How to use the PDS LaTeX class

Leave empty for metadata

1. Introduction

This latex class file is available for the authors to prepare the manuscript for PDS Journal. It is assumed that the authors are familiar with either plain TeX, LaTeX, $\mathcal{AMS}$-TeX or a standard latex set-up, hence, only the essential points are described in this document. To get more details please go through the *LaTeX User's Guide* or *The not so short introduction to LaTeX 2$_\varepsilon$* (which is available online). The PDS.cls is similar as the article.cls of LaTeX, with only few additional changes in the preamble portion.

2. Installation

The PDS.cls has to be copied into a directory where tex looks for input files. The other files has to keep as a reference during the preparation of your manuscripts. Please use pre-defined commands from for title, authors, address, abstract, keywords, body etc. as shown in Box 1.

3. How to start using PDS.cls

Before you type anything that actually appears in the paper you need to include a \documentclass{PDS} command at the very beginning and then, the two commands that have to be part of any latex document, \begin{document} at the start and the \end{document} at the end of your paper. The main structure of your document should be as follows:

Box 1: Structure of a document.

```
\documentclass{PDS} %%% For double column layout.

%%% In case if you want the article in single column, then please use
```

```
%%% the option "onecolumn" in the optional of document class as shown below
%%% Also, if you want to submit your article in 11pt size, then please use
%%% the option xipt in the document class as shown below.

%%% \documentclass[onecolumn,xipt]{PDS}

\begin{document}

\title{How to use the PDS \LaTeX\ class}

\author[1]{First author}
\author[2]{Second author}
\author*[3]{Third author - Corres author}

\address[1]{First author address,}
\address[2]{Second author address,}
\address[3]{Third author address}

\corresemail{xxxx@xxxx.xxx.xx}

\abstract{abstract text }

\keywords{keyword entry 1, keyword entry 2, keyword entry 3}

\maketitle

\section{....}
...
\subsection{....}
....
\end{document}
```

4. Preamble part

All the options in `article.cls` are available with this class file, by default it will produce all elements single spaced throughout the document.
By default, PDS class file produce numbered bibliography.

4.1. Paper Title

The paper title is declared like: \title{...} in the standard LATEX manner. Line breaks \\ may be used to equalize the length of the title lines.

4.2. Author Names

The name and associated information is declared with the \author command. \author behaves slightly differently depending on the document mode. For more details about author information see Box 1.

4.3. Abstract & Keywords

The abstract is generally the first part of a paper. The abstract text is placed within the abstract environment.

Keywords should be inserted immediately after the abstract text with grouping as shown below.

```
\abstract{
Abstract text here
}
```

```
\keywords{Keyword text here}
```

5. Body part

5.1. Sections

The coding for section is `\section{text}`. This will generate section number automatically. Use the starred form (`\section*{text}`) of the command to suppress the automatic numbering. If you want to make cross references to the section levels use the `\label` and `\ref` command. You can have sections up to five levels.

The sectioning commands are `\section`, `\subsection`, `\subsubsection`, `\paragraph` and `\subparagraph`.

5.2. Figures and tables

Use the default LaTeX coding for figures and tables. Figure and table environments should be inserted after the end of the paragraph, nearest to the citation.

The coding for figure is:

```
\begin{figure}[!h]
\centering{\includegraphics{sample.eps}}
\caption{Insert figure caption\label{fig1}}
\end{figure}
```

The coding for table is:

```
\begin{table}[!t]
\centering
\caption{Insert table caption her\label{tab1}}
\begin{tabular*}{\textwidth}{@{\extracolsep{\fill}}llllll@{}}
\Toprule
Column head 1 & Column head 2 & Column head 3 &
Column head 4 & Column head 5\\
\midrule
Table body & Table body & Table body  & Table body  & Table body  \\
Table body & Table body & Table body  & Table body  & Table body  \\
Table body & Table body & Table body  & Table body  & Table body  \\
Table body & Table body & Table body  & Table body  & Table body  \\
Table body & Table body & Table body  & Table body  & Table body  \\
\botrule
\end{tabular*}
\end{table}
```

As always with LaTeX, the `\label` must be after the `\caption`, and inside the figure or table environment. The reference for figures and tables inside text can be made using the `\ref{key}` command.

5.3. Equations

Equations are used in the same way as described in the LaTeX manual. Equations are numbered consecutively, with equation numbers in parentheses flush right.

For example, if you type

```
\begin{equation}\label{eq1}
\int^{r_2}_0 F(r,\varphi){\rm d}r\,{\rm d}\varphi = [\sigma r_2/(2\mu_0)]
\int^{\infty}_0\exp(-\lambda|z_j-z_i|)\lambda^{-1}J_1 (\lambda r_2)J_0
(\lambda r_i\,\lambda {\rm d}\lambda)
\end{equation}
```

then you will get the following output:

$$\int_0^{r_2} F(r,\varphi)\mathrm{d}r\,\mathrm{d}\varphi = [\sigma r_2/(2\mu_0)] \int_0^{\infty} \exp(-\lambda|z_j - z_i|)\lambda^{-1}J_1(\lambda r_2)J_0(\lambda r_i\,\lambda \mathrm{d}\lambda) \tag{1}$$

$\mathcal{AMS}$-LaTeX has several environments that make it easier to typeset complicated multiline displayed equations. These are explained in the $\mathcal{AMS}$-LaTeX User Guide. A `subequation` environment is available to create equations with sub-numbering of the equation counter. It takes one (optional) argument to specify the way that the sub-counter should appear.

5.4. Quotes and displayed text

Quotes are indented from the left and right margins. There are various types of quotes, short quote, long quote and display poetry.

The coding for short quote is `\begin{quote}...\end{quote}`.

> *This is a short quotation. It consists of a single paragraph of text. See how it is formatted.*

The coding for long quote is `\begin{quotation}...\end{quotation}`.

> This is a longer quotation. It consists of two paragraphs of text, neither of which are particularly interesting.
> This is the second paragraph of the quotation. It is just as dull as the first paragraph.

5.5. Listings

Another frequently displayed structure is a list. There are various types of list numbered, itemized and bulleted list.
The coding for bulleted list are as follows:

```
\begin{itemize}
\item Bulleted list 1
\item Bulleted list 2
\item Bulleted list 3
\end{itemize}
```

The coding for numbered list are as follows:

```
\begin{enumerate}
\item Numbered list 1
\item Numbered list 2
\item Numbered list 3
\end{enumerate}
```

The coding for description list are as follows:

```
\begin{description}
\item Description list 1
\item Description list 2
\item Description list 3
\end{description}
```

5.6. Enunciations like theorem, lemma etc.

The $\mathcal{AMS}$-LATEX package for enunciations (amsthm.sty) has been already loaded in the class file. To get the theorem environment use the coding as:

```
\begin{theorem}
Theorem text. Theorem text. Theorem text.
Theorem text. Theorem text. Theorem text.
\end{theorem}
```

and \newtheorem{theorem}{Theorem} in the preamble.
Similarly, we can define for lemma, corollary, proposition, definition etc.

5.7. Cross-referencing

LATEX provides the following commands for cross referencing

\label{marker}, \ref{marker} and \pageref{marker}

where marker is an identifier chosen by the user. LATEX replaces \ref by the number of the section, subsection, figure, table, or theorem after which the corresponding \label command was issued. \pageref prints the page number of the page where the \label command occurred.

5.8. Citations

Citations are made with the \cite command as usual. In this class file we have used natbib.sty for cross references and reference style.
For bibliography the natbib package has been defined in the template as \usepackage{natbib} with \bibpunct{[}{]}{,}{n}{,}{;} command
For more details about natbib.sty can be found at http://ctan.org/tex-archive/macros/latex/contrib/natbib/

6. Back Matter

```
\begin{Backmatter}

\section*{Acknowledgments}

Acknowledgments


\begin{thebibliography}{}


...
..
\end{thebibliography}

\appendix
\section*{Appendix}

\end{Backmatter}
```

Acknowledgements

Acknowledgements and other unnumbered sections are created using the \section* command:

6.1. References

The reference entries can be LaTeX typed bibliographies or generated through a BIBTeX database. BIBTeX is an adjunct to LaTeX that aids in the preparation of bibliographies. BIBTeX allows authors to build up a database or collection of bibliography entries that may be used for many manuscripts. They also save us the trouble of having to specify formatting. More details can be found in the *BIBTeX Guide*. For LaTeX reference entries use the `\begin{thebibliography}`...`\end{thebibliography}` environment (see below) to make references in your paper. By default the class file will produce the numbered LaTeX bibliography.

```
\begin{thebibliography}{}
\bibitem[Cadero et al.(2018)]{cadero2018global}
{Cad\'ero, A., Aubry, A., Brun, F.,   Dourmad, J. Y., Sala\'l\'zn, Y.
 and Garcia-Launay, F.} (2018).
Global sensitivity analysis of a pig fattening unit model simulating
technico-economic performance and environmental impacts.
\textit{Agricultural Systems}, {165}, 221--229.

\bibitem[Cao(2015)]{r16}
{Cao, L.} (2015). Improved Genetic Algorithm for Fast Path Planning of USV.
\textit{International Symposium on Multispectral Image Processing
 and Pattern Recognition (MIPPR2015)}, 9815, 981529.

\bibitem[Cheng et al.(2015)]{r27}
{Cheng, Z., Tong, Y., Shen L. and Ming, L. I.} (2015). Improved bacteria
foraging optimisation algorithm for solving flexible job-shop scheduling problem.
\textit{Journal of Computer Applications}, 63--67.

\end{thebibliography}
```

6.2. Formatting

One should always use LaTeX macros rather than the lower-level TeX macros like `\it`, `\bf` and `\tt`. The LaTeX macros offer much improved features. The following table summarizes the font selection commands in LaTeX.

LaTeX text formatting commands

`\textit`	Italics	`\textsf`	Sans Serif
`\textbf`	Boldface	`\textsc`	Small Caps
`\texttt`	Typewriter	`\textmd`	Medium Series
`\textrm`	Roman	`\textnormal`	Normal Series
`\textsl`	Slanted	`\textup`	Upright Series

LaTeX math formatting commands

`\mathit`	Math Italics	`\mathfrak`	Fraktur
`\mathbf`	Math Boldface	`\mathbb`	Blackboard Bold
`\mathtt`	Math Typewriter	`\mathnormal`	Math Normal
`\mathsf`	Math Sans Serif	`\boldsymbol`	Bold math for Greek letters
`\mathcal`	Calligraphic		and other symbols

7. Macro packages

The commonly used packages which can be used frequently are:

amsmath	graphicx	rotating	multirow
amssymb	endnotes	subfigure	tikz
amsfonts	setspace	array	siunitx
xspace	latexsym	url	natbib
amscd	multicol	algorithm	biblatex

Additionally, you can use other packages and these should be loaded using the \usepackage command in the preamble.

Appendix

The \appendix command signals that all following sections are appendices, and therefore the headings after \appendix will be set as appendix headings.

Note: All the figures, tables, equations, enunciations will be automatically numbered as A.1, A.2, etc. in the appendix part.