

# Introduction to LaTeX

## Document Preparation System - Phase One

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Typesetting is the process of arranging and formatting text and images for printing or digital display, ensuring a visually appealing and readable layout.
- Why use LaTeX?
  - LaTeX excels in typesetting complex mathematics, tables, and technical content for the physical sciences.
  - It provide efficient tool for document management
  - Known for its ability to handle complex formatting and equations.
  - LaTeX simplifies the production of complicated elements like table of contents, indexes, and lists of figures.

- Academic Documents
- Slides and Presentations
- Technical Writing
- Collaborative Projects
- Cross-Platform Sharing



# Installation

- Download and install LaTeX distribution (e.g., MiKTeX, TeX Live).
- Choose a LaTeX editor (e.g., TeXStudio, TeXShop, TeXworks, Overleaf)

# Document Class

- `\documentclass{article}`: Common document class.
- Other classes: `report`, `book`, `beamer`, etc.

# Special Symbols

Most symbols on the keyboard have their usual meaning. However the characters

`\{}` `$` `^` `_` `%` `&` `#` `~`

are used for special purposes within LATEX

# Document Structure

- Preamble: `\title`, `\author`, `\date`.
- Body: `\begin{document}` ... `\end{document}`.

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It creates a numbered or titled section heading, depending on the document class.

Sections are typically hierarchical :

- `\section{...}`
- `\subsection{...}`
- `\subsubsection{...}`
- `\section*{...}`

# Text Formatting

- `\textbf{}`: Bold.
- `\textit{}`: Italics.
- `\underline{}`: Underline.

- `\begin{itemize}` ... `\end{itemize}`: Bullet points.
- `\begin{enumerate}` ... `\end{enumerate}`: Numbered lists.



# Adding table of Content

- `\tableofcontents` - For table of contents

# Math Mode - Adding math to latex

- Inline math:  $\dots$
- Display math: 
$$\dots$$

# Conclusion

- Recap of key LaTeX concepts.
- Additional resources for learning LaTeX.