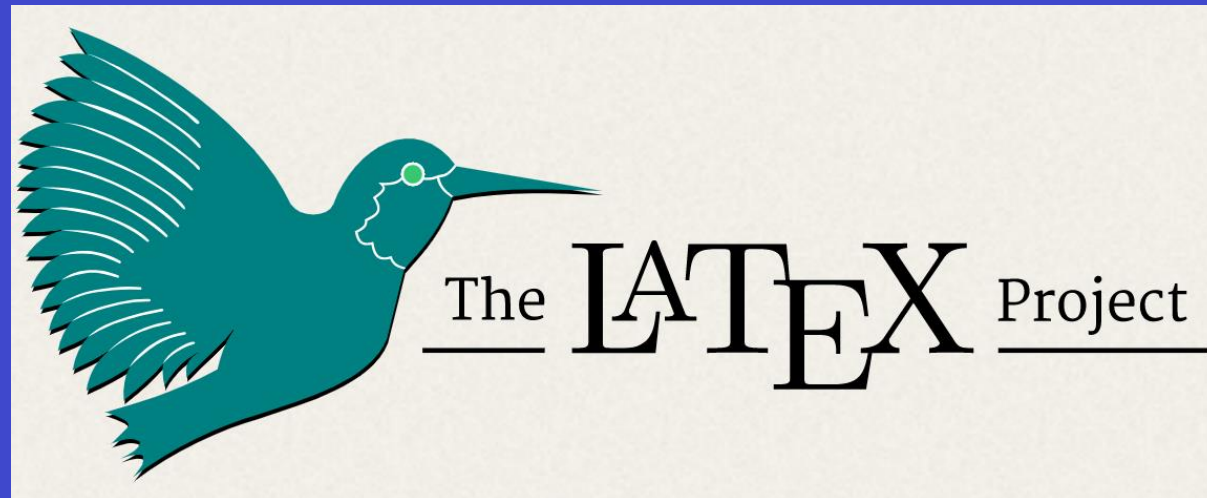# Intro to LaTeX

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A Bit of History

- TEX is a computer program created by Donald E. Knuth.
- It is aimed at typesetting text and mathematical formulae.
- Created in 1977 and released in 1982
- In the 1990's, Leslie Lamport created LaTeX (TEX with more features)
- Today, LaTeX is maintained by the LaTeX Project

Donald E. Knuth. The TEXbook, Volume A of Computers and Typesetting, Addison-Wesley, Reading, Massachusetts, second edition, 1984, ISBN 0-201-13448-9.
Leslie Lamport. LATEX: A Document Preparation System. AddisonWesley, Reading, Massachusetts, second edition, 1994, ISBN 0-201-52983-1.

LaTeX is not "What you see is what you get"

- In MS Word or LibreOffice or Pages, authors can see on the screen how the final work will look when it is printed.

- In LATEX it is not possible to see the final output while typing, but it can be previewed after processing the file
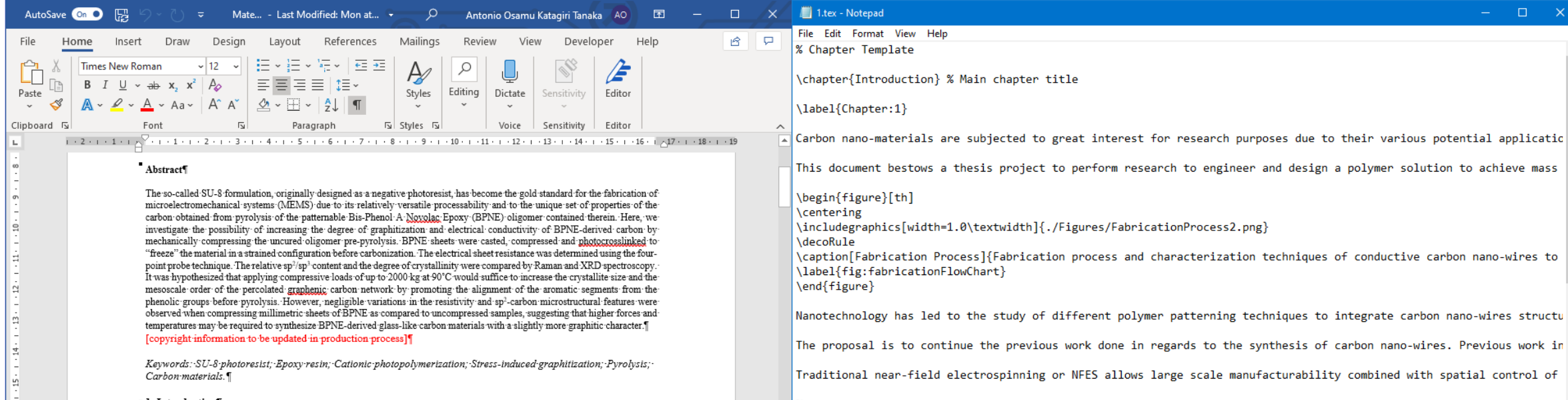
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Basics (commands)

- LaTeX takes care of all the formatting. But LaTeX is "only" a program and therefore needs some guidance.
- Commands start with a backslash \ and then have a name consisting of letters only.
- Some commands require a parameter, given between curly braces { }
- Other commands take optional parameters, inserted in square brackets [ ]

`\command[optional parameter]{required parameter}`

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Basics (comments)

- When LATEX encounters a % character while processing an input file, it ignores the rest of the present line
- Useful to write notes/reminders into the input file, which will not show up in the printed version.

```
% explain A, B and C
% [TODO: add figure …]
```

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Input File Structure

- `\documentclass{...}` specifies what sort of document you intend to write
- `\usepackage{...}` adds new features to the LaTeX system.
- When all the setup work is done, you start the body of the text with `\begin{document}`
- At the end of the document you add the `\end{document}`

```
\documentclass{article}
\begin{document}
Hello World!
\end{document}
```

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The scary thing

- LaTeX itself comes without a GUI nor fancy buttons to press.
- It is just a "command-line" program that processes your input file into a PDF.


```
C:\Windows\System32\cmd.exe                                    —    □    ×

Microsoft Windows [Version 10.0.18363.959]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\oskat\Downloads\LatexTutorial>pdflatex "New Text Document.tex"
This is pdfTeX, Version 3.14159265-2.6-1.40.20 (MiKTeX 2.9.6960 64-bit)
entering extended mode
("New Text Document.tex"
LaTeX2e <2018-12-01>
("C:\Users\oskat\AppData\Local\Programs\MiKTeX 2.9\tex/latex/base\article.cls"
Document Class: article 2018/09/03 v1.4i Standard LaTeX document class
("C:\Users\oskat\AppData\Local\Programs\MiKTeX 2.9\tex/latex/base\size10.clo"))

No file "New Text Document".aux.
[1{C:/Users/oskat/AppData/Local/MiKTeX/2.9/pdftex/config/pdftex.map}]
("New Text Document.aux") )<C:/Users/oskat/AppData/Local/Programs/MiKTeX 2.9/fo
nts/type1/public/amsfonts/cm/cmr10.pfb>
Output written on "New Text Document.pdf" (1 page, 12323 bytes).
Transcript written on "New Text Document.log".

C:\Users\oskat\Downloads\LatexTutorial>
```

Pdflatex *.tex

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Why would you use LaTeX?

- Formatting is a one-time job → you can concentrate in the content
- Handle big documents with ease
- Able to recover corrupted files
- Faster than MS Word-like programs → more typing, less clicking
- Even MS Word implements LaTeX to input equations
- LaTeX is highly portable

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