

L^AT_EX & T_EX

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Document Class, Packages, and Styles

- `\begin{documentclass}[options]{style}`
- `style`: article report book slides letter
- `options`: 10pt 11pt 12pt twiside twocolumn titlepage
- `\usepackage[options]{pkg}`
- `\pagestyle{style}`
- `style`: plain empty headings myheadings
- `\pagenumbering{style}`
- `style`: arabic roman alph Roman Alph

Front & Back (Title, Abstract, Contents)

- `\maketitle` Make title (\title, \author, \date)
- `\begin{abstract}` ... Make abstract
- `\tableofcontents` Make table of contents

Displayed Paragraphs

- `\begin{quote}` ... Short displayed quotation
- `\begin{quotation}` ... Long displayed quotation
- `\begin{verbatim}` ... Typewriter font exactly as formatted

Lists

- `\begin{itemize}` ... Bulleted
- `\begin{enumerate}` ... Numbered
- `\begin{description}` ... Labeled (use `\item[lab]`)
- `\begin{list}[label]{spacing}` ... Lots of spacing options
- `\topsep` Extra vertical space at top of list
- `\partopsep` Extra length at top if preceded by a blank line
- `\itemsep` Extra vertical space between items
- `\parsep` Vertical space between paragraphs within an item
- `\leftmargin` Distance between environment left margin and the list
- `\rightmargin` Distance between environment right margin and the list
- `\listparindent` Extra space for paragraph indent after first in item
- `\itemindent` Indentation of first line of an item
- `\labelsep` Separation between label box and first line item text
- `\labelwidth` Width of the box containing the label

Splitting the Input

- `\input{file}` Read in file
- `\include{file}` Read file unless `\includeonly` overrides
- `\includeonly{files}` Exclude any file in list

Line & Page Breaking

- `\linebreak` Force line break
- `\\[len]` Force line break and add vertical space
- `\pagebreak` Force page break (Also see: `\newpage`)
- `\clearpage` Dump all figures and start new page

Boxes

- `\mbox{...}` Put a box around stuff
- `\fbox & \makebox` Like `\mbox` & `\makebox` with frame
- `\makebox[wd][pos]{...}` Box with width and position (l, r, c).
- `\raisebox[raise-ht][ht]{text}` Raised typeset box

Paragraphs & Minipages

- `\begin{minipage}[pos]{wd}` ...
- `\parbox[pos]{wd}{...}`

Space & Rules

- `\hspace{len}` Make a horz space. (Use * form to force)
- `\hfill` Infinitely stretchable space
- `\vspace{len}` Make a vert space. (Use * form to force)
- `\hrulefill` Draw horizontal line as long as possible
- `\rule[raise-ht][wd][ht]` Draw a blob of ink
- Horz space commands: `\bigskip`, `\medskip`, `\smallskip`
- Math horz space: `\thisspace`, `\medspace`, `\thickspace`

Lengths

- `\newlength{cmd}` Make a new length command
 - `\setlength{cmd}{len}` Set length `cmd` to `len`
 - `\addtolength{cmd}{len}` Add given length to given command
 - `\settoheight{cmd}{text}` Set length of `cmd` to the width `text`
 - `\settoheight{cmd}{text}` Set length of `cmd` to the height `text`
- NOTE: Units can be cm em ex in pc pt mm

Counters

- `\setcounter{ctr}{n}` set counter to value
- `\addtocounter{ctr}{n}` add value to counter

New Commands

- `\newcommand{cmd}[n]{body}` command `cmd` with `n` args (arg vals: #n)

Tabular Environment

- `\begin{tabular}[pos]{col-fmt}` ...
The `col-fmt` argument specifies lines and column justification:
 - `l` Left-justified column
 - `r` Right-justified column
 - `c` Centered column
 - `|` Vertical rule
 - `@{...}` Text or space between columns
- `\multicolumn{n}{col}{...}` Span `n` columns with format `col`
- `\hline` Draw horizontal line across the table
- `\cline{i-j}` Draw horizontal line from col `i` to `j`

Figures and Tables

- `\begin{figure}[loc]` ... Make a floating figure
- `\begin{table}[loc]` ... Make a floating table
- `loc`: h (here), h! (HERE!!), t (top), b (bottom), p (page for floats)
- `\caption{...}` Caption figure or table. \label after \caption

Package "alltt"

- `\begin{alltt}` ... Typeset like a verbatim block, except that the special symbols `\`, `{`, and `}` have the normal meaning.

Type Size

- `\tiny` `\scriptsize` `\Large` `\footnotesize` `\small`
- `\normalsize` `\large` `\LARGE` `\huge` `\Huge`

Type Style

- Paragraph mode
 - `\textrm{...}` Roman
 - `\textit{...}` Italics
 - `\textbf{...}` Bold
 - `\textsc{...}` Caps
 - `\texttt{...}` Type
 - `\textsf{...}` SSRf
 - `\textsl{...}` Slant
- math mode
 - `\mathrm{...}` Roman
 - `\mathit{...}` Italics
 - `\mathbf{...}` Bold
 - `\mathsc{...}` Caps
 - `\mathtt{...}` Type
 - `\mathsf{...}` SSRf
 - `\mathcal{...}` Cal
 - `\Bbb{...}` AMS Black Board Bold

Sectioning

- `\part` `\chapter` `\section` `\subsection`
- `\paragraph` `\subparagraph` `\appendix` `\subsubsection`

Package "graphicx"

- `\scalebox[h_scl][v_scl]{...}` One arg may be !
- `\resizebox[h_len][v_len]{...}` One arg may be !
- `\reflectbox{...}`
- `\rotatebox[angle]{...}` Counterclockwise in degrees
- `\includegraphics[opts]{file_name}` Include graphic into document.
 - `opts`: comma separated list of options
 - `scale=float` Scale value of 1 is natural sized
 - `width=len`
 - `height=len`
 - `angle=float` Counterclockwise `float` degrees
 - `origin=x y` Rotation origin
 - `totalheight=len` Height after rotation
 - `keepaspectratio=bol` Value is "true" or "false"
 - `clip=bol` Clip image outside of bounding box
 - `bb=llx lly urx ury` Bounding Box. Values in points.
 - `trim=llx lly urx ury` Shrink bounding box. Values in points.

Package "xcolor"

- `\definecolor{clr-name}{gray}{val}` Define a gray color
- `\definecolor{clr-name}{rgb}{r,g,b}` Define an RGB color. r,g,b∈[0,1]
- `\textcolor[mdl]{fg_clr}{...}` Set `text` color
- `\colorbox[mdl][bg_clr]{...}` Set `text` background color
- `\fcolorbox[mdl][box_clr][bg_clr]{...}` fbox with frame and background color
 - `no mdl` → named color: red, green, blue, cyan, yellow, magenta, black, white, gray, lightgray, brown, darkgray, lime, olive, orange, pink, purple, teal, violet, or a color defined via `\definecolor`.
 - `mdl == rgb` → color is comma separated triple: r,g,b∈[0,1]
 - `mdl == gray` → color is single float
 - `mdl == HTML` → color is six hex digits: RRGGBB

Cross Reference

- `\label{key}` Assign current counter to `key`
- `\ref{key}` Print value assigned to `key`
- `\pageref{key}` Print page number assigned to `key`

Package "hyperref"

- `\href{url}{text}` Make link, print `text` in document
- `\url{url}` Make link, print `url` with `\texttt`
- `\hypersetup{colorlinks=true}` Color links, don't put them in boxes

Package "fancyhdr"

- `\pagestyle{fancy}` Enable mode in preamble with `\pagestyle`
- `\thispagestyle{style}` Style for this page: Suppress all with "empty"
- `\lhead{...}` Top. Left. Document classification
- `\chead{...}` Top. Center.
- `\rhead{...}` Top. Right. Document title
- `\lfoot{...}` Botom. Left.
- `\cfoot{...}` Botom. Center. Page number: `\thepage`
- `\rfoot{...}` Botom. Right. Signature: `\mjmrRstd`

Bibliography

- `\cite{label}` Cyte the bib entry with the given label
- Example bibliography done by hand:

```
\begin{thebibliography}{MMMMMM}
\pagebreak[0] \samespage{
  \bibitem[Weihrauch 00]{KW00}
    Klaus Weihrauch (2000)\
    \emph{Computable Analysis: An Introduction}\
    ISBN 3-540-66817-9\
    This book is well written and a fun read\ldots}
\end{thebibliography}
```

