

# BJMC Document Class

## User guide\* for authors, version 1.0

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**Abstract.** This guide is for authors who are preparing papers for the journal *Baltic Journal of Modern Computing* using the  $\LaTeX 2\epsilon$  document preparation system and the class file `bjmc.cls` (available from the journal website).

**Keywords:** submission instructions, source file coding, theorem-like environments; references and citations; fonts; numbering

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\* This *User guide* is an adapted and localized version of “Instructions for Authors” from the  $\LaTeX$  package for *Lecture Notes in Computer Science* authors.

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## 1 Introduction

The preparation of manuscripts which are to be reproduced by photo-offset requires special care: the submitted text must be camera-ready. Papers submitted not in a technically suitable form will be returned for retyping, or canceled if the issue cannot otherwise be finished on time.

Authors planning to submit their papers to the journal *Baltic Journal of Modern Computing (BJMC)* are advised to use this class file as early as possible in the preparation process, and requested to adhere strictly to these instructions. The class file must not be changed. LaTeX-related advices are not included in this guide.

You may also want to consult the file `template.tex` from the  $\LaTeX$  package of *BJMC*.

## 2 Getting started

### 2.1 The document class BJMC

The BJMC class implements the layout design for *BJMC*. It is adapted from Springer's LLNCS document class (which is in its turn an extension of the standard  $\LaTeX$  article document class) with some local specifications. The text (including math), formulas, figures and tables are typed using standard  $\LaTeX 2_{\epsilon}$  commands; also most standard sectioning commands are used (see subsect 3.1). Several specific BJMC commands are explained below. However, please refrain from using any  $\LaTeX$  or  $\TeX$  commands that affect the layout or formatting of your document (i.e., commands like `\textheight`, `\vspace`, `\headsep` etc.).

By default, BJMC uses font packages `times` (for the ordinary text and mathematical formulas) and `helvet` (for sanserif) from the collection PSNFSS containing Adobe PostScript fonts. These packages are usually available in standard  $\LaTeX$  distributions, and are distributed also with Ghostscript program. If necessary, PSNFSS may be downloaded from CTAN.

BJMC class is invoked by replacing the usual 'article' by 'bjmc' in the first line of your document:

```
\documentclass{bjmc}
.
.
\begin{document}
  <Your contribution>
\end{document}
```

You may use with BJMC the standard class options `final` and `draft`; some new options are described at appropriate places below. If your document needs some non-standard packages, please submit them together with your source (`.tex`) file.

## 2.2 How to code the beginning of your contribution

**2.2.1 Title, authors, their affiliations.** The title of the contribution should be coded as follows:

```
\title{<Your contribution title>}
```

The title must be capitalized (i.e., nouns, verbs, and all other words except articles, prepositions and conjunctions should be typeset with an initial capital), and have no end punctuation. Formula letters must be typeset as in the text. If a long `\title` must be divided please use the code `\\` (for new line).

For long titles that do not fit in the single line of the running head a warning is generated. You can specify an abbreviated title for the running head on odd pages with the command

```
\titlerunning{<Your abbreviated contribution title>}
```

An optional subtitle may follow then:

```
\subtitle{<subtitle of your contribution>}
```

Now the name(s) of the author(s) must be given:

```
\author{<author(s) name(s)>}
```

The order of authors is up to you; do not use several `\author` commands. The first name<sup>1</sup> is followed by the surname, which should be typeset in uppercase.

Like as for the title, there exists an additional command for the running head (on even pages)

```
\authorrunning{<abbreviated author list>}
```

The first name of each listed author should be abbreviated. However, we suggest to omit initials at all, and to list explicitly only the first of more than two authors, with ‘et al.’ for the others.

Next the affiliation information is required. If there is more than one such a portion of information, the `\and` command provides for the separation:

```
\institute{<name and address of an institute>
\and <name and address of the next institute>
\and <name and address of the next institute>}
```

<sup>1</sup> Other initials are optional and may be inserted if this is the usual way of writing your name, e.g. Alfred J. Holmes, E. Henry Green.

and numbered automatically in the order in which you type them.

If there are several authors having different affiliations or addresses, then numbers referring to the respective portions of information should be attached to each author with the `\inst{<no>}` command. If several numbers have to be attached to an author, include them in one command. Please make sure that the numbers match those placed next to the authors' names to reflect the affiliation. If you have done this correctly, this entry for two authors and three institutes reads, for example:

```
\author{Ivar EKLAND\inst{1}, Roger TEMAM\inst{2,3}}
```

or, say,

```
\author{Ivar EKELAND\inst{1,2}, Roger TEMAM\inst{1,3}}
```

If footnote like things are needed anywhere in the contribution heading, please code (immediately after the word where the footnote indicator should be placed):

```
\thanks{<text>}
```

`\thanks` may only appear in `\title` (concerning the paper), `\author` (concerning an author) and `\institute` (concerning an affiliation) to footnote anything. If there are two or more footnotes or affiliation marks to a specific item, separate them with a comma. Please do not place any acknowledgments here (see subsection 5.3).

At last, the list of e-mail addresses of all authors (just one address for each author) must be included:

```
\emails{<list of e-addresses>}
```

Please keep to the order of authors in `\author` and separate the addresses by commas.

If you want to add a dedication, next code

```
\dedication{<text>}
```

As usual, the command

```
\maketitle
```

formats the complete heading of your article. It should be placed after all commands described above. If you leave it out, the work done so far will produce *no* text.

**2.2.2 Abstract.** Then the abstract should follow. It should summarize the contents of the paper using not more than 150 words. Do not use abbreviations (unless they are generally known) or cite references in the abstract. Give three to ten keywords representing the main content of the article. Use only lower case letters for keywords, and separate keywords by commas.

To form the abstract, simply code

```
\begin{abstract}
<Text of the summary of your article>
\keywords{<Your keywords>}
\end{abstract}
```

### 3 How to code your text

#### 3.1 Headings

All headings (of sections, subsections e.c.) should be typeset in lowercase (of course, except for the first letter). Formula letters must be typeset as in the text.

Headings (except for `\paragraph`) will be automatically numbered by the following codes:

*Sample Input*

```
\section{This is a First-Order Title}
\subsection{This is a Second-Order Title}
\subsubsection{This is a Third-Order Title.}
\paragraph{This is a Fourth-Order Title.}
```

Observe:

- `\section` and `\subsection` titles have no end punctuation,
- `\subsubsection` and `\paragraph` titles need to be punctuated at the end,
- the `\subparagraph` command is not provided in this class.

In addition to the above-mentioned headings your text may be structured by subsections indicated by run-in headings (theorem-like environments). All the theorem-like environments are numbered automatically throughout the sections of your document—each with its own counter. If you want the theorem-like environments to use the same counter just specify the documentclass option `envcountsame`:

```
\documentclass[envcountsame]{bjmc}
```

If your first call for a theorem-like environment then is e.g. `\begin{lemma}`, it will be numbered 1; if corollary follows, this will be numbered 2; if you then call lemma again, this will be numbered 3.

But in case you want to reset such counters to 1 in each section, please specify the documentclass option `envcountreset`:

```
\documentclass[envcountreset]{bjmc}
```

Even a numbering on section level (including the section counter) is possible with the documentclass option `envcountsect`.

#### 3.2 Predefined theorem like environments

The following variety of run-in headings are at your disposal:

- (a) **Bold** run-in headings with italicized text as built-in environments:

```
\begin{corollary} <text> \end{corollary}
\begin{lemma} <text> \end{lemma}
\begin{proposition} <text> \end{proposition}
\begin{theorem} <text> \end{theorem}
```

- (b) The following generally appears as *italic* run-in heading:

```
\begin{proof} <text> \qed \end{proof}
```

It is unnumbered and may contain an eye catching square (call for that with `\qed`) before the environment ends.

- (c) Further **bold** (the first) or *italic* (the others) run-in headings with upshaped roman environment body may also occur:

```
\begin{definition} <text> \end{definition}
\begin{remark} <text> \end{remark}
\begin{example} <text> \end{example}
\begin{conjecture} <text> \end{conjecture}
\begin{exercise} <text> \end{exercise}
\begin{problem} <text> \end{problem}
\begin{question} <text> \end{question}
\begin{solution} <text> \end{solution}
\begin{property} <text> \end{property}
```

### 3.3 Defining your own theorem like environments

The standard  $\LaTeX$  device for defining new theorems is valid in LLNCS, and is available also in BJMC. However, the standard `\newtheorem` command is enhanced in LLNCS, and its syntax is slightly changed to get two new commands `\spnewtheorem` and `\spnewtheorem*` that can be used also with BJMC to define additional environments. They require two additional arguments namely the type style in which the keyword of the environment appears and second the style for the text of your new environment.

`\spnewtheorem` can be used in two ways.

**3.3.1 Method 1 (*preferred*).** You may want to create an environment that shares its counter with another environment, say *main theorem* to be numbered like the predefined *theorem*. In this case, use the syntax

```
\spnewtheorem{<env_nam>}[<num_like>]{<caption>}
{<cap_font>}{<body_font>}
```

Here the environment with which the new environment should share its counter is specified with the optional argument [`<num_like>`].

*Sample Input*

```
\spnewtheorem{mainth}[theorem]{Main Theorem}{\bfseries}{\itshape}
\begin{theorem} The early bird gets the worm. \end{theorem}
\begin{mainth} The early worm gets eaten. \end{mainth}
```

*Sample Output*

**Theorem 3.** *The early bird gets the worm.*

**Main Theorem 4.** The early worm gets eaten.

*End of Sample*

The sharing of the default counter (`[theorem]`) is desired. If you omit the optional second argument of `\spnewtheorem`, a separate counter for your new environment is used throughout your document.

### 3.3.2 Method 2 (*assumes* `[envcountsect]` *documentstyle option*).

```
\spnewtheorem{<env_nam>}{<caption>}[<within>]
{<cap_font>}{<body_font>}
```

This defines a new environment `<env_nam>` which prints the caption `<caption>` in the font `<cap_font>` and the text itself in the font `<body_font>`. The environment is numbered beginning anew with every new sectioning element you specify with the optional parameter `<within>`.

*Example.*

```
\spnewtheorem{joke}{Joke}[subsection]{\bfseries}{\rmfamily}
```

defines a new environment called `joke` which prints the caption **Joke** in boldface and the text in roman. The jokes are numbered starting from 1 at the beginning of every subsection with the number of the subsection preceding the number of the joke e.g. 7.2.1 for the first joke in subsection 7.2.

**3.3.3 Unnumbered environments.** If you wish to have an unnumbered environment, please use the syntax

```
\spnewtheorem*{<env_nam>}{<caption>}{<cap_font>}{<body_font>}
```

## 4 Floats: figures and tables

### 4.1 Figures

Figure environments should be inserted after (not in!) the paragraph in which the figure is first mentioned. They will be numbered automatically. Produce your pictures electronically, and integrate them into your text file. Preferably the images (if not produced by the  $\LaTeX$  procedure `picture`) should be enclosed as PostScript files (best as EPS data using the `epsfig` package) with `latex` compiler, and as PDF files, with `pdflatex` compiler. Define figures as floating objects, do not forget about captions.

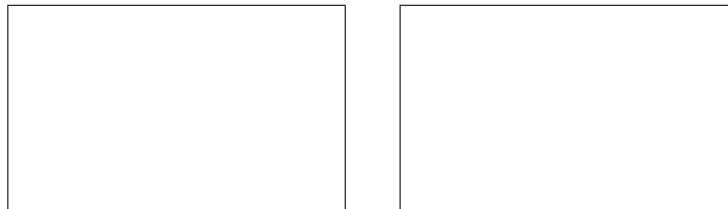
Please follow the coding described below. Framing with `\fbox` is not necessary; if you use a graphics package (such as `graphics` or `graphicx`), then replace the `picture` environment by an `\includegraphics` command to import a not- $\LaTeX$  picture.

*Sample Input*

```

\begin{figure}
\begin{center}
\fbbox{
\setlength\unitlength{1mm}
\begin{picture}(40,25)
%
\end{picture}
}
\qqquad
\fbbox{
\setlength\unitlength{1mm}
\begin{picture}(40,25)
%
\end{picture}
}
\end{center}
\caption{A white eagle (left) and a white horse (right)
on a snow field}
\end{figure}

```

*Sample Output*

**Fig. 1.** A white eagle (left) and a white horse (right) on a snow field.

The class automatically provides 1 cm space above and below the figure.

## 4.2 Tables

Table captions should be treated in the same way as figure legends, except that the table captions appear *above* the tables. The tables will be numbered automatically.

Please use such coding:



*Sample Input*

```

\begin{table}
\caption{Critical  $N$  values}
\begin{tabular}{llllll}
\hline\noalign{\smallskip}
 $\mathrm{M}_{\odot}$  &  $\beta_0$  &  $T_{c6}$  &  $\gamma$  &  $N_{\mathrm{crit}}^L$  &  $N_{\mathrm{crit}}^{\mathrm{Te}}$  \\
\hline
\noalign{\smallskip}
30 & 0.82 & 38.4 & 35.7 & 154 & 320 \\
60 & 0.67 & 42.1 & 34.7 & 138 & 340 \\
120 & 0.52 & 45.1 & 34.0 & 124 & 370 \\
\hline
\end{tabular}
\end{table}

```

*Sample Output***Table 1.** Critical  $N$  values

$M_{\odot}$	$\beta_0$	$T_{c6}$	$\gamma$	$N_{\mathrm{crit}}^L$	$N_{\mathrm{crit}}^{\mathrm{Te}}$
30	0.82	38.4	35.7	154	320
60	0.67	42.1	34.7	138	340
120	0.52	45.1	34.0	124	370

Before continuing your text you need an empty line.

## 5 Miscellaneous

### 5.1 References and citations

Only the author-year reference system is allowed. Regretfully, there is not a special  $\mathrm{BIB}_{\mathrm{T}}\mathrm{E}_X$  style for BJMC.

Write your citations in the text explicitly except for the year, leaving that up to  $\mathrm{L}^{\mathrm{T}}\mathrm{E}_X$  with the `\cite` command. Then give only the appropriate year as the optional argument (i.e., the label in square brackets) with the `\bibitem` command(s).

*Sample Input*

The results in this section are a refined version of Clarke and Ekeland (\cite{clar:eke}); the minimality result of Lemma~14 was the first of its kind. See also (WEB, \cite{web:3}).

The above input produces the citations: “... refined version of Clarke and Ekeland (1982); the minimality.... See also (WEB, b).” Then the respective \bibitem entries of clar:eke in the thebibliography environment should read:

```
\begin{thebibliography}{} % (do not forget {})
.
.
\bibitem[1982]{clar:eke}
Clarke,~F., Ekeland,~I. (1982).
Nonlinear oscillations and boundary-value problems for
Hamiltonian systems.
\textit{Arch.\ Rat.\ Mech.\ Anal.} {\bfseries 78} 315--333.
.
.
\bibitem[b]{web:3}
WEB (b). Hamiltonian system.
{\ttfamily http://en.wikipedia.org/wiki/Hamiltonian\_system}
.
\end{thebibliography}
```

**5.2 Program codes**

If you want to include a program code in your contribution, please typeset it using “type-writer” fonts (commands \verb, \verb\* and environments verbatim, verbatim\*).

**5.3 Acknowledgments and author’s information**

All acknowledgments should be placed in a separate section at the end of the body of your paper (just before references). Use the code

```
\section*{Acknowledgments}
```

If you want to include any information about the author(s), place it in another section after the list of references; use the appropriate code

```
\section*{Author’s information}
```

or

```
\section*{Authors’ information}
```