

# **DOCUMENT PREPARATION & PRESENTATION SOFTWARE**

## **CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/Practice		
Document Preparation & Presentation Software	2	0	0	2	12 <sup>th</sup> Pass	NIL

### **Learning Objectives:**

- To develop proficiency in the use of document preparation software such as document LaTeX, LibreOffice.
- To make a presentation using LaTeX, LibreOffice.
- To serve as a tool for conveying/communicating one's ideas, views, and observations.

### **Learning outcomes: On completion of the course, a student will be able to**

- Create a text document using LaTeX using a standard template.
- Incorporate well-formatted mathematical equations, algorithms, figures, tables and references in a document.
- Use Zotero for reference management.
- Format text, including alignment, emphasis and fonts.
- Handle basic aspects of document structure, including sections, subsections, paragraphs, and bulleted and enumerated lists.
- Page set a document including header, footer, and page numbering.
- Make a presentation.

### **Syllabus:**

#### **Unit 1: Introduction**

**(4 Hours)**

1. Create a LaTeX/ LibreOffice document having several paragraphs, including comments in LaTeX.
2. Organize content into sections, including preface/abstract. Using the article and book class of LaTeX. Handling errors.

**Unit 2: Styling Pages (6 Hours)**

1. Loading and using packages, setting margins, header and footer, and page orientation.
2. Organizing the document into multiple columns

**Unit 3: Formatting Content (10 Hours)**

1. Formatting text (styles, size, alignment)
2. Adding colours to a block of text/ page
3. Adding ordered and unordered lists
4. Inserting mathematical expressions – subscripts, superscripts, fractions, binomials, aligning equations, operators, Greek and mathematical symbols, and mathematical fonts.

**Unit 4: Tables and Figures (10 Hours)**

1. Create basic tables
2. Adding different types of borders to a table
3. Merging rows and columns
4. Splitting tables across multiple pages.
5. Incorporating figures and subfigures, explore different properties like rotation and scaling.

**Unit 5: Algorithms and Equations (12 hours)**

1. Incorporating algorithms, body typesetting, organizing algorithms across multiple pages.
2. Incorporating equations, indentation, and captioning.

**Unit 6: Referencing and Indexing (6 hours)**

1. Insert captions, labels, and references
2. Incorporate cross-referencing (refer to sections, table, and images)
3. Incorporate a bibliography
4. Create a back index.

**Unit 7: Making Presentations (12 hours)**

1. Create a slideshow
2. Incorporate logo
3. Highlight important points
4. Create a title page
5. Make a table of contents
6. Incorporate special effects in a slideshow.

**Practical Exercises:**

**For the following figures, create LaTeX documents using concepts from above:**

- 1.

Hello World!

Prof. Naveen Kumar

November 15, 2022

**Hello World!** Today I am learning  $\text{\LaTeX}$ .  $\text{\LaTeX}$  is a great program for writing math. I can write in line math such as  $a^2 + b^2 = c^2$ . I can also give equations their own space:

$$\gamma^2 + \theta^2 = \omega^2$$

2.

## Integrals, Sums and Limits

Dr. Neeraj Kumar Sharma

### 1 Integrals

Integral  $\int_a^b x^2 dx$  inside text.

The same integral on display:

$$\int_a^b x^2 dx$$

and multiple integrals:

$$\begin{aligned} &\iint_V \mu(u, v) du dv \\ &\iiint_V \mu(u, v, w) du dv dw \\ &\oint_V f(s) ds \end{aligned}$$

### 2 Sums and products

Sum  $\sum_{n=1}^{\infty} 2^{-n} = 1$  inside text.

The same sum on display:

$$\sum_{n=1}^{\infty} 2^{-n} = 1$$

Product  $\prod_{i=a}^b f(i)$  inside text.

The same product on display:

$$\prod_{i=a}^b f(i)$$

### 3 Limits

Limit  $\lim_{x \rightarrow \infty} f(x)$  inside text.

The same limit on display:

$$\lim_{x \rightarrow \infty} f(x)$$

3.

# Equations

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November 15, 2022

## 1 Maxwell's Equations

“Maxwell's equations” are named for James Clark Maxwell and are as follow:

$$\vec{\nabla} \cdot \vec{E} = \frac{\rho}{\epsilon_0} \quad \text{Gauss's Law} \quad (1)$$

$$\vec{\nabla} \cdot \vec{B} = 0 \quad \text{Gauss's Law for Magnetism} \quad (2)$$

$$\vec{\nabla} \times \vec{E} = -\frac{\partial \vec{B}}{\partial t} \quad \text{Faraday's Law of Induction} \quad (3)$$

$$\vec{\nabla} \times \vec{B} = \mu_0 \left( \epsilon_0 \frac{\partial \vec{E}}{\partial t} + \vec{J} \right) \quad \text{Ampere's Circuital Law} \quad (4)$$

Equations 1, 2, 3, and 4 are some of the most important in Physics.

## 2 Matrix Equations

$$\begin{pmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{pmatrix} \begin{bmatrix} v_1 \\ v_2 \\ \vdots \\ v_n \end{bmatrix} = \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{bmatrix}$$

4.

List of mathematical functions:

- Trigonometric functions
  - sine
  - cosine
  - tangent
- Special functions
  - Beta function
  - Gamma function
  - Riemann zeta function

5. Add the following algorithm to the document.

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**Algorithm 1:** Example code

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**Input:** Your Input  
**Output:** Your output  
**Data:** Testing set  $x$

```
1  $\sum_{i=1}^{\infty} := 0$                                 // this is a comment
  /* Now this is an if...else conditional loop          */
2 if Condition 1 then
3   | Do something                                // this is another comment
4   | if sub-Condition then
5   |   | Do a lot
6 else if Condition 2 then
7   | Do Otherwise
  /* Now this is a for loop                                */
8   | for sequence do
9   |   | loop instructions
10 else
11   | Do the rest
  /* Now this is a While loop                                */
12 while Condition do
13   | Do something
```

---

6.

col1	col2	col3
Multiple row	cell2	cell3
	cell5	cell6
	cell8	cell9

7.

Country List		
Country Name or Area Name	ISO ALPHA 2 Code	ISO ALPHA 3
Afghanistan	AF	AFG
Aland Islands	AX	ALA
Albania	AL	ALB
Algeria	DZ	DZA
American Samoa	AS	ASM
Andorra	AD	AND
Angola	AO	AGO

8. Insert four sub-figures as given below, and add captions. Also, refer to these sub-figures in the text.



Figure 1: This is a figure containing several subfigures.

In the text, you can refer to subfigures of figure 1 as 1a, 1b, 1c and 1d and to the sub-index as (a), (b), (c) and (d).

9. Add a table of contents, a list of figures, and a list of tables in the document as given below.

## Contents

Table of contents	1
1 First Section	2
2 Second Section	2

## List of Tables

1 Just a table . . . . .	2
--------------------------	---

## List of Figures

1 This is an image . . . . .	2
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10. Add a list of references in the document as given below and cite them in the text.

This document is an example of `natbib` package using in bibliography management. Three items are cited: *The L<sup>A</sup>T<sub>E</sub>X Companion* book [2], the Einstein journal paper Einstein [1], and the Donald Knuth's website [3]. The L<sup>A</sup>T<sub>E</sub>X related items are [2, 3].

## References

- [1] A. Einstein. Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]. *Annalen der Physik*, 322(10):891–921, 1905. doi: <http://dx.doi.org/10.1002/andp.19053221004>.
- [2] M. Goossens, F. Mittelbach, and A. Samarin. *The L<sup>A</sup>T<sub>E</sub>X Companion*. Addison-Wesley, Reading, Massachusetts, 1993.
- [3] D. Knuth. Knuth: Computers and typesetting. URL <http://www-cs-faculty.stanford.edu/~uno/abcde.html>.

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