Author Submission Guide for
International Transactions in Operational Research Journals
Setting Up Your LaTeX 2$_\varepsilon$ Files

1. Introduction

This guide provides the information regarding various options/functionalities available in `itor` class with LaTeX for generating the papers for submission to International Transactions in Operational Research (ITOR). Commands that differ from the `article` class of standard LaTeX interface, or that are provided in addition to the standard interface, are explained in this guide. This guide is not a substitute for the LaTeX manual itself but should be used together with an introductory manual on LaTeX such as Lamport (1971).

The `itor` class is a LaTeX document class for *ITOR* and other documents with similar layout requirements. `itor` class is primarily based on the default `article` class. The class depends on the following packages for its proper functionality:

- `natbib.sty` for citation processing;
- `graphicx.sty` for graphics inclusion;
- `txfonts.sty` optional font package, if document is to be formatted with Times and compatible math fonts;
- `hyperref.sty` optional packages if hyperlinking is required in the document.

These packages are part of any standard LaTeX installation. Furthermore, users are free to make use of AMS math packages such as `amsmath.sty`, `amsthm.sty`, `amssymb.sty`, `amsfonts.sty`, if they want to. Authors can use these packages as per their specific requirements.

The class provides essentially the same markup as implemented by LaTeX standard article class. In addition to this, it implements the following:

- extended set of front matter commands,
- extended set of citation commands if the natbib system is installed,
- support for table notes,
- support for textual page references like on the next page.

The following is a brief description of the files used for preparing articles for submission to ITOR:

- **itor.cls:** This is the style file used to create an article. The naming convention and usage of commands closely follow the standard style file `article.cls`, referred to in the LaTeX manual.

- **itor.bst**: This file is used to create the bibliography, which is Harvard Style (not numbered). References include titles.
- **itor-generic-template.tex:** This file can be used as a starting point for preparing an article. `itor-generic-template.tex` contains common commands laid out in a typical order for an ITOR manuscript. Authors can simply type in their article contents between the tags.

Note: Authors are requested not to modify any of these files, in any way, for their use or for distribution, under their original name. However, they can be modified under a different name for use by the authors.

2. Introduction to LaTeX

LaTeX is constructed as a series of macros on top of the TeX typesetting program. LaTeX adds to TeX a collection of facilities that simplify typesetting for authors by allowing them to concentrate on the logical structure of the document rather than its visual layout. Careful use of the LaTeX mark-up philosophy results in a uniform layout rather than the ad hoc results of some word-processing systems. Authors are advised to allow the default control font selection.

The LaTeX system provides a consistent and comprehensive document preparation interface. Among other things, LaTeX can automatically number list entries, equations, figures, tables, and footnotes, as well as sections and subsections. With this numbering system, bibliographic citations, page references, and cross references to any other numbered entity (e.g., sections, equations, and figures) are straightforward.

3. The ITOR Document Class

The use of LaTeX document classes allows a simple change of class to transform the appearance of your document. The `itor` class file preserves the standard LaTeX interface such that any document that can be produced using the standard LaTeX `article` class can also be produced with the `itor` class files.

Author should submit a PDF along with the LaTeX files required for their manuscript. Note that the layout of the LaTeX-generated PDF is NOT the final typeset article. For this reason, we ask you to ignore details such as slightly long lines, page stretching, or figures falling out of synchronization, because these details will be dealt with while preparing the article for publication.

Use symbolic references (`\ref`) in order to protect against reference reordering during revision.

4. Using the ITOR Class File

If the file `itor.cls` is not already in the appropriate system directory for LaTeX files, either place the file there or copy it to your working directory. In order to use the `itor` class, replace `article` by `itor` in the `\documentclass` command at the beginning of your document:

```
\documentclass{article}
```

is replaced by

```
\documentclass{itor}
```

In general, the following standard document style options should not be used with the `itor` class:

1. 10pt, 11pt, 12pt — unavailable;
2. twoside (no associated style file) — twoside is the default;
3. fleqn, leqno, titlepage — should not be used;

4.1. Additional Document Class Options

Please place any additional command definitions at the very start of the LATEX file, before the `\begin{document}`. For example, user-defined `\def` and `\newcommand` commands that define macros for technical expressions should be placed here. Other author-defined macros should be kept to a mininum.

The following additional class options are available with the `itor` class file:

- **Paper Size**—`itor` class fully supports both the US letter (8.5in × 11in) and A4 (210mm × 297mm) paper sizes.
    - **letterpaper:** Instruct the system to generate the output on US letter sized paper (default).
    - **4apaper:** Instruct the system to generate the output on A4 sized paper.
  Changing the paper size in the standard conference modes will not alter the typesetting of the document—only the margins will be affected.

5. Article Features and Formatting

In addition to all the standard LATEX design elements, the `itor` class file includes the following features. Authors should leave these commands empty when submitting their articles; the Production Editor will add the correct information.

1. Use the `\jname{...}` command for journal name.
2. Use the `\jvol{...}` command for volume number.
3. Use the `\jyear{...}` command for year.
4. Use the `\doi{...}` command for DOI number.

In general, once you have used the additional `itor.cls` features in your document, do not process it with a standard LATEX class file (e.g., `article.cls`).

5.1. Frontmatter

The title of the article, author name(s), affiliation(s), abstract, and keywords are used at the beginning of the article for the main title. These can be produced using the following code:

```
\title{Click here, type the title of your paper, Capitalize first letter}
```

```
\author[Runninghead authors]{Authors Name\affmark{a,$\ast$},
        Author Name\affmark{b,c} and Author Name\affmark{c}}

\affil{\affmark{a}Replace this text with an authors' affiliation (use complete
      addresses). Note the use of superscript ''a'' to indicate the
      authors' address.}
\affil{\affmark{b}Additional affiliations should be indicated by
  superscript alphabets etc. as shown above.}
\affil{\affmark{c}You would list additional affiliation here.}

\thanks{\affmark{$\ast$}Corresponding Author: your@email.xxx.}

\historydate{Received DD MMMM YYYY; received in revised form DD MMMM YYYY;
             accepted DD MMMM YYYY}
```

Command `\affmark{<label>}` is to associate the author with affiliation. `\thanks{...}` can be used
for author's note which will be placed at the bottom of the first page.

```
\begin{abstract} \end{abstract}
```

```
\keywords{....}
```

At the beginning of your article, the title should be generated in the usual way using the command. The
abstract should be enclosed within an abstract environment whereas the keywords should be enclosed
within the `\keywords{..}` command. The coding for the same is as follows:

```
\begin{abstract}
This guide is for authors who are preparing papers for ITOR
.
.
\end{abstract}

\keywords{firs; second; third}

\maketitle
```

The headings "**Abstract**" and "**Keywords**" are generated automatically.

```
\maketitle
```

This command inserts the actual front matter data. It has to follow the above declarations before the
`abstract` environment.

5.2. Sections

LaTeX 2$_\varepsilon$ provides four levels of section headings and they are all defined in the `itor` class file:

```
\section
\subsection
\subsubsection
\paragraph
```

First level of section headings will automatically convert to boldface style and generate the section numbers. The depth of the section numbering is 3 (i.e., up to three levels of headings will have the numbers before it). You can increase/decrease the depth by redefining the counter of `secnumdepth` as `\setcounter{secnumdepht}{4}`

5.3. Cross-references

References to numbered headings, tables, figures, and equations are possible using the LaTeX commands `\label` and `\ref`.

5.4. Lists

The `itor` class supports all standard list environments like `itemize`, `enumerate`, `unnumbered` etc.

```
Bullet List
\begin{itemize}
\item first bulleted item
\item second bulleted item
\end{itemize}
```

- first bulleted item
- second bulleted item

```
Numbered List
\begin{enumerate}
\item first numbered item
\item second numbered item
\end{enumerate}
```

1. first numbered item
2. second numbered item

```
Unnumbered List
\begin{unnumlist}
  \item First unnumbered item...
  \item Second unnumbered item...
  \item Third unnumbered item...
\end{unnumlist}
```

First unnumbered item, which has no label and is indented from
   the left margin.
Second unnumbered item.
Third unnumbered item, which has no label and is indented from the left margin.

5.5. *Nomenclature/Definition list*

The `itor` class supports the nomenclature/definition lists environment and the codes should be as
follows:

```
\begin{deflist}[<label>]....\end{deflist}
```

```
\begin{deflist}[$n \in N$]
\deftitle{Scenario tree notation}
\listitem{$N$}{definition text}
\listitem{$n \in N$}{definition text}
\listitem{${p_n}$}{definition text}
\listitem{$\varsigma (n)$}{definition text}
\end{deflist}
```

Scenario tree notation
N definition text
$n \in N$ definition text
p_n definition text
$\varsigma(n)$ definition text

All nomenclature/definition lists must be enclosed within the \begin{deflist}[<label>]...
\end{deflist} environment. <label> should be used for alignment with the longest def-term.
\deftitle{..} may be used for deflist headings. \listitem{def-term}{description text} has
two arguments. The first denotes the term and the second denotes the description of the term.

5.6. *Figures*

5.6.1. *Graphics support*
Support for including and manipulating graphics is provided as the standard LATEX `graphicx` package
is automatically loaded by the `itor` class.

```
\begin{figure}[pos].....\end{figure}
```

Fig. 1. This shows the default layout of the caption. All the turn-over lines will come centered too.

Like with standard LaTeX the optional `pos` argument can be used to specify into which float areas this float is allowed to migrate (default is `tbp`).

A typical application is given in the following example where a picture is resized to span 50% of the textwidth:

```
\begin{figure}[tbp]
  \centerline{%
  \includegraphics{fig_1}}
 \caption{This shows the default layout of the caption.
All the turn-over lines will come centered too.}
 \label{fig:a}
\end{figure}
```

Cross-referencing the figures, tables, and numbered equations \label and \ref commands are encouraged. For example, in referencing Figure 1 above, we used Fig. \ref{fig:a}.

5.7. Tables

```
\begin{table}[pos]....\end{table}
```

Like with standard LaTeX the optional `pos` (eg, `tbp`) argument can be used to specify into which float areas this float is allowed to migrate (default is top if `pos` not given).

5.7.1. Table Headings

```
\tch{cols}{h-pos}{heading text}
```

To ease the production of tables, the command \tch is provided which is essentially and abbreviation for a \multicolumn command. That is, `cols` specifies the number of columns the `heading text` should span and `h-pos` defines the horizontal positioning of the text of the column(s), e.g., `l`, `r`, `c`, or `p{...}`. In contrast to a simple \multicolumn command the `heading text` can be split vertically by using \\ to denote the line breaks.

5.7.2. Table Notes

```
\tablenote{\tabnotemark{a}Table note text}
```

Command to produce a note to the table. It can be used after the `tabular` environment or table body.

```
\tabnotemark{a}
```

`\tabnotemark` command is used for cross-referencing of the table note and should be used in the table body. The `<label>` will determine the referencing number/symbol. Multiple `labels` can be used by separating with comma as `\tabnotemark{a,b}`. Omit it to produce unnumbered table notes.

`\hline` can be used for horizontal lines to separate the `caption`, `table head`, `table body`, and `table note` from each other respectively.
Typically, the body of the environment would consists of a `tabular` environment responsible for producing the actual table, including the table and stub headers.

An example showing the use of all commands described above is shown in Table 1. It was produced by the following input:

```
\begin{table}
\caption{Average turnover per shop: by type of retail organisation
\label{tab:a}}
\begin{tabular}{llllll}
\hline
  & \tch{1}{l}{Single\\ outlet\tabnotemark{a}}
  & \tch{1}{l}{Small\\ multiple}
  & \tch{1}{l}{Large\\ multiple}
  & \tch{1}{l}{Total}    \\
\hline
1982 & 98  & 129 & 620     & 847\\
1987 & 138 & 176 & 1000   & 1314\\
1991 & 173 & 248 & 1230   & 1651\\
1998 & 200 & 300 & 1500\tabnotemark{b}  & 2000\\
\hline
\end{tabular}
\tablenote{This is an example of unnumbered tablenote entry}
\tablenote{\tabnotemark{a}Example of 1st numbered tablenote entry}
\tablenote{\tabnotemark{b}Example of 2nd numbered tablenote entry}
\end{table}
```

As with figures, cross-referencing of tables is encouraged. For example, we would reference Table 1 using `Table~\ref{tab:a}`. Label of Table must be given after the `\caption` for correct numbering for cross-referecing.

Table 1
Average turnover per shop: by type of retail organisation

	Single outlet[a]	Small multiple	Large multiple	Total
1982	98	129	620	847
1987	138	176	1000	1314
1991	173	248	1230	1651
1998	200	300	1500[b]	2000

This is an example of unnumbered tablenote entry
[a]Example of 1st numbered tablenote entry
[b]Example of 2nd numbered tablenote entry

5.8. Landscape page orientation

If a table/figure is too wide to fit the standard measure, it may be turned, with its caption, to 90 degrees. Landscape tables/figures cannot be produced directly using the `itor` class class file because LATEX itself cannot turn the page, and not all device drivers provide such a facility. The following procedure can be used to produce such pages.

Use the package `rotating` with option "figuresright" as `\usepackage[figuresright]{rotating}` in your document and change the coding to

```
\begin{sidewaystable}....\end{sidewaystable}

\begin{sidewaysfigure}....\end{sidewaysfigure}
```

5.9. Long tables

Tables that are longer than one page cannot be placed into a `table` environment as floats cannot have a size larger than a page. Such tables are supported by the standard LATEX package `longtable` written by David Carlisle. However, this package only works in single-column mode.

Refer to the package documentation for the syntax description. A detailed comparison between `supertabular` and `longtable` can be found there.

5.10. Footnote

LATEX provides `\footnote` command to generate the footnoote.[1] It can be produced by:

```
\footnote{This is an example of footnote.}
```

[1]This is an example of footnote.

5.11. Typesetting mathematics

5.11.1. Displayed mathematics

The `itor` class file will set displayed mathematics left to the column width with an indent of 24pt, provided you use the LaTeX code \[...\] open and closed square brackets as delimiters. We strictly avoid to code displayed equations within double dollas signs as $$ ... $$

$$L1ux := [L0, x]ux = L0(xux) - xL0ux = L0(xux)$$

```
Unnumbered Equation
\[
L1ux := [L0, x]ux = L0(xux) - xL0ux = L0(xux)
\]
```

$$L1ux := [L0, x]ux = L0(xux) - xL0ux = L0(xux) \tag{1}$$

```
Numbered Equation
\begin{equation}
L1ux := [L0, x]ux = L0(xux) - xL0ux = L0(xux)
\end{equation}
```

\begin{eqnarray}...\end{eqnarray} may be used for multiline display equations.

5.12. Algorithms

The `itor` class file supports all standard algorihtms packages. Here is shown a small snippets as an example with the help of `algorithmic` and `algorithm` packages.

Algorithm 1 The function `filter`

1: function `filter`(r_i)
2: **while** $(\alpha(r_i) < K$ and $r_i \ne \emptyset)$ **do**
3:    $r_i = r_i \setminus \{u\}$
4: **end while**
5: **for** (each objective f_ℓ, with $\ell = 1, \dots, M$) **do**
6:    $r_i = \{v \in r_i : f_\ell$ is optimized$\}$
7: **end for**

```
\begin{algorithm}
\begin{algorithmic}[1]
\STATE function {\tt filter}($r_i$)
\WHILE{($\alpha(r_i) < K$ and $r_i \ne \emptyset$)}
    \STATE $r_i = r_i \setminus \{u\}$
\ENDWHILE
\FOR{(each objective $f_\ell$, with $\ell=1,\dots,M$)}
    \STATE $r_i = \{ v \in r_i : f_\ell~{\rm is}~{\rm optimized} \}$
\ENDFOR
\end{algorithmic}
\caption{The function {\tt filter}}  \label{filter}
\end{algorithm}
```

5.13. Acknowledgments

These should appear at the close of your paper, just before the list of references. Use the acknowledgments environment, e.g.

```
\section*{Acknowledgments}
The research and writing of this work was partially carried out...
```

5.14. Bibliography

Referring to other articles, books, etc. can be done using the \cite command of standard LATEX. The list of references itself can either be produced using standard LATEX methods or using BIBTEX.

For this we recommend the use of natbib.sty after the \documentclass{itor} declaration. The natbib system has two basic citation commands, \citet and \citep for *textual* and *parenthetical* citations, respectively. There also exist the starred versions \citet* and \citep* that print the full author list, and not just the abbreviated one. All of these may take one or two optional arguments to add some text before and after the citation. The following table shows some examples:

Commands		Author-Year Style		Numerical Style
\citet{jon90}	⇒	Jones et al. (1990)	⇒	Jones et al. [21]
\citet[chap.~2]{jon90}	⇒	Jones et al. (1990, chap. 2)	⇒	Jones et al. [21, chap. 2]
\citep{jon90}	⇒	(Jones et al., 1990)	⇒	[21]
\citep[chap.~2]{jon90}	⇒	(Jones et al., 1990, chap. 2)	⇒	[21, chap. 2]
\citep[see][]{jon90}	⇒	(see Jones et al., 1990)	⇒	[see 21]
\citep[see][chap.~2]{jon90}	⇒	(see Jones et al., 1990, chap. 2)	⇒	[see 21, chap. 2]
\citet*{jon90}	⇒	Jones, Baker, and Williams (1990)	⇒	[21]
\citep*{jon90}	⇒	(Jones, Baker, and Williams, 1990)	⇒	

For more information regarding these commands, the authors can refer to the documentation of natbib package.

Following are some examples of bibliography:

```
\begin{thebibliography}{00}

\bibitem[{Lamport(1971)}]{Lamport1994} Lamport, L. 1994.
\newblock \emph{{\LaTeX:} A Document Preparation System} (2nd edn.).
\newblock Addison-Wesley, Reading, Massachusetts.

\bibitem[{Bertazzi et~al.(2009)Bertazzi, Speranza and Savelsbergh}]{Bertazzi2008}
Bertazzi, L., Speranza, M.G., Savelsbergh, M.W.P., 2008.
\newblock Inventory routing. In Golden, B., Raghavan, R., and Wasil, E. (eds)
\newblock {\em The Vehicle Routing Problem Latest Advances and New Challenges,
Operations Research/Computer Science Interfaces Series}, Vol. 43.
Springer-Verlag, New York, pp.~49--72.

\bibitem[{Furini et~al.(2012)Furini, Malaguti, Dur\'an, Persiani and
 Toth}]{novo5} Furini, F., Malaguti, E., Dur\'an, R.M., Persiani, A., Toth, P.,
2012.
\newblock A column generation heuristic for the two-dimensional two-staged
  guillotine cutting stock problem with multiple stock size.
\newblock {\em European Journal of Operational Research} 218, 1,~251--260.

\end{thebibliography}
```

References

Lamport, L. 1994. *LATEX: A Document Preparation System* (2nd edn.). Addison-Wesley, Reading, Massachusetts.

Bertazzi, L., Speranza, M.G., Savelsbergh, M.W.P., 2008. Inventory routing. In Golden, B., Raghavan, R., and Wasil, E. (eds) *The Vehicle Routing Problem Latest Advances and New Challenges, Operations Research/Computer Science Interfaces Series*, Vol. 43. Springer-Verlag, New York, pp. 49–72.

Furini, F., Malaguti, E., 2012. A column generation heuristic for the two-dimensional two-staged guillotine cutting stock problem with multiple stock size. *European Journal of Operational Research* 218, 1, 251–260.

Appendix

Appendices can be included after the bibliography section. The main section of appendix should start with \appsection{..} command. The afterward headings should be \subsection, \subsubsection ... and so forth. The advantage of \appsection command is, it changes the numbering of tables, figures, and equations as per journal style.