ANN_REP_INSTRUCTIONS

INTRODUCTION

The TRIUMF Annual Report Scientific Activities 2006 is being produced using LaTeX 2_ε and Encapsulated PostScript (EPS) files for figures.

Full details and files for downloading are available on the WWW via `http://www.triumf.ca/annrep/`.

This file, `ann_rep_instructions.tex`, demonstrates the format that authors and division secretaries should follow when preparing their contributions.

Do not use LaTeX macros. All symbols, equations and definitions should be written in full.

The new skeleton file `ann_rep_skeleton.tex`, which should be downloaded and used to produce all contributions, is displayed at the end of this document.

CONTRIBUTION REQUIREMENTS

Contributor Contact Information

Contributors should provide their contact information in the fields provided in the skeleton file at the beginning of the document.

Science Division Authors

Please provide concise status reports for any currently active experiments (receiving or about to receive beam) as well as for experiments which have received beam in the last four years.

If any experiment has been "completed" and has been written up in final form in a previous annual report, please inform the Publications Office of the fact (e-mail to `annrep@triumf.ca`) and also provide details of the final publications which reported the results and any theses which were based on the work.

Contributions relating to Life Sciences experiments should be submitted in a similar manner to subatomic physics experiments, using the LS experiment number in the contribution heading.

Science Division contributors should also list the names and affiliations of all people presently associated with their experiment and the present status of the experiment. The information will be used to update Appendix D and Appendix E.

Please send a message to `annrep@triumf.ca` giving details of where the unprotected files can be accessed and copied, or e-mail your contribution and include any figure files as attachments. *A hard copy of your contribution should also be sent to the Publications Office for comparison with the electronic version.*

Other Division Authors

Requested contributions for other divisions should be sent directly to the appropriate division secretary, along with a hard copy for comparison purposes.

All Authors

Append a list of all journal or conference publications that were published, in press, or submitted during 2006.

List all theses awarded in association with the work during 2006. Provide name, thesis title, type of degree, department and institution awarding the degree.

SECTION HEADINGS

Main Sections

Centred, double-column-wide headings, typeset in capital letters in a 12 pt bold font, are only used for the division headings in the report.

Headings for major aspects of each division are treated as LaTeX 2_ε sections and are typeset in capital letters, with no indentation, in a 10 pt bold font in two-column mode throughout the report.

Contribution Headings

Authors should provide an explicit contribution heading which indicates the subject of their report. The skeleton file provides a template for the format required from all divisions.

Science Division experiment report headings should include the experiment number, the experiment title in lower case letters with the initial letter of the first word capitalized, followed by the experiment spokesperson(s) and their affiliation(s).

Contributions from other divisions should have headings in lower case letters with the initial letter of significant words capitalized.

Contribution sectioning

As shown in the skeleton file, the LaTeX 2_ε sectioning commands have been redefined for the annual report format to allow contributors to use the `\subsection*`, `\subsubsection*` and `\paragraph*` commands for their contribution heading and subsections. `\subsection*` is reserved for the contribution heading, so two lower levels of sectioning are available.

Sub headings should be in lower case letters with the initial letter of the first word capitalized.

All text is typeset in a 10 pt font in two-column mode.

CONDENSED LISTS

Note the provision of the `Itemize`, `Enumerate` and `Description` environments to produce lists which are more vertically condensed than the normal `itemize`, `enumerate` and `description` environments. The condensed versions should be used in all cases. The differences are illustrated below.

1. enumerate item 1.
   - itemize item 1.
     first description item 1.
     second description item 2.
     third description item 3.
   - itemize item 2.
   - itemize item 3.
2. enumerate item 2.
3. enumerate item 3.

as opposed to

1. Enumerate item 1.
   - Itemize item 1.
     First Description item 1.
     Second Description item 2.
     Third Description item 3.
   - Itemize item 2.
   - Itemize item 3.
2. Enumerate item 2.
3. Enumerate item 3.

TABLES

A skeleton table is displayed below. Most tables will be displayed in single-column-wide mode, as shown in Table I.

Exceptionally, double-column-wide mode will be used. This is accomplished by exiting the `multicols` environment before the table, and re-entering immediately afterwards. The resulting column flow is not optimum.

Please observe the horizontal line convention and always provide a concise table caption.

Column headings and data may be left, centre, or right justified to suit the format of the information being presented. The default skeleton settings should be edited as required to produce the correct number of columns and column justification.

Table I. Please provide a concise table caption. See the code for guidance on how to format single and multiple line table captions correctly. Use the best column justification (left, centre or right) for each individual column based upon the column contents.

Column 1	Column 2	Column 3
text	text	text
or	or	or
numbers	numbers	numbers
left	centre	right
justified	justified	justified
⋮	⋮	⋮

FIGURES

All figures should be included after the text and concise captions must always be provided.

Figures should always be submitted in Encapsulated PostScript (EPS) format with correct bounding box values. Files originally in JPEG, GIF, TIFF, PNG, BMP, etc. formats may be converted using XV or other software packages, but care must be taken not to lose resolution. *If a conversion has been made, please submit both the original file and the EPS version.*

Most figures will be displayed in single-column-wide mode. Exceptionally, double-column-wide mode will be used. Please see the section below regarding legibility and the use of colour in figures.

Photographs taken with a digital camera should be submitted in both the original JPEG and converted EPS formats. Traditional photographs must be in focus, have good contrast, and be scanned at 200 dpi. Colour photographs are preferred. When scanning, ensure that the photograph is aligned in the correct orientation and cropped properly so that there is no whitespace surrounding the image.

Other figures not available as electronic files should be scanned at a minimum of 600 dpi for line drawings or 200 dpi for colour or greyscale images. Ensure precise alignment and cropping so that there is no whitespace surrounding the image.

Figures must **not** have borders (frame boxes). *The figures shown below have borders for demonstration purposes only.*

Figures with correct orientation

Figure 1 has been produced using the EPS file `ann_rep_example_figure_1.eps` which has the correct portrait orientation. Note the exact width scaling through the use of `width=\linewidth` in the `\includegraphics` command.

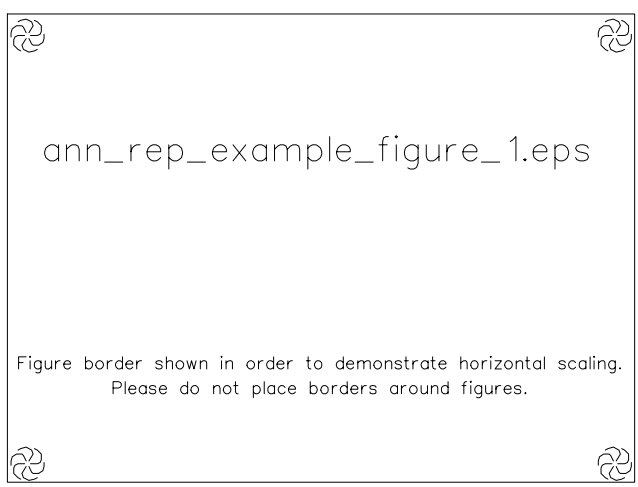

Fig. 1. Please provide a concise figure caption.

Figures with incorrect orientation

Figure 2 has been rotated through ninety degrees (see skeleton file code listing below) to compensate for the incorrect landscape orientation of the EPS file `ann_rep_example_figure_2.eps`. Again, exact width scaling is produced using `width=\linewidth` in the `\includegraphics` command.

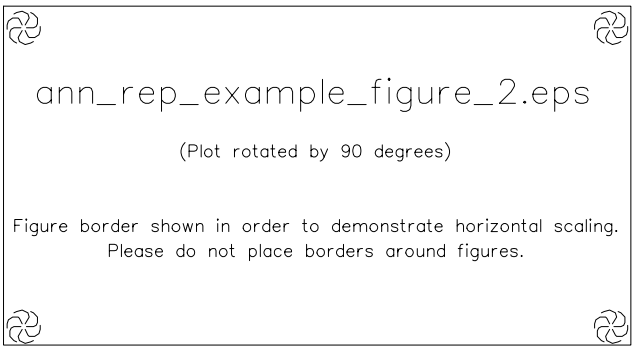

Fig. 2. Please see the code for guidance on how to rotate figures and scale them to the column width, and also how to format single and multiple line figure captions correctly.

Figure problems found in the 1998–2005 reports

If authors submitted figures for the 1998–2005 annual reports, they should study the post-mortems of the figures to see what editing, if any, was necessary in order to be able to use them in the annual reports. Please see `www.triumf.ca/annrep/figures.html` for full details. Please try to correct any errors before submitting figures this year.

Legibility and the use of colour in figures

Authors should always use the LaTeX 2_ε template, print the final version of the contribution on a 600 dpi monochrome laser printer, and carefully inspect the printout for legibility prior to submission. *In particular, good rendering of colour or greyscale figures should be confirmed.*

All labelling and arrows should be in black or a dark colour which renders well when printed on a monochrome laser printer.

Figure 3 shows the rendering of the default colours defined in the TRIUMF Graphics package. Identical colour names are available in other software packages and will be rendered in a similar fashion. The image was created with a linewidth setting of 1. Only Black and Blue are acceptable. Figure 4 was created with a linewidth setting of 2. Red, Magenta and Orange Red are improved, but are still not acceptable for labelling.

Authors viewing this file in colour on screen or colour hard copy should produce a 600 dpi monochrome printout in order to fully appreciate the degradation which occurs when printing at 600 dpi greyscale.

Fig. 3. Rendering of the default colours in the TRIUMF Graphics package with a linewidth setting of 1.

Fig. 4. Image created with a linewidth setting of 2.

The digital printing process used to produce the monochrome printed version of the annual report further degrades colours, giving the appearance of rendering greyscale equivalents at 300 dpi rather than the 600 dpi resolution supplied. The reason for this degradation is believed to be due to the original PostScript file being converted to Adobe Portable Document Format, which is then passed to the raster image processor (RIP) software engine used in the Xerox Docutech printers. Unfortunately the effects are neither consistent nor predictable when newer versions of the software are installed.

Apart from the colours used in figures, another major issue is the linewidth setting. If lines or text are too fine when printed on a 600 dpi monochrome laser printer, increase the linewidth setting in the software package used to produce the figure and create a new EPS file. Note that most graphics packages have an internal global scaling factor (TRIUMF Graphics uses a factor of 0.24) and then the image is scaled to the column width. Therefore Fig. 3, produced with a linewidth setting of 1, has an actual linewidth of 0.12 pt which corresponds to one pixel at 600 dpi.

The appearance of figures printed on 600 dpi monochrome laser printers is the best that can be expected in the final printed version of the annual report, and often the results will be worse. If the submitted figures are already of marginal quality, then the final result will almost certainly be unsatisfactory.

Naming convention for figure .eps files

Please use the following naming convention for figure files: `n_m.eps` where `n` is the experiment number or short alphanumeric string to identify the subject of the contribution, and `m` is the contribution figure number.

OTHER REQUIRED INFORMATION

Publications

After the text and figures, list all journal or conference publications published, in press, or submitted during 2006.

Theses

List all theses awarded in association with the work during 2006. Provide name, thesis title, type of degree, department and institution awarding the degree.

Please note that a copy of all TRIUMF-related theses should be submitted to the TRIUMF Library for permanent display.

Science Division Experiments

Science Division contributors should also list the names and affiliations of all people presently associated with their experiment and the present status of the experiment. The information will be used to update Appendix D and Appendix E.

SKELETON FILE

The skeleton file `ann_rep_skeleton.tex` is available on the WWW for downloading and is displayed below. Authors should always use this file to produce their contributions.

```
% ann_rep_skeleton.tex   Last updated 15-JAN-2007

% Skeleton LaTeX file for contributions to the
% TRIUMF Annual Report Scientific Activities 2006
% in LaTeX2e format.

\documentclass{article}
%\documentclass[draft]{article}

\usepackage{latexsym,multicol,graphicx,rotating}

%\usepackage{armargins,calc,grey_800}
%\usepackage{armargins,calc,draftcopy_990}
%\usepackage{calc,draftcopy_990}

%\usepackage{amsmath}
%\usepackage{amssymb}
%\usepackage{dcolumn}
%\usepackage{longtable}
%\usepackage{pifont}

\newcommand{\un}[1]{\underline{\vphantom{/}#1}}
\newcommand{\vpo}{\vphantom{$1^/_1$}}
\newcommand{\vpu}{\vphantom{$1^1_/$}}
\newcommand{\vpb}{\vphantom{$1^/_/$}}

% Use Michel Goossens' dense lists

\let\Otemize =\itemize
\let\Onumerate =\enumerate
\let\Oescription =\description
% Zero the vertical spacing parameters
\def\Nospacing{\itemsep=0pt\topsep=0pt\partopsep=0pt%
               \parskip=0pt\parsep=0pt}
% Redefine the environments in terms of the original values
\newenvironment{Itemize}{\Otemize\Nospacing}{\endlist}
\newenvironment{Enumerate}{\Onumerate\Nospacing}{\endlist}
\newenvironment{Description}{\Oescription\Nospacing}%
                                          {\endlist}


\makeatletter
\renewcommand{\section}
 {\@startsection{section}{1}{\z@}%
 {1.5ex plus 0.5ex minus 0.5ex}{1.0ex plus 0.1ex}%
 {\normalsize\bfseries\mathversion{bold}}}
\renewcommand{\subsection}
 {\@startsection{subsection}{2}{\z@}%
 {1.5ex plus 0.5ex minus 0.5ex}{1.0ex plus 0.1ex}%
 {\normalsize\bfseries\mathversion{bold}}}
\renewcommand{\subsubsection}
 {\@startsection{subsubsection}{3}{\z@}%
 {1.2ex plus 0.4ex minus 0.4ex}{0.8ex plus 0.1ex}%
 {\small\bfseries\mathversion{bold}}}
\renewcommand{\paragraph}
 {\@startsection{paragraph}{4}{\z@}%
 {1.0ex plus 0.3ex minus 0.3ex}{-1.0em}%
 {\small\bfseries\mathversion{bold}}}
\makeatother
```

```
\newcounter{time}
 \setcounter{time}{\time}

\newcounter{hours}
\newcounter{minutes}
\newcommand{\ptime}{%
 \setcounter{hours}{\time/60}%
 \setcounter{minutes}{\time-\value{hours}*60}%
  \thehours :\theminutes}

\makeatletter
\renewcommand{\ps@plain}{%
 \renewcommand{\@oddfoot}{\rmfamily\rightmark \hfil
  {\tiny
   Experiment X --- .tex
   \ \ldots \ \
\thetime
%\ptime
   \ \ \today \ \ \ldots \ \ } \thepage \hfil}
 \renewcommand{\@evenfoot}{\@oddfoot}}
\makeatother

\textwidth     175mm
\oddsidemargin  -5mm
\topmargin     -18mm
\textheight    230mm
\columnsep       9mm
\fboxsep         0mm
\flushbottom
\frenchspacing

\pagestyle{plain}

\setcounter{page}{1}


\begin{document}

\begin{multicols}{2}

%##############################################
%# All contributors must provide their contact #
%# information after the colons below.         #

%  Name         :
%  E-mail       :
%  TRIUMF Tel # :

%  OFF-SITE CONTRIBUTORS ONLY:

%  Tel # :
%  FAX # :
%##############################################


%@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
%@ Contribution heading for Science Division   @
%@ experiment reports ONLY.                    @
%@ Contributors from other divisions should    @
%@ delete or comment out these lines.          @
%@ Replace keywords with relevant information. @

\subsection*{Experiment X \\
 Experiment title \\
 \textnormal{\emph{
 (Spokesperson, Affiliation)
}}}
%@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

```
%*****************************************
%* Contribution heading for other divisions. *
%* Science Division contributors should      *
%* delete or comment out these lines.        *

\section*{TYPE MAIN SECTION HEADING HERE}

\subsection*{Type Contribution Heading Here}
%*****************************************

% Enter main text of contribution here.

   Main text.

\subsubsection*{Type subsubsection heading here}

% Enter subsubsection text here.
% Use as many subsubsections as required.

   Subsubsection text.

\paragraph*{Type paragraph heading here}

% Enter paragraph text here.
% Use as many paragraphs as required.

   Paragraph text.

%**********************************
% Skeleton table - insert in text. *
%**********************************

\begin{center}
%\vspace*{-3mm}
\parbox[t]{\linewidth} %Comment out if single line caption
{\small \setlength{\baselineskip}{2.6ex}
Table~I. \ Please provide a concise table caption.
See the code for guidance on how to format single and
multiple line table captions correctly.  Use the best
column justification (left, centre or right) for each
individual column based upon the column contents.
}\\[2mm]
\begin{tabular*}{\linewidth}{@{\extracolsep{\fill}}lcr@{}}
\hline\hline
\vpb
Column 1  & Column 2  & Column 3  \\ \hline
\vpo
text      & text      & text      \\
or        & or        & or        \\
numbers   & numbers   & numbers   \\
left      & centre    & right     \\
justified & justified & justified \\
\vpu
\vdots    & \vdots    & \vdots    \\ \hline\hline
\end{tabular*}
\end{center}

%******************
% Skeleton figure. *
%******************

\begin{center}
%\vspace*{-3mm}
\includegraphics[width=\linewidth]{n_1.eps}\\%[2mm]
%\parbox[t]{\linewidth} %Comment out if single line caption
{\small \setlength{\baselineskip}{2.6ex}
Fig.~1. \ Please provide a concise figure caption.}
\end{center}
```

```
%*************************************
% Skeleton figure requiring rotation. *
%*************************************

\begin{center}
%\vspace*{-3mm}
\includegraphics[angle=90,width=\linewidth]{n_2.eps}\\%[2mm]
\parbox[t]{\linewidth} %Comment out if single line caption
{\small \setlength{\baselineskip}{2.6ex}
Fig.~2. \ Please see the code for guidance on how to
rotate figures and scale them to the column width,
and also how to format single and multiple line
figure captions correctly.
}
\end{center}


%****************************************************
% For all contributions, list below all journal or *
% conference publications published, in press,     *
% or submitted during 2006.                        *
%****************************************************

   Publications:
```

```
%*****************************************************
% For all contributions, list below all theses awarded *
% in association with the work during 2006.  Provide   *
% name, thesis title, type of degree, department and   *
% institution awarding degree.                         *
%*****************************************************

   Theses:

%*****************************************************
% For Science Division experiment contributions ONLY, *
% list the names and affiliations of all people       *
% presently associated with the experiment and the    *
% present status of the experiment.                   *
% Information will be used to update Appendix D and   *
% Appendix E.                                         *
%*****************************************************

   Appendix D and Appendix E update:


\end{multicols}

\end{document}
```