e}; class file

1. INTRODUCTION

Many authors now use \LaTeX\textsuperscript{2e} to prepare their articles, so that their code can be used by the publisher. This paper describes the \texttt{ecmauth.cls} class file which can be used to convert articles produced with other \LaTeX\textsuperscript{2e} class files into the correct form for publication in the Encyclopedia of Computational Mechanics.

The \texttt{ecmauth.cls} class file preserves much of the standard \LaTeX\textsuperscript{2e} interface so that any document which was produced using the standard \LaTeX\textsuperscript{2e} \texttt{article} style can easily be converted to work with the \texttt{ecmauth} style. However, the width of text and typesize may vary from that of \texttt{article}; therefore \textit{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 encyclopedia article and authors are urged to make allowance for this fact.

In the following sections we describe how to lay out your code to use \texttt{ecmauth.cls} to best prepare your article for inclusion in the Encyclopedia of Computational Mechanics. Please note, our aim in asking you to use this style file is to standardize the presentation of the material submitted to us. The style file does not replicate the final appearance of the typeset article. This paper is not a guide to using \LaTeX\textsuperscript{2e} and we would refer you to any of the many books available (see, for example, Goossens, Mittelbach and Samarin, 1994; Kopka and Daly, 1995; Lamport, 1994).

2. THE THREE GOLDEN RULES

Before we proceed, we would like to stress \textit{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 *Encyclopedia of Computational Mechanics* reference style, as shown at the end of this document.

3. GETTING STARTED

The *ecmauth* class file should run on any standard \LaTeX{} installation. If any of the fonts, class files, or packages it requires are missing from your installation, they can be found on the \TeX{} Live 3 or \TeX{} Live 4 CD-ROM.

The *Encyclopedia* will be published using Times fonts; but as some authors will not have these installed on their local \TeX{} systems, *ecmauth.cls* uses Computer Modern fonts by default. If you have Times fonts installed, you need only uncomment the two lines \\texttt{\textbackslash RequirePackage{times}} and \texttt{\textbackslash RequirePackage[cmbold]{mathtime}} to print in Times instead of Computer Modern. (When using the *mathtime* package with *cmbold* option you should expect to see a warning in the log file; this can be ignored.)

4. THE ARTICLE HEADER INFORMATION

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

```
\documentclass{ecmauth}
\begin{document}
\title{Minimal use of capitals, as in an ordinary sentence}{}
\author{An Author\textnormal{\affil{1}}, Someone Else\textnormal{\affil{2}}\textnormal{\comma}\ and Perhaps Another\textnormal{\affil{1}}}\textnormal{\address{\textnormal{\affilnum{1}} First author’s address}\textnormal{\comma} in this example it is the same as the third author}\textnormal{\textbackslash \textnormal{\affilnum{2}} Second author’s address}}
\begin{abstract}
text\end{abstract}
\keywords{<list keywords>}
```

Remarks.

(i) The command \title has 2 parameters (1st parameter has the title of the article & 2nd parameter by default should be null). Running recto titles are automatically inserted by the 1st parameter, if 2nd parameter is blank. If the text in 1st parameter exceeds 50 characters, an error message ‘The recto running head should be 50 characters only. Reduce the title and give it in 2nd parameter of this tag.’ is displayed in which short title should be given in the 2nd parameter.

(ii) Note the use of \affil and \affilnum to link names and addresses.

(iv) 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.

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

ecmauth.cls makes the full functionality of AMSTeX 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

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

\RequirePackage[dvips]{graphics}

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 graphics package, see Goossens, Mittelbach and Samarin, 1994; Kopka and Daly, 1995. 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>}, \pcite{<name>}, \shcite{<name>}, \yrcite{<name>}).

5.4. Bibliography

The Harvard (alphabetical, name and date) reference system is being used in the Encyclopedia of Computational Mechanics.

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

\begin{thebibliography}

Each reference that follows is preceded by \bibitem{...}{x-ref label} corresponding to \cite{x-ref label}/\pcite{x-ref label}/\shcite{x-ref label}/\yrcite{x-ref label} in the body of the article. These labels are automatically replaced by the correct citations when the article is typeset.

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 Bibliography at the end of this document. In the Harvard system, references are cited by author’s surname and year of

publication and are listed alphabetically by author surname. The citation should take the form:

‘Lamport (1994)’ or ‘(Lamport, 1994)’

depending on context, e.g. “... the definitive guide (Lamport, 1994)” or “Lamport (1994) describes ...”. Where two or three authors are present, all should be named in the citation:

‘Goossens, Mittelbach and Samarin (1994)’

Note that the order of the names is as the original publication and that we use ‘and’ not ‘&’. Where four or more authors are present give the first name followed by et al. for example:

‘(Zienkiewicz et al., 1999)’

Where two or more references are cited at the same point they should be separated by semi-colons:

‘Lamport, 1994; Goossens, Mittelbach and Samarin, 1994; Zienkiewicz et al., 1999’

If two or more references by the same author(s) in the same year are cited they should appear as:

‘(Nithiarasu and Zienkiewicz, 2000a)’ and ‘(Nithiarasu and Zienkiewicz, 2000b)’
in their order of appearance in the text. They should then be listed a, b, c order.

Distinct references by the same author(s) in different years can be cited, e.g.

‘(Crisfield (1983, 1986) describes ...)’

The reference list in the Harvard system is ordered alphabetically by author surname, secondarily by date and then by a, b, c etc. References in the Harvard system must not be numbered. The reference list should contain all the authors of a given work, even when the citation uses et al.

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

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Entries in the further reading list must not be cited in the text. Further reading entries should be formatted exactly like references.

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