Introduction to LaTeX for Researchers

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Course Outline and Resources

Install LaTeX

- Windows: `https://miktex.org/`

- Linux: sudo apt install texlive-latex-extra

LaTeX Editor – Online

- Sharelatex/Overleaf: `https://www.overleaf.com/`

- Latexbae: `https://latexbase.com/d/1648f17f-f52f-4653-8bca-7c9066c9a8de`

- CoCalc: `https://cocalc.com/doc/latex-editor.html`

LaTeX Editor – Offline

- TexStudio: `https://www.texstudio.org/`

- Texmaker: `https://www.xm1math.net/texmaker/`

Resources

- `https://www.latex-project.org/help/documentation/`

- `https://www.overleaf.com/learn`

- `https://www.latex-tutorial.com/`

- `https://www.latextemplates.com/`

- `https://en.wikibooks.org/wiki/LaTeX/Mathematics`

Section-1: Introduction

- Overview

- Install LaTeX

- Create a First LaTeX Document

- Section Levels and ToC(Table of Contents)

- Comments

Before Section-2: Package Vs Class

Class

Class files have .cls extension and are responsible for the overall layout, structuring (organizing), and formatting of a document. For example, a book class contains chapters, sections, parts; while an article contains sections, subsections. Each of which has a different set and style of formatting. The class files will be available on your system as article.cls, book.cls, etc..

Packages

Packages have a .sty extension also called as style files. The primary objective of the package is to add some functionality, irrespective of the class in which it will be used. Some examples to note are, 'geometry' package, that is used to specify margins and paper size; 'graphicx' package, that is used to include an image, etc.. All of these can be used in any class. The packages will be available on your system as geometry.sty, graphicx.sty, etc.. The coming sessions make use of the packages.

Section-2: Formatting Content

- Formatting Text

- Coloring Text

- Aligning Text

- Spacing Text

- Unordered and Ordered List(Bullets and Numbering)

Section-3: Inserting Images

- Inserting Image

- Captioning, labelling and referencing

Section-4: Creating Tables

- Creating Tables

- Table Boarders

- Captioning, labelling and referencing

Section-5: More on Table and Images

- Image Properties

- Image Positioning

- Image Boarders

- Table Positioning

- Figures and Sub-Figures

- Tables and Sub-tables

- Merging Row and Columns

- Handling Large Tables

Section-6: Styling Pages

- Paper Size: `https://en.wikipedia.org/wiki/Paper_size`

- Paper Size and Margins

- Page Styles (Header and Footer)

- More on Formatting (Footnotes, Orientation, Page Break)

- Multicolumn Document(multicol package)

Section-7: Math,Statistics and Chemical Equation

- Math Environment

- Equations

- Theorem

- Matrix

- Statistics

- Chemical Equations

Section-8: Referencing and Indexing

- Creating Title Page
- Hyperlinks
- Cross Referencing
- Creating Index
- Creating Bibliography

Section-9: Presentation using Beamer

- Introduction to Beamer
- Blocks and Columns
- Overlays
- Customize Themes
- Aspect Ratio
- Recapitulate

Section-10: Projects

- Article Writing
- Research Paper
- Report / Assignment
- Thesis