

# Webinar on L<sup>A</sup>T<sub>E</sub>X

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# Chapter 1

## Day 1

### 1.1 Installation and basic tools

Download TEXLIVE iso from url <http://www.tug.org/texlive/>. Same iso image can be used on both linux and windows. Just mount it and run install command in the root directory and accept default options. It might take around 20 minutes to complete installation.

#### 1.1.1 Editors

Although tex files can be edited in any basic text editor. just create a file with extension \*.tex. you can create a new file newDoc.txt edit it save it and rename it as newDoc.tex so it can be used by tex or latex system.

However, to ease the process we will use TEXWORKS <https://github.com/TeXworks/teXworks/releases> the default latex editor/compiler that comes with the texlive. This is the minimalist kind of software, in my opinion best for beginners. Later, you might want to try other editors like <https://www.texstudio.org/> or <https://www.texniccenter.org/>.

#### Shortcuts for texworks

SHORTCUT	FUNCTION
<i>ctrl + t</i>	compile
<i>ctrl + shift + ]</i>	comment line
<i>ctrl + shift + [</i>	uncomment line

### 1.2 Skeleton file

create tex file with anyname.tex  
type this code in it and save it.

```
\documentclass{article}
```

```
\begin{document}
```

```
welcome
```

```
\end{document}
```

---

after-compiling this file you will get a anyname.pdf file in the same folder like



```
welcome
```

`\documentclass` should always be first line.

it can be used as any of the following each offer different set of options

```
\documentclass{article}
```

```
\documentclass{book}
```

```
\documentclass{letter}
```

```
\documentclass{elsarticle}
```

we can pass we extra options like selection of default paper size as

```
\documentclass[a4paper]{article}
```

```
\documentclass[letterpaper]{article}
```

we can select default font size as 10pt,11pt, or 12pt as

```
\documentclass[a4paper,11pt]{article}
```

to print anything in document we write between `\begin{document}` and `\end{document}` .

the region before `\begin{document}` is called document preamble and it is used to add different packages, function that alter the formatting to final document.

## 1.3 Sectioning of document

### 1.3.1 section, subsection, and subsubsection

```
\section{} \subsection{} \subsubsection{}
```

### 1.3.2 paragraph, linebreak, and indentation

```
\par \\ \noindent
```

### 1.3.3 chapter

`\chapter{}` to group `section` is available in documentclass `book` or `report`

### 1.3.4 section, subsection subsubsection

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

## 1.4 Label and referencing

*labelsec : lab refsec : lab*

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

## 1.5 Math

### 1.5.1 in-line and equation and eqnarray mode

`$math$`

`$$math$$`

`\[math\]`

`\begin{equation}math\end{equation}`

#### eqnarray

It uses & to align equations and  
to change line and add new eqn inside eqnarray environment

`\begin{eqnarray}math\end{eqnarray}`

### 1.5.2 Symbols

`\alpha\beta\partial\Delta\gamma\omega\Omega\vec{\Omega}\vec{nabla}\cdot\vec{B}`

$\alpha\beta\partial\Delta\gamma\omega\Omega\vec{\nabla}\cdot\vec{B}$

1.5.3 Fractions sum integrals

$\frac{num}{den}$   $\sum$   $\int$

1.5.4 Subscript and Superscript

$a^2$

$b_s$

$\sum_{i=0}^{10}$

$\int_0^\infty$

$a^2$

$b_s$

$\sum_{i=0}^{10}$

$\int_0^\infty$

1.5.5 Dashes and minus

$a-b, a- -b, a- - -b, \$-1\$$

$a-b, a\text{--}b, a\text{---}b, -1$

1.5.6 Example equations

$\int_0^\infty \frac{\overrightarrow{AB}}{\overrightarrow{CD}}$

$\vec{\Delta}.\vec{B}=0$

$E=mc^2$

$F=ma$

$\vec{F}=m\hat{a}$

$\vec{F}=m\hat{a}$  (1.1)

$\vec{F} = m\hat{a}$  (1.2)

$\int \frac{d}{dt}y = \frac{\delta y}{d}$   $y \in \{\mathbf{R}\}$  (1.3)

$X(\omega) = \begin{cases} 1 & \text{se } \omega \in A \\ 1250 & \text{se } \omega \in A^c \end{cases}$

$A = \left\{ \begin{array}{l} A = b \\ c = d \end{array} \right\}$



$$\vec{\nabla} \times \vec{H} = -\frac{\partial B}{\partial t}$$

## 1.6 List, items and description

### 1.6.1 Un-numbered enumerate

### 1.6.2 Numbered itemize

### 1.6.3 Description

### 1.6.4 subsection

#### subsubsection

In section ?? we describe eqn, in section 1.7 list

## 1.7 list



Figure 1.1: figure

## 1.8 table and tabular

## 1.9 graphics picture and figure

jo



Figure 1.2: figure\*

hi sdg sd;f sdfllsdf adfdsf d df;glkd d sdfg;lk how	dear  are you	ssa	asd
hi how	dear are you	ssa	asd
hi how	dear are you	ssa	asd

## Chapter 2

### Day 2

#### 2.1 Download and use IEEEtran L<sup>A</sup>T<sub>E</sub>Xtemplate to convert article in to paper