

# **Guide for thesisdtetiugm Class File**

Introduction to LaTeX

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# Introduction

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# What is LaTeX?

- LaTeX is a document preparation system that allows users to create professional-looking documents with high-quality typography.
- LaTeX document in `.tex` file can be rendered into portable `.pdf` file. This rendering process supports a formatter in the form of `.cls` document class and `.bst` bibliography style document.

# Why using LaTeX?

- Plain text file
- Separates content from formatting
- Great support for mathematical equation and symbols

# Where to Learn?

- Learn LaTeX in 30 minutes by Overleaf [here](#).
- Learn LaTeX by [learnlatex.org](#) [here](#).

# Getting Started

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# Minimal Working Example

Create a new project in Overleaf ([link](#)), and type:

```
\documentclass{report}

\title{Minimal Working Example}
\author{Muhammad Yasirroni}

\begin{document}
\maketitle

\chapter{Introduction}
\section{Background}
\subsection{Related Works}
Hello world! This is a simple example!

\subsection{Conclusion}
See you!

\end{document}
```

# Using thesisdtetiugm.cls

```
% change documentclass to use thesisdtetiugm.cls
\documentclass[master,bahasa,table,xcdraw]{thesisdtetiugm}

\title{Minimal Working Example}
\author{Muhammad Yasirroni}{<<NIM>>} % add NIM

% minimal data for cover
\program{<<Program name>>}{<<Program coordinator>>}{<<NIP>>}
\major{<<Major>>}
\yearssubmit{<<year submit>>}

\begin{document}
\printcover{images/logougmpng}{Tesis} % replacing \maketitle

\chapter{Introduction}
\section{Background}
\subsection{Related Works}
Hello world! This is a simple example!

\subsection{Conclusion}
See you!
```



## Style Using Document Class

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# Document Class

Template or a blueprint for your document. It determines the overall layout, formatting, and structure of your document. To use it, use `\documentclass{}` syntax. Some built-in document class example are:

- article: short documents, such as papers or reports
- report: longer documents, such as theses or technical reports
- book: for writing books with two kinds of pages and various book supports
- beamer: presentation files with slides

Publisher often provide their own document class in .cls file format. Some custom document class are:

- thesisdtetiugm: UGM thesis style for various degrees
- IEEEtran: IEEE Transaction style
- ieeeaccess: IEEE Access style
- elsarticle: Elsevier style

## Benefit of Using LaTeX

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# Benefit of Using LaTeX #1

## Mixing Style

Even when you use .cls styler document, you still can add your own style inside your .tex file. Both .cls and .tex use same syntax and (in most cases) you can think of `\documentclass{}` as "load all the text in .cls to the .tex file."

To create a new command, use `\newcommand` and use `\renewcommand` to redefine existing command that is already define previously, including in .cls styler document.

### Code

Whenever you update your code, your output `.pdf` file will also get updated upon rendering. Thus you can take advantage of it by:

- Place your simulation code under `codes/` folder.
- Output the graph of your simulation directly to `images/` folder in `.png` or `.pdf` file.

### Tables and Figures

Tables and figures are automatically numbered and placed on the right place. Very useful for journal publication where it require every tables and figures to be placed after mentioned.

### References

One file to store references in `.bib` file that can be written manually or imported from various references managers such as Mendeley, Zotero, and Semantic Scholar.

The citation style can be easily formatted using `.bst` file, make it easy to change style if your paper got rejected.



## Plain Text

.tex file is a plain file that can take advantages of:

- Use any editor you like, such as TeX VSCode, Overleaf, and even Notepad
- Use Git or Overleaf for version control and colaboration
- Easy help from various tools such as ChatGPT and Python scripts

# Syntax and Commands

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# Notable Syntaxes

- `\\` change line
- `%` comment
- `\` escape character
- `\FUNCTION [PARAMETERS] {INPUT}`

# Notable Commands

- `\includeonly` and `\include`
- `\begin{...} ... \end{...}` for document, figure, table, enumerate, and itemize
- `\chapter`, `\section`, `\subsection`, `\subsubsection`, ...
- `\textit`, `\textbf`, and `\texttt`
- `\hspace` and `\vspace`