



THAPAR INSTITUTE  
of Engineering & Technology  
(Deemed to be University)

# Scientific Writing using L<sup>A</sup>T<sub>E</sub>X

Resume, Report, Paper, Presentation and Thesis Writing

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# Outline

- 1 Latex Installation and Environment Setup
- 2 Resume Writing and Report Writing
- 3 Thesis Writing, Paper Writing & PPT
- 4 Practical Session

## About the Speaker

- Assistant Professor, CSED, Thapar Institute of Engineering & Technology, Patiala, Punjab.
- PhD and MTech, ABV-IIITM Gwalior.
- Project Scientist, SCF-Bio, IIT Delhi (1yr 8m).
- Software Engineer, Amdocs, Pune (2yr 6m) .
- Area of Research:
  - Machine Learning and Data Mining.
  - Soft Computing (GA, PSO, DE, ABC).
  - Combinatorial Problems.
  - Modelling and Simulations.
  - Bioinformatics.
- **Contact:** psrana@gmail.com, 9855764471 / 9313889932

# Learning by Doing

# Session I

## Latex Installation and Environment Setup

## Latex: Workshop content

- 1 **01 - Latex Setup** directory  
Contain Latex setup.
- 2 **02 - Practical Session** directory  
Contain all practical sessions.
- 3 **Latex Workshop PPT.pdf** file  
PPT of the Latex workshop.

# Latex: Software Requirements

- 1 **Miktex:** Latex Compiler
- 2 **WinEdt:** Latex Editor
- 3 **Ghost Script:** Post Script / PDF interpreter
- 4 **Gimp:** Image Editor similar to photoshop
- 5 **Adobe Reader:** PDF Viewer

# Latex: Installation


Go to **01 - Latex Setup** directory and install all software.

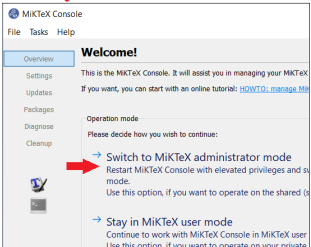
- 1 **01 - MikTeX**  
(Right click on setup file → "Run as Administrator")
- 2 **02 - Ghost Script**
- 3 **03 - Gimp**
- 4 **04 - PDF-Reader-SumatraPDF**
- 5 **05 - Winedt**  
(**Tick** the Associate Tex Filetypes with WinEdt)

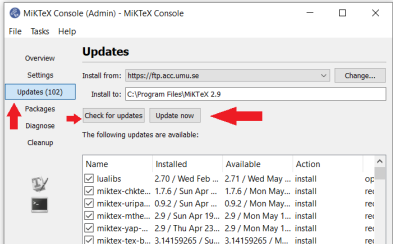


# Latex: Environment Setup

- Internet Setting for **Package Manager** for **Automatic download** and **Install** the required packages.
- Press "**Windows Key**" and write "**Miktex**".

1  MikTeX Console App

2   
MikTeX Console  
File Tasks Help  
Overview  
**Welcome!**  
This is the MikTeX Console. It will assist you in managing your MikTeX.  
If you want, you can start with an online tutorial: [HOWTO: manage MikTeX](#)  
Operation mode  
Please decide how you wish to continue:  
→ Switch to MikTeX administrator mode  
Restart MikTeX Console with elevated privileges and system mode.  
Use this option, if you want to operate on the shared system.  
→ Stay in MikTeX user mode  
Continue to work with MikTeX Console in MikTeX user mode.  
Use this option, if you want to operate on your private system.

3 Click "Yes" → 4   
MikTeX Console (Admin) - MikTeX Console  
File Tasks Help  
Overview  
Settings  
**Updates**  
Install from: <https://ftp.acc.umu.se> Change...  
Install to: C:\Program Files\MikTeX 2.9  
Packages  
Check for updates Update now  
Diagnose  
Cleanup  
The following updates are available:  

Name	Installed	Available	Action
<input checked="" type="checkbox"/> lualibs	2.70 / Wed Feb ...	2.71 / Wed May ...	install
<input checked="" type="checkbox"/> miktex-chkte...	1.7.6 / Sun Apr ...	1.7.6 / Mon May...	install
<input checked="" type="checkbox"/> miktex-uripa...	0.92 / Sun Apr ...	0.92 / Mon May...	install
<input checked="" type="checkbox"/> miktex-mthe...	2.9 / Sun Apr 19...	2.9 / Mon May 1...	install
<input checked="" type="checkbox"/> miktex-yap...	2.9 / Thu Apr 23...	2.9 / Mon May 1...	install
<input checked="" type="checkbox"/> miktex-tex-b...	3.14159265 / Su...	3.14159265 / M...	install

# Latex: Getting Started

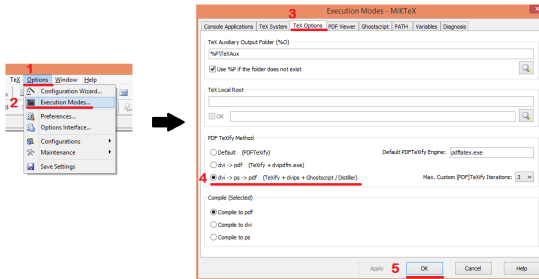
- 1 Open **Latex Workshop** directory
- 2 Go to **Practical Session** → **Session I-A**
- 3 Open **main.tex** with **WinEdt**

# Latex: Setting I

## Compilation Setting for WinEdt.

Click on **Options** → **Execution Modes** → **Tex Options**

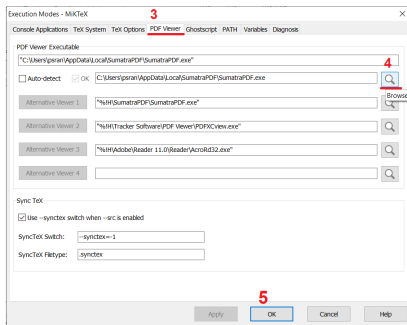
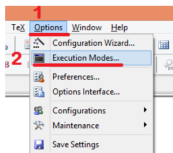
- If all your figures are in eps → Choose **"dvi → ps → pdf"**
- If all your figures are in png or jpg → Choose **"Default (PDFTeXify)"**



## Latex: Setting II

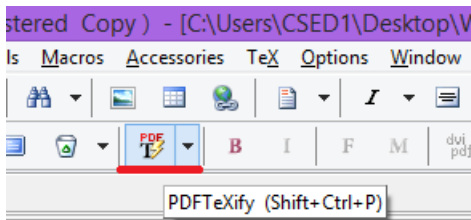
### PDF Viewer Setting.

- Click on **Options** → **Execution Modes** → **PDF Viewer** → **Browse Sumatra PDF file location** → **Apply** → **OK**



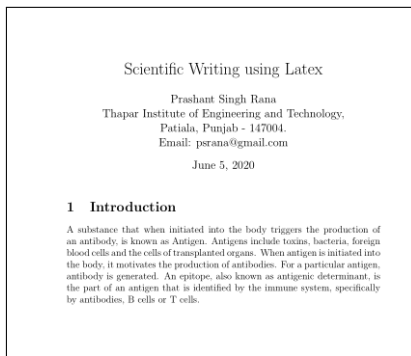
# Latex: First Document

Compile the document.



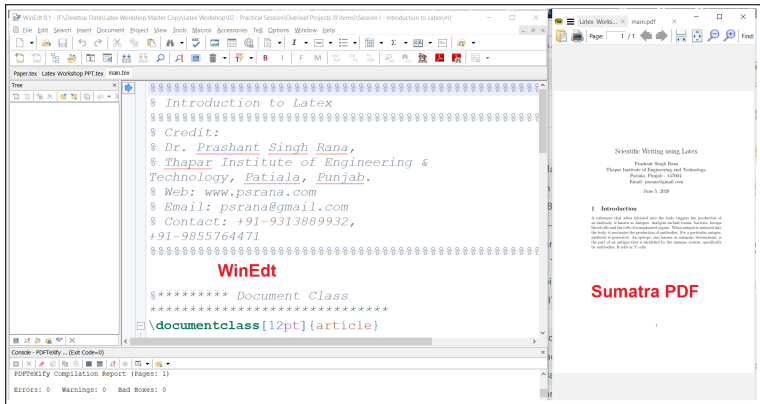
# Latex: First Document

- Output is a PDF file. Explore it.



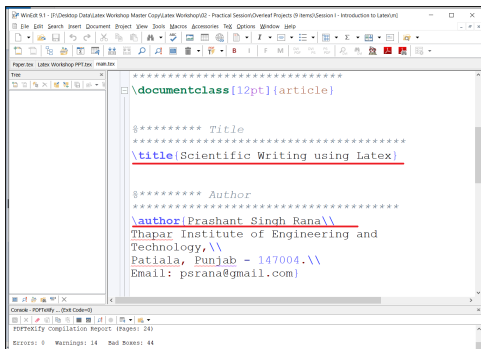
# Latex: First Document

- **Resize the window of WinEdt and Sumatra PDF.**



# Latex: First Document

- Edit the **title**, **author**, **affiliation**, **email** and **compile**.
- Add new section.



The screenshot shows a LaTeX editor window with the following content:

```
*****  
\documentclass[12pt]{article}  
  
***** Title  
*****  
\title{Scientific Writing using Latex}  
  
***** Author  
*****  
\author{Prashant Singh Rana\\  
Thapar Institute of Engineering and  
Technology,\\  
Patiala, Punjab - 147004.\\  
Email: psrana@gmail.com}
```

The bottom status bar indicates: Errors: 0 Warnings: 14 Bad Boxes: 44

## Latex: First Document

To make Bold : `\textbf{ << yourtext >> }`

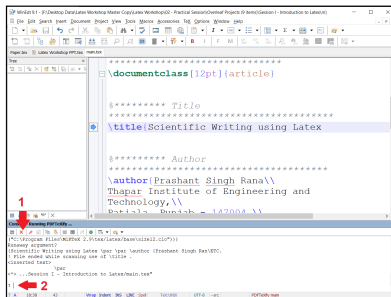
To make Italic: `\emph{ << yourtext >> }`

To make Underline: `\underline{ << yourtext >> }`

- Make the **title BOLD**, **author name Italic** and **Underline** the **email id**.
- **Compile it again.**

# Latex: First Document

- 1 Error generation and correction.
- 2 Compile again in error mode.
- 3 To come out from the error mode - write "e/x and press enter" or press "Red Cross".

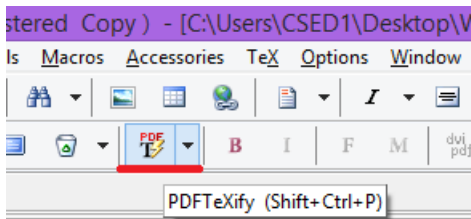


# Latex: Second Document

- 1 Open **Latex Workshop** directory
- 2 Go to **Practical Session** → **Session I-B**
- 3 Open **Second.tex** with **WinEdt**

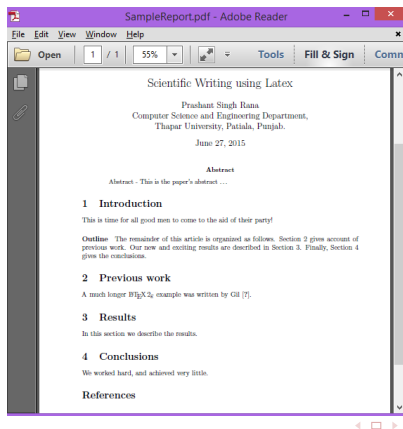
## Latex: Second Document

Compile the document.



# Latex: Second Document

Output is a PDF file. Explore it.



## Latex: Second Document

- Edit the **title**, **author**, **affiliation**, **email** and **compile**.

```
\documentclass[12pt]{article}

\usepackage[left=1in,right=1in,top=1.2in,bottom=1.2in, textheight=19.5in]{geometry}

\title{Scientific Writing using Latex}

\author{Prashant Singh Rana\\
        Computer Science and Engineering Department,\\
        Thapar University, Patiala, Punjab.
}

\date{\today}

\begin{document}
\maketitle
```

## Latex: Tips and Trick

- 1 **Compile and Run** after every minor changes.
- 2 To make comments use: %  
To write 70% `70\%` is used.
- 3 To add new line: `\\` or `\newline`.
- 4 & is a special character used in table, to write &, use `\&`.
- 5 To give **horizontal space** use `\hspace*{1cm}`.
- 6 To give **vertical space** use `\vspace*{1cm}`.
- 7 **Always use Template.**

# Latex: Second Document

## Key Point 1: Document Class `\documentclass{ }`

- 1 Also known as class file.
- 2 Define the formatting of the document.
- 3 File extension is .cls
- 4 Edit the class file as per your requirement.
- 5 Find out the ***document class*** used in the document.

# Latex: Second Document

## Key Point 2: Use Package `\usepackage{ }`

- 1 **Similar to header** file in C/C++ i.e. `#include<stdio.h>`.
- 2 Used to **add special features** e.g Algorithms, Long table, Landscape the page, etc.

# Latex: Second Document

**Key Point 3:** Begin Document ..... End Document

```
\begin{document}
```

...

All contents are defined here.

...

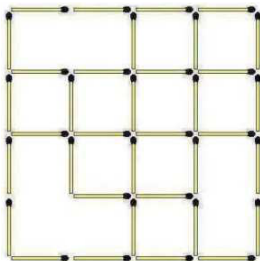
```
\end{document}
```

**If** Testing is Successful then  
**50 %** Latex is Complete



## Quiz I

**How many squares  
are in this picture?**



**92% FAIL this simple test!**

## End of Session I

### Latex Installation and Environment Setup

# **Session II**

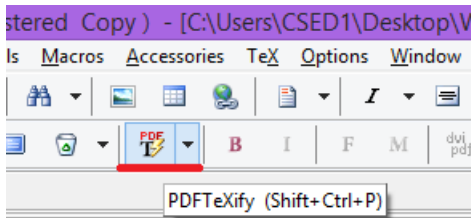
## **Resume Writing**

# Resume Writing

- Go to **Practical Session** → **Session II**
- Open **Resume2.pdf** and explore it.

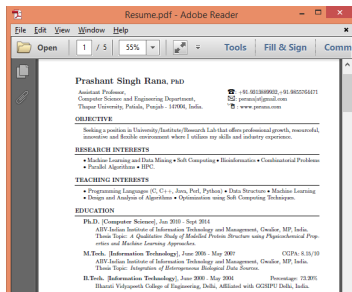
# Resume Writing

- Open **Resume.tex** with **WinEdt** and explore it.
- **Compile the Resume.**



# Resume Writing

- Output is a PDF file, explore it.



# Resume Writing

- Edit the **Name**, **Contact**, **Email** and **Compile** again.

```
\begin{document}  
  
{\LARGE\bfseries{\uPrashant Singh Rana}\large{, PhD}}  
  
-----  
oe Contact  
oe -----  
  
\begin{tabular}{p{10cm}l}  
Assistant Professor, & {\LARGE\Telefon}: +91-931388993  
Computer Science and Engineering Department, & {\LARGE\L  
Thapar University, Patiala, Punjab - 147004, India. &  
\end{tabular}
```

# Resume Writing

**Edit the following details and compile again.**

- 1 Education
- 2 Personal Details
- 3 Skill Sets
- 4 ...

# **End of Session II**

## **Resume Writing**

# **Session III**

## **Report/Synopsis Writing**

# Report Writing

## File Information

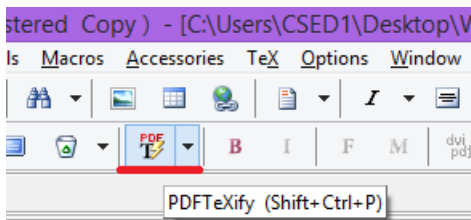
- 1 **.tex**: Main document file.
- 2 **.bib**: Bibliography/Reference file.
- 3 **.bst**: Bibliography/Reference style file.
- 4 **.cls**: Class file (required for formatting).
- 5 **.sty**: Style file (for adding features in your report).

# Report Writing

- Go to **Practical Session** → **Session III-A**
- Open **Report2.pdf** and explore it.
  - Table of Contents.
  - List of Figures.
  - List of Tables.
  - Sections.
  - References.

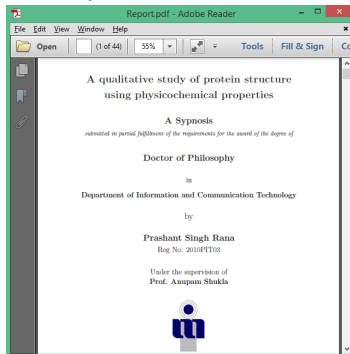
# Report Writing

- Open **Report.tex** with **WinEdt** and explore it.
- **Compile the Report.**



# Report Writing

Output is a PDF file, explore it.



# Report Writing

- Edit the **Title**, **Author**, **Reg. No** and **compile again**.

```
%----- Title -----  
\Title{A qualitative study of protein structure using physics  
  
%----- Submission Text -----  
\SubmissionText{\textbf{\Large{A Synopsis}}}\[0.2cm]{\normal  
requirements for the award of the degree of}}  
  
%----- Author -----  
\Author{Prashant Singh Rana}  
  
%----- Registration No. -----  
\RegistrationNumber{Reg No: 2010PIT03 \[0.8cm]  
{Under the supervision of} \[ {\textbf{\large\supervisorA}}}
```

# Report Writing

## Edit the following

- Supervisor Name
- Department Name
- Institute Name
- Degree
- Start Degree
- End Degree

**Compile again.**

# Report Writing: Layout

## Input

`\section{Introduction}` →  
`\section{Literature Survey}` →  
    `\subsection{XX1}` →  
`\section{Analysis}` →  
    `\subsection{YY1}` →  
        `\subsubsection{ZZ1}` →

## Output

1. Introduction  
2. Literature Survey  
    2.1 XX1  
3 Analysis  
    3.1 YY1  
        3.1.1 ZZ1

# Report Writing: Layout

## Input

`\section{Literature Survey}` →  
    `\subsection{XX1}` →  
`\section{Analysis}` →  
    `\subsection{YY1}` →  
        `\subsubsection{ZZ1}` →  
`\section{Introduction}` →

## Output

1. Literature Survey  
    1.1 XX1  
2. Analysis  
    2.1 YY1  
        2.1.1 ZZ1  
3. Introduction

# Demo I

## Get Image from Excel

## Demo I: Get Image from Excel

- 1 Go to **Practical Session** → **Session III-B - Demo - Image** → **Demo I**
- 2 Open **Result.xlsx**.
- 3 Draw the **scatter plot**.
- 4 **Save As** the file as **Web Page**.
- 5 One folder and one HTML file will be created.  
Open the folder and explore the images.

## Tips

- 1 You can extract all images from **Word**, **Power Point** and **Excel**.
- 2 Just **Save As** the file as **Web Page**.
- 3 One folder and one HTML file will be created.  
Open the folder and explore the images.

# Demo II

## Convert Image to eps

## Demo II: Convert Image to eps

- **eps** is encapsulated postscript.
- **Tools for file conversion:**
  - 1 SmartDraw.
  - 2 Photoshop.
  - 3 CorelDraw.
  - 4 GIMP.
  - 5 Online Tools.

## Demo II: Convert Image to eps

- 1 Go to **Practical Session** → **Session III-B** → **Demo II**
- 2 Open **Figure.png** with **GIMP**.  
or Right Click on image → Edit with GIMP.
- 3 **File** → **Export As** → "Add **.eps** in the file name" → **Export**.

## Report Writing: Exercise

Change the logo in the report.

- 1 Download Institute Logo.
- 2 Convert it to eps.
- 3 Add in the report without file extension.

```
%----- Institute/University Logo -----  
\InstituteLogo{\includegraphics[scale=0.25]{Figures/iiitm-logo}}
```

## Report Writing: References

Go to end of the tex file.

```
-----  
Bibliography  
-----  
\begin{spacing}{0.9}  
\bibliographystyle{unsrt}  
\bibliography{References/references}  
\end{spacing}
```

### Key Points:

- 1 Store all the references.
- 2 Also known as bib file (or references file).
- 3 File extension is **.bib**.
- 4 Explore the bib file in WinEdt.

# End of Session III

## Report Writing

# **Session IV**

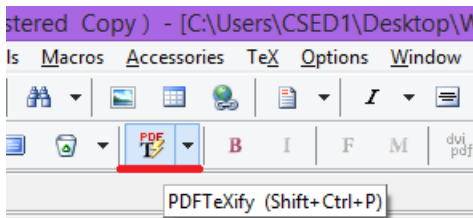
## **Thesis Writing**

# Thesis Writing

- Go to **Practical Session** → **Session IV**
- Open **Thesis2.pdf** and explore it.
  - Table of Contents.
  - List of Figures.
  - List of Tables.
  - Sections.
  - References.

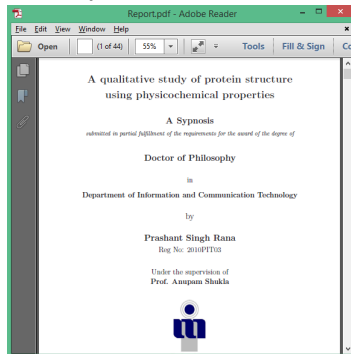
# Thesis Writing

- Open **Thesis.tex** with **WinEdt** and explore it.
- **Compile the Thesis.**



# Thesis Writing

Output is a PDF file, explore it.



# Thesis Writing

Edit the **Title**, **Author** and **Reg. No** and **compile it again**.

```
%----- Title -----  
\Title{A qualitative study of protein structure using physics  
%----- Submission Text -----  
\SubmissionText{\textbf{\Large{A Synopsis}}\\[0.2cm] {\normal  
requirements for the award of the degree of}}  
%----- Author -----  
\Author{Prashant Singh Rana}  
%----- Registration No. -----  
\RegistrationNumber{Reg No: 2010PIT03 \\[0.8cm]  
{Under the supervision of} \\ {\textbf{\large\supervisorA}}}
```

# Thesis Writing

## Edit the following

- Supervisor Name
- Department Name
- Institute Name
- Degree
- Start Degree
- End Degree

**and compile it again.**

# Thesis Writing: Layout

**`\Chapter{}`**

`\Section{}`

`\SubSection{}`

`\SubSubSection{}`

**`\Chapter{}`**

`\Section{}`

`\SubSection{}`

# Thesis Writing: Layout

Every chapter have different tex file.

```
%----- All Chapters -----  
\mainmatter % book mode only  
\include{Chapter1/chapter1} %Chapter 1  
\include{Chapter2/chapter2} %Chapter 2  
\include{Chapter3/chapter3} %Chapter 3  
\include{Chapter4/chapter4} %Chapter 4  
\include{Chapter5/chapter5} %Chapter 5  
\include{Chapter6/chapter6} %Chapter 6  
\include{Chapter7/chapter7} %Chapter 7  
\include{Chapter8/chapter8} %Chapter 8
```

## Thesis Writing: Tips

- Every Chapter have different **tex** file.  
**Comment/UnComment** those files required at a time.
- Make the changes in the required file; save the changes and compile the **main file** (i.e. Thesis.tex).
- Changes will be the reflected if the file remain **unsaved**.

# End of Session IV

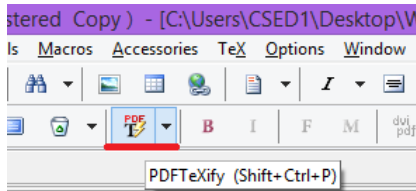
## Thesis Writing

# Session V

## Paper Writing

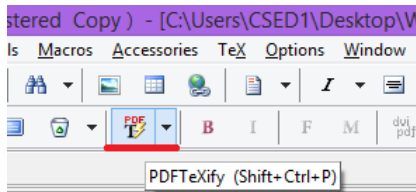
## Paper Writing: IEEE

- Go to **Practical Session** →  
**Session V - Paper Writing - 01**
- Open **IEEE Sample.tex** with **WinEdt**.
- **Compile**, explore and make the required changes.



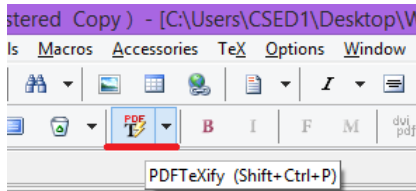
## Paper Writing: Springer

- Go to **Practical Session** →  
**Session V - Paper Writing - 02**
- Open **Springer Sample.tex** with **WinEdt**.
- **Compile**, explore and make the required changes.



## Paper Writing: Elsevier

- Go to **Practical Session** →  
**Session V - Paper Writing - 03**
- Open **Elsevier Sample.tex** with **WinEdt**.
- **Compile**, explore and make the required changes.



## Paper Writing: Tips and Tricks

- **Download** the template from Journal home page.
- First **compile** the template and start writing.

## How to convert paper to other format?

- 1 Add all **authors**, **email ids**, **affiliations**, etc in the target tex file and compile.
- 2 Copy **title**, **abstract** and **use packages** from tex file; paste to the target tex file.
- 3 Copy **all the files (figures, bib, other)** from source directory to target directory.
- 4 Copy from **section 1 to conclusion** from source tex file; paste to the target tex file and compile.
- 5 Change **bibliography file** name in target tex file and compile.

# End of Session V

## Paper Writing

# **Session VI**

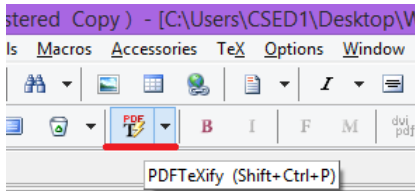
## **Presentation Preparation**

# Presentation Preparation

- Go to **Practical Session** → **Session VI**
- Open **Thesis PPT2.pdf** and explore it.
- **beamer** class is required for the presentation.

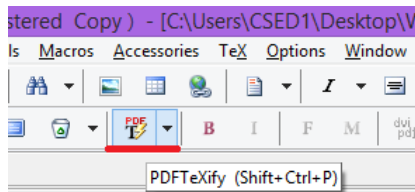
## Presentation Preparation

- Open **Thesis PPT.tex** with **WinEdt**.
- **Compile**, explore it and make the required changes.



# Presentation Preparation

Edit the **Title**, **Author** and **Reg. No** and **compile it again**.



# **End of Session VI**

## **Presentation Preparation**

# Practical Session

## Working with Equations/Figures/Tables/References

## Practical Session

- Go to **Practical Session** → **Session I-B**.
- Open **Second.tex** with **WinEdt** and **compile it**.

# **Practical Session I**

## **Working with Equations**

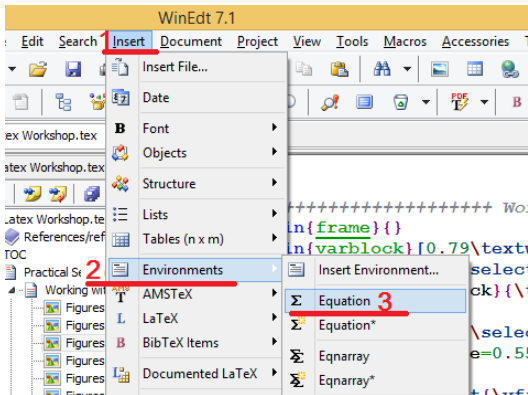
## Equation: Basics

`\begin{equation} \label{eq:test}`

`\end{equation}`

# Adding Equation through WinEdt

Go to **Insert** → **Environments** → **Equation**



## Equation: Example 1

```
\begin{equation} \label{eq:Addition}
```

$$a = b + c$$

```
\end{equation}
```

Output

$$a = b + c \quad (1)$$

## Equation: Example 2

```
\begin{equation} \label{eq:XSquare}
```

$$x^2 = y^3 + z_7$$

```
\end{equation}
```

Output

$$x^2 = y^3 + z_7$$

## Equation: Example 3

```
\begin{equation} \label{eq:Xbase}
x_2 = y_{34} + z_{\{71\}} + a_{83}^{\wedge 94} + b_{\{12\}}^{\wedge \{56\}}
\end{equation}
```

### Output

$$x_2 = y_{34} + z_{71} + a_8 3^9 4 + b_{12}^{56}$$

## Equation: Error

```
\begin{equation} \label{eq:XSquare}
```

$$x^2 = y^3 + z_7$$

```
\end{equation}
```

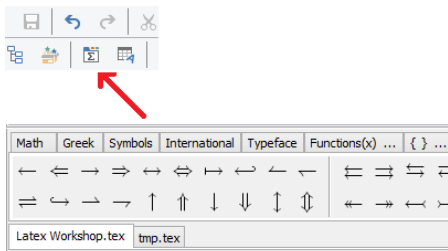


**Don't add new line.**

**New line in equation is an ERROR.**

## Adding Symbol

- 1 Go to **View** → **TeX GUI Symbols**
- 2 Place the cursor where you want the symbol and then click on the symbol.



## Equation: Example 4

```
\begin{equation} \label{eq:SumOfSum}
S_{ij} = \frac{n}{100} \sum_{i=1}^{10} \sum_{j=1}^{10} (x_i + x_{ij})
\end{equation}
```

### Output

$$S_{ij} = \frac{n}{100} \sum_i^{10} \sum_j^{10} (x_i + x_{ij})$$

## Use of Label

Label is used for cross referencing.

## Cross Reference: Example 1

```
\begin{equation} \label{eq:Addition}
```

$$a = b + c$$

```
\end{equation}
```

Input:

The eq `\ref{eq:Addition}` shows addition.

Output:

The eq 5 shows addition.

## Labelling Standards

- For Equations : `\label{eq:Addition}`
- For Tables : `\label{table:AnalysisResult}`
- For Figure : `\label{fig:Methodology}`
- For Section : `\label{sec:Methodology}`

..... It will make our work more easier.

## Cross Reference: Example 2

`\Chapter \label{ch:intro}`

`\Section \label{sec:GA}`

`\SubSection \label{subsec:ImpOfGA}`

`\SubSection \label{subsec:ImpOfPso}`

### Example: How to Refer

The Chapter `\ref{ch:intro}` describe.....

The Section `\ref{sec:GA}` the average ....

## No Number Equation

```
\usepackage{mathtools}
```

```
\begin{equation*}
```

$$a = b + c$$

```
\end{equation*}
```

Output

$$a = b + c$$

## Special Expression 1

- 1 Special expression must put between  $\$ \dots \$$  in the statement.

### Input

The expression  $\$s^2 = 1/(n-3)\$$  describes

### Output

The expression  $s^2 = 1/(n - 3)$  describes

## Special Expression 2

### Input

variety of robust  $\sum_{i=1}^{10} \sum_{j=1}^{10} (x_i + x_{ij})$  algorithms

### Output

variety of robust  $\sum_i^{10} \sum_j^{10} (x_i + x_{ij})$  algorithms

# Multi-line Equations

- 1 Explore: [Link1](#) [Link2](#)
- 2 Go to **Google** and Explore.

## Equation: Assignments

$$MCC = \frac{TP * TN - FP * FN}{\sqrt{(TP + FP)(TP + FN)(TP + FP)(TN + FN)}}$$

$$Z = |Z_1 - Z_2| / \sqrt{\frac{1}{n_1 - 3} + \frac{1}{n_1 - 3}}$$

$$u_i(G) = x_{i1}(G) + \underbrace{F \times (x_{i2}(G) - x_{i3}(G))}_{\text{Step size}} \quad \text{Variation Component}$$

$$x'_{ij}(G) = \begin{cases} u_{ij}(G), & \text{if } j \in J \\ x_{ij}(G), & \text{otherwise.} \end{cases}$$

Hint: All the equations are used in the report.

## Equation: All Solutions

For any problem go to

Google

# **End of Practical Session I**

## **Working with Equations**

# **Practical Session II**

## **Working with WinEdt editor**

## Working with WinEdt editor

- Lists: Enumerate, Itemize
- Symbols
- Alignment: Centre, Left, Right
- Clean: Removal of temp files
- View PDF
- Font: Bold, Italic, Underline.

# Working with WinEdt editor

## Lists: Itemize

1 Go to **Insert** → **Lists** → **Itemize**

```
List of Animals
\begin{itemize}
  \item Cat
  \item Dog
  \item Elephant
  \item Camel
\end{itemize}
```

```
List of Animals
• Cat
• Dog
• Elephant
• Camel
```

## Working with WinEdt editor

### Lists: Enumerate

1 Go to **Insert** → **Lists** → **Enumerate**

List of Courses

```
\begin{enumerate}  
  \item PhD  
  \item MTech  
  \item BTech  
\end{enumerate}
```

List of Courses

1. PhD
2. MTech
3. BTech

# Working with WinEdt editor

## Symbols

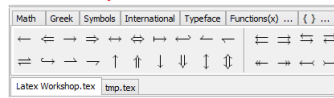
```
$\overbrace{abc}$
```

```
$\underbrace{XYZ}$
```

```
$\frac{abc}{xyz}$
```

```
$\sqrt{a^2 - b^2}$
```

```
$\sqrt[n]{x^3 - z^3}$
```

$$\overbrace{abc}$$
$$\underbrace{XYZ}$$
$$\frac{abc}{xyz}$$
$$\sqrt{a^2 - b^2}$$
$$\sqrt[n]{x^3 - z^3}$$


## Working with WinEdt editor

### Alignment

For Center

```
\begin{center}  
text text  
\end{center}
```

For Left

```
\begin{flushleft}  
text text  
\end{flushleft}
```

For Right

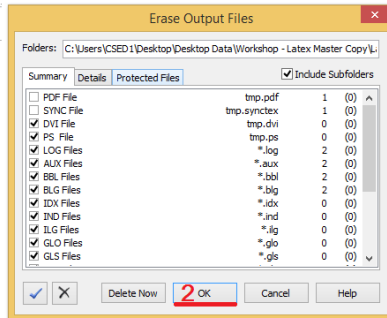
```
\begin{flushright}  
text text  
\end{flushright}
```

## Working with WinEdt editor

**Clean:** Remove temp files.

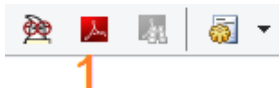


1



# Working with WinEdt editor

**PDF:** To view pdf file.



## Working with WinEdt editor

Font: Italic, Bold, Underline.

For Italic

`\emph{ Text }`

For Bold

`\textbf{ Text }`

For Underline

`\underline{ Text }`

## Font Size

texblog.org	<code>\Huge</code>
texblog.org	<code>\huge</code>
texblog.org	<code>\LARGE</code>
texblog.org	<code>\Large</code>
texblog.org	<code>\large</code>
texblog.org	<code>\normalsize</code> (default)
texblog.org	<code>\small</code>
texblog.org	<code>\footnotesize</code>
texblog.org	<code>\scriptsize</code>
texblog.org	<code>\tiny</code>

## Font Size

This is normal Text.

```
{  
\Huge  
This is Huge Text  
}
```

This is again a normal text

```
\tiny  
This is tiny text
```



This is normal Text.

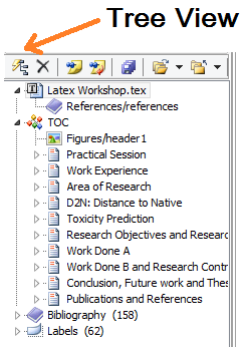
This is Huge Text

This is again a normal text

This is tiny text

## Working with WinEdt editor

**Tree View:** To explore report.



## Working with WinEdt editor

For any problem go to

Google

# End of Practical Session II

## Working with WinEdt

# Practical Session III

## Working with Figures

## Figures: Basics

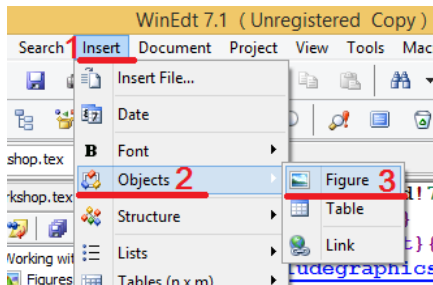
```
\usepackage{graphicx}
```

```
\begin{figure}
```

```
\end{figure}
```

# Adding Figure through WinEdt

Go to **Insert** → **Objects** → **Figure**



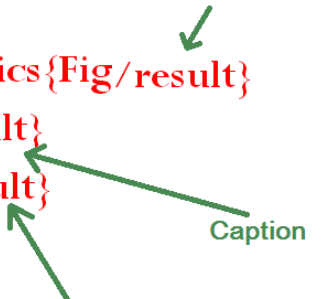
## Figure: Example 1

```
\begin{figure}
  \includegraphics{Fig/result}
  \caption{Result}
  \label{fig:Result}
\end{figure}
```

Figure File Name

Caption

Label



## Figure: Example 2

```
\begin{figure}  
  \centering  
  \includegraphics[scale=0.3]{Fig/result}  
  \caption{Result}  
  \label{fig:Result}  
\end{figure}
```

## Figure: Example 3

```
\begin{figure}  
  \centering  
  \includegraphics [height=3cm, width=3cm] {result}  
  \caption{Result}  
  \label{fig:Result}  
\end{figure}
```

## Position setting for Figures

```
\begin{figure}[!h]  
\end{figure}
```



Place here

```
\begin{figure}[!t]  
\end{figure}
```



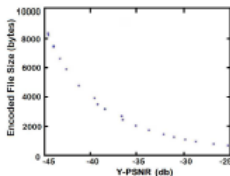
Place at top of the page

```
\begin{figure}[!b]  
\end{figure}
```

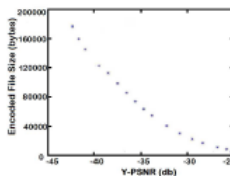


Place at bottom of the page

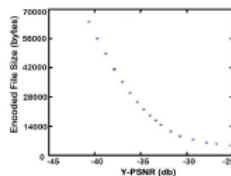
# Adding Sub Figure



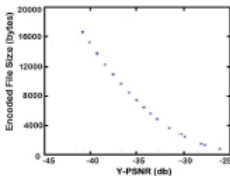
(a) Fig 1



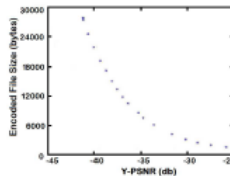
(b) Fig 2



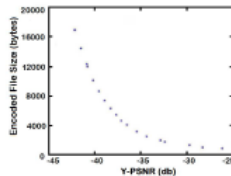
(c) Fig 3



(d) Fig 4



(e) Fig 5



(f) Fig 6

Figure 1: Pareto Optimal graph between encoded file size and Y-PSNR.

## Adding Sub Figure

```
\usepackage{subfigure}
```

```
\begin{figure}  
\centering  
\subfigure[Fig 1]{\includegraphics[scale=0.25]{Fig/f1}\label{fig:f1}\hspace*{4mm}  
\subfigure[Fig 2]{\includegraphics[scale=0.25]{Fig/f2}\label{fig:f2}\hspace*{4mm}  
\subfigure[Fig 3]{\includegraphics[scale=0.25]{Fig/f3}\label{fig:f3}}\\  
\subfigure[Fig 4]{\includegraphics[scale=0.25]{Fig/f4}\label{fig:f4}\hspace*{4mm}  
\subfigure[Fig 5]{\includegraphics[scale=0.25]{Fig/f5}\label{fig:f5}\hspace*{4mm}  
\subfigure[Fig 6]{\includegraphics[scale=0.25]{Fig/f6}\label{fig:f6}}  
\caption{Pareto Optimal graph between encoded file size and Y-PSNR.}  
\label{fig:ParetoGraph}  
\end{figure}
```

## Figure in Single Column

\*Useful in two column papers e.g. IEEE.

```
\begin{figure*}  
  \includegraphics {}  
  \caption{}  
  \label{}  
\end{figure*}
```

## Figure: Landscape

```
\usepackage{lscap}  
  
\begin{landscape}  
  \begin{figure}  
    .....  
  \end{figure}  
\end{landscape}
```

## Figure: Center Landscape

```
\begin{center}  
  \begin{landscape}  
    \begin{figure}  
      .....  
    \end{figure}  
  \end{landscape}  
\end{center}
```

## Working with Figures

For any problem go to

Google

# **End of Practical Session III**

## **Working with Figures**

# Practical Session IV

## Working with Tables

## Table: Basics

`\begin{tabular}`

`\end{tabular}`

## Table: Basics

```
\begin{tabular}{l c r p }
```



4 Columns

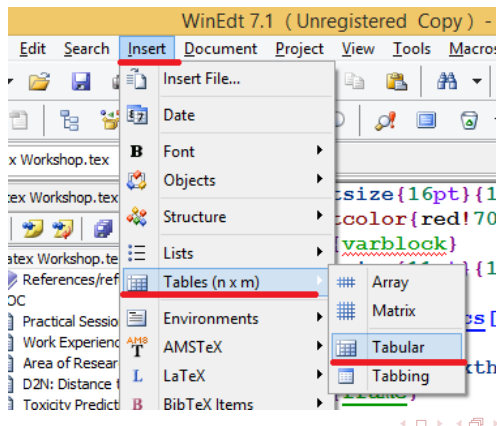
Define alingment of column

```
\end{tabular}
```

- **Four column** table;
- **l** for left, **c** for center, **r** for right, **p** for paragraph.

# Adding Tabular through WinEdt

Go to **Insert** → **Tables** → **Tabular**



## Table: Example 1

```
\begin{tabular}{1 1 1}  
1 & 2 & 3 \\  
4 & 5 & 6 \\  
7 & 8 & 9 \\  
\end{tabular}
```

1	2	3
4	5	6
7	8	9

## Table: Example 2

```
\begin{tabular}{1|1||1}  
1 & 2 & 3 \\  
4 & 5 & 6 \\  
7 & 8 & 9 \\  
\end{tabular}
```

1	2	3
4	5	6
7	8	9

## Table: Example 3

```
\begin{tabular} {l | l | l |}  
  \hline  
  1 & 2 & 3 \\  
  4 & 5 & 6 \\  
  7 & 8 & 9 \\  
  \hline  
\end{tabular}
```

1	2	3
4	5	6
7	8	9

## Table: Example 4

```
\begin{tabular} {|1|1|1|}  
  \hline  
  1 & 2 & 3 \\\hline  
  4 & 5 & 6 \\\hline  
  7 & 8 & 9 \\\hline  
\end{tabular}
```

1	2	3
4	5	6
7	8	9

## Table: Example 5

```
\begin{center}
\begin{tabular}{| l | l | l | l |}
\hline
Day & Min Temp & Max Temp & Summary \\
\hline
Monday & 11C & 22C & A clear day with lots of sunshine.
However, the strong breeze will bring down the temperatures. \\
\hline
Tuesday & 9C & 19C & Cloudy with rain, across many northern regions. Clear spells
across most of Scotland and Northern Ireland,
but rain reaching the far northwest. \\
\hline
Wednesday & 10C & 21C & Rain will still linger for the morning.
Conditions will improve by early afternoon and continue
throughout the evening. \\
\hline
\end{tabular}
\end{center}
```

Day	Min Temp	Max Temp	Summary
Monday	11C	22C	A clear day with lots of sunshine. However, the strong breeze w
Tuesday	9C	19C	Cloudy with rain, across many northern regions. Clear spells ac
Wednesday	10C	21C	Rain will still linger for the morning. Conditions will improve by

## Table: Example 6

```

\begin{center}
\begin{tabular}{| l | l | l | p{5cm} |}
\hline
Day & Min Temp & Max Temp & Summary \\ \hline
Monday & 11C & 22C & A clear day with lots of sunshine.
However, the strong breeze will bring down the temperatures. \\ \hline
Tuesday & 9C & 19C & Cloudy with rain, across many northern regions. Clear spells
across most of Scotland and Northern Ireland,
but rain reaching the far northwest. \\ \hline
Wednesday & 10C & 21C & Rain will still linger for the morning.
Conditions will improve by early afternoon and continue
throughout the evening. \\
\hline
\end{tabular}
\end{center}

```

Day	Min Temp	Max Temp	Summary
Monday	11C	22C	A clear day with lots of sunshine. However, the strong breeze will bring down the temperatures.
Tuesday	9C	19C	Cloudy with rain, across many northern regions. Clear spells across most of Scotland and Northern Ireland, but rain reaching the far northwest.
Wednesday	10C	21C	Rain will still linger for the morning. Conditions will improve by early afternoon and continue throughout the evening.

## Table: Example 7

```
\begin{tabular}{|l|l|}  
 \hline  
 \multicolumn{2}{|c|}{Team sheet} \\  
 \hline  
 GK & Paul Robinson \\  
 LB & Lucas Radebe \\  
 DC & Michael Duberry \\  
 DC & Dominic Matteo \\  
 RB & Dider Domi \\  
 MC & David Batty \\  
 MC & Eirik Bakke \\  
 MC & Jody Morris \\  
 FW & Jamie McMaster \\  
 \hline  
 \end{tabular}
```

Team sheet	
GK	Paul Robinson
LB	Lucas Radebe
DC	Michael Duberry
DC	Dominic Matteo
RB	Dider Domi
MC	David Batty
MC	Eirik Bakke
MC	Jody Morris
FW	Jamie McMaster
ST	Alan Smith
ST	Mark Viduka

## Table: Example 8

```
\usepackage{multirow}

\begin{tabular}{|c|l|}
\hline
\multirow{5}{*}{Courses} & MBA\\
& MTech\\
& MSc\\
& BBA\\
& BTech\\
\hline
\end{tabular}
```

Courses	MBA
	MTech
	MSc
	BBA
	BTech

## More on Tables

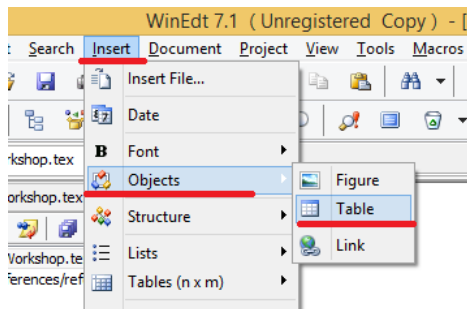
- 1 Explore: [Link1](#)
- 2 Go to **Google** and Explore.

## Table: Adding Caption

```
\begin{table}  
  \caption{}  
  \label{}  
  
  \begin{tabular}{llll}  
  \end{tabular}  
  
\end{table}
```

# Adding Table through WinEdt

- Go to **Insert** → **Objects** → **Table**



## Demo: Create table from excel

- 1 Go to **Practical Session** → **Session VII - Demo - Create Table**
- 2 Open **Result.xlsx**.
- 3 Convert (add column of &)

X1	X2	X3	X4
3	3	3	3
3	3	3	3
19	19	19	19
2	2	2	2
3	3	3	3
3	3	3	3
19	19	19	19
3	3	3	3



X1	&	X2	&	X3	&	X4	\\ \hline
3	&	3	&	3	&	3	\\ \hline
3	&	3	&	3	&	3	\\ \hline
19	&	19	&	19	&	19	\\ \hline
2	&	2	&	2	&	2	\\ \hline
3	&	3	&	3	&	3	\\ \hline
3	&	3	&	3	&	3	\\ \hline
19	&	19	&	19	&	19	\\ \hline
3	&	3	&	3	&	3	\\ \hline

## Demo: Create table from excel

- 1 Create tabular: Copy from excel and paste.

```
\begin{tabular}{|l|l|l|l|}  
\hline  
X1 & X2 & X3 & X4 \\ \hline  
3 & 3 & 3 & 3 \\ \hline  
3 & 3 & 3 & 3 \\ \hline  
19 & 19 & 19 & 19 \\ \hline  
2 & 2 & 2 & 2 \\ \hline  
3 & 3 & 3 & 3 \\ \hline  
3 & 3 & 3 & 3 \\ \hline  
19 & 19 & 19 & 19 \\ \hline  
3 & 3 & 3 & 3 \\ \hline  
\end{tabular}
```

## Demo: Create table from excel

- 1 Add table, caption and label.

```
\begin{table}
```

```
\caption{My first table}
```

```
\label{table:SampleTable}
```

```
\begin{tabular}{|l|l|l|l|}
```

```
\hline
```

X1	&	X2	&	X3	&	X4	\\	\hline
3	&	3	&	3	&	3	\\	\hline
3	&	3	&	3	&	3	\\	\hline
19	&	19	&	19	&	19	\\	\hline
2	&	2	&	2	&	2	\\	\hline
3	&	3	&	3	&	3	\\	\hline
3	&	3	&	3	&	3	\\	\hline
19	&	19	&	19	&	19	\\	\hline
3	&	3	&	3	&	3	\\	\hline

```
\end{tabular}
```

```
\end{table}
```

## Long Table: Table in multiple pages

*\usepackage{longtable}*

- Go to **Practical Session** → **Session III-A - Report Writing**
- Open **Report.tex** and search for *longtable*.

## Position setting for Tables

`\begin{table} [!h]`    ➡    Place here  
`\end{table}`

`\begin{table} [!t]`    ➡    Place at top of the page  
`\end{table}`

`\begin{table} [!b]`    ➡    Place at bottom of the page  
`\end{table}`

## Table in Single Column

\*Useful in two column papers e.g. IEEE.

```
\begin{table*}  
  \caption{}  
  \label{}  
  \begin{tabular}{l c r p }  
  \end{tabular}  
\end{table*}
```

## Table: Landscape

```
\usepackage{lscape}
```

```
\begin{landscape}
```

```
\begin{table}
```

.....

```
\end{table}
```

```
\end{landscape}
```

## Table: Center Landscape

```
\begin{center}  
  \begin{landscape}  
    \begin{table}  
      .....  
    \end{table}  
  \end{landscape}  
\end{center}
```

## Working with Tables

For any problem go to

Google

# End of Practical Session IV

## Working with Tables

# **Practical Session V**

## **Working with References**

## References: Basics

Bibliography  
style



`\bibliographystyle{plain}`

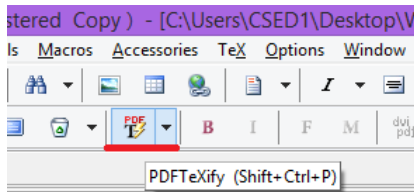
`\bibliography{references}`



Bib file

## References: IEEE

- Go to **Practical Session** →  
**Session V - Paper Writing - 01**
- Open **IEEE Sample.tex** with **WinEdt**.
- **Compile.**



## References: IEEE


- Go to end of the tex file.

```
***** Bibliography*****
```

```
\bibliographystyle{plain}  
% \bibliographystyle{IEEEtran}  
% \bibliographystyle{unsrt}  
\bibliography{references}  
  
\end{document}
```


# References: IEEE

## Try For

```
***** Bibliography*****  
  
\bibliographystyle{plain}  
\bibliographystyle{IEEEtran}   
\bibliographystyle{unsrt}  
\bibliography{references}  
  
\end{document}
```

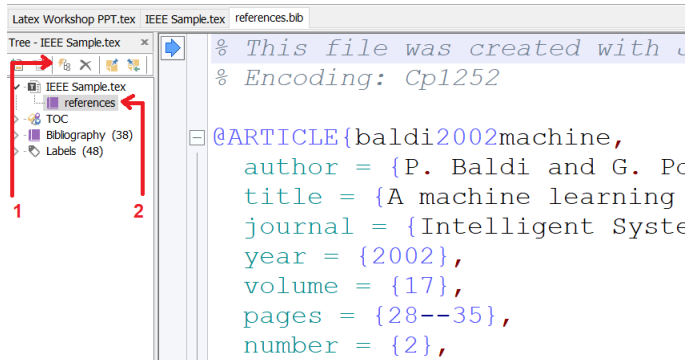
# References: IEEE

## Try For

```
%%%%%%%%%%%% Bibliography%%%%%%%%%%%%  
  
%\bibliographystyle{plain}  
%\bibliographystyle{IEEEtran}  
\bibliographystyle{unsrt}   
\bibliography{references}  
  
\end{document}
```

## References: IEEE

- Explore **bib file**. First, click on tree view and then **reference**



## bib and bbl file

- **.bib** contain all the references.
- **.bbl** contain only those references that are used in the **tex file**.

## Adding References

- Go to **Google Scholar**

Google Scholar



### Recommended articles

Design of a Peptide-Carrier Vaccine Based on the Highly Immunogenic Fasciola hepatica Leucine Aminopeptidase

C Salazar, JF Tort, C Carmona - Fasciola hepatica, 2020

## Adding References

- **Search** for some key word.

Google Scholar

Deep Learning



### Recommended articles

Design of a Peptide-Carrier Vaccine Based on the Highly Immunogenic Fasciola hepatica Leucine Aminopeptidase

C Salazar, JF Tort, C Carmona - Fasciola hepatica, 2020

# Adding References

- Click on **Cite**.

Google Scholar

Deep Learning

Articles About 47,70,000 results (0.10 sec)

Any time  
Since 2020  
Since 2019  
Since 2016  
Custom range...

Sort by relevance  
Sort by date

☒ include patents  
☒ include citations

**Multimodal deep learning**  
[J Ngiam](#), [A Khosla](#), M Kim, [J Nam](#), [H Lee](#), [AY Ng](#) - 2011 - openreview.net  
**Deep** networks have been successfully applied to unsupervised feature **learning** for single modalities (eg, text, images or audio). In this work, we propose a novel application of **deep** networks to learn features over multiple modalities. We present a series of tasks for ...  
☆ 99 Cited by 2095 Related articles All 29 versions Import into BibTeX

**[HTML] Deep learning**  
[Y LeCun](#), [Y Bengio](#), [G Hinton](#) - nature, 2015 - nature.com  
Deep learning allows computational models that are composed of multiple processing layers to learn representations of data with multiple levels of abstraction. These methods have dramatically improved the state-of-the-art in speech recognition, visual object ...  
☆ 99 Cited by 25992 Related articles All 72 versions Web of Science: 13049 Import into BibTeX

# Adding References

- Click on **BibTex**.

Cite

Copy and paste a formatted citation or use one of the links to import into a bibliography manager.

MLA Deb, Kalyanmoy, et al. "A fast and elitist multiobjective genetic algorithm: NSGA-II." *Evolutionary Computation, IEEE Transactions on* 6.2 (2002): 182-197.


APA Deb, K., Pratap, A., Agarwal, S., & Meyarivan, T. A. M. T. (2002). A fast and elitist multiobjective genetic algorithm: NSGA-II. *Evolutionary Computation, IEEE Transactions on*, 6(2), 182-197.

Chicago Deb, Kalyanmoy, Amrit Pratap, Sameer Agarwal, and T. A. M. T. Meyarivan. "A fast and elitist multiobjective genetic algorithm: NSGA-II." *Evolutionary Computation, IEEE Transactions on* 6, no. 2 (2002): 182-197.

[BibTeX](#) [EndNote](#) [RefMan](#) [RefWorks](#)

## Adding References

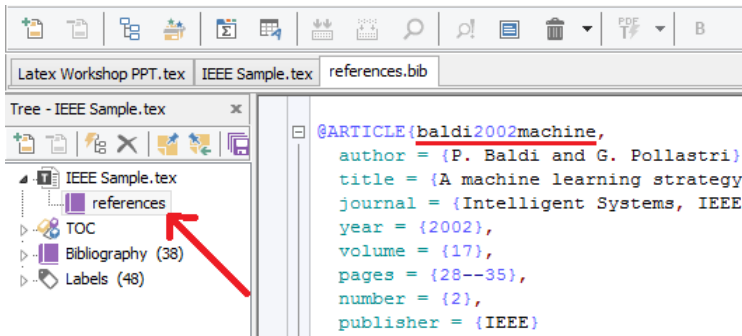
- Select all and Copy.

 **Key**

```
@article{deb2002fast,  
  title={A fast and elitist multiobjective genetic algorithm:  
  author={Deb, Kalyanmoy and Pratap, Amrit and Agarwal, S.  
  journal={Evolutionary Computation, IEEE Transactions on  
  volume={6},  
  number={2},  
  pages={182--197},  
  year={2002},  
  publisher={IEEE}  
}
```

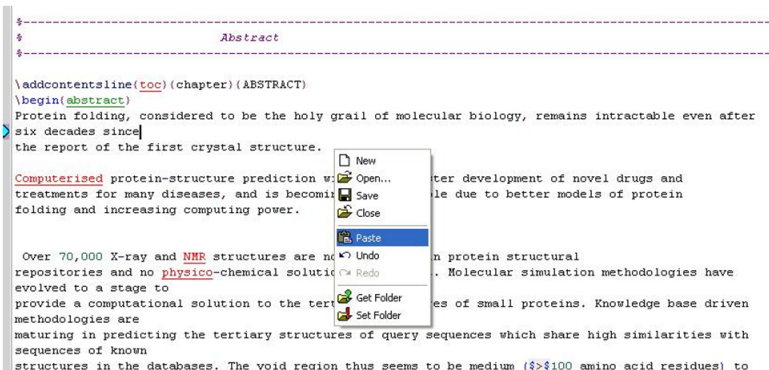
# Adding References

1. Open bib file in WinEdt.
2. Paste the new reference entry.
3. Copy the KEY.
4. Save the bib file.



## Adding References

- Go to tex file and paste where you want to cite.
- Example: `\cite{ KEY}`



The screenshot shows a LaTeX document in progress. At the top, there is a dashed line followed by the word "Abstract" centered. Below this, the LaTeX command `\addcontentsline{toc}{chapter}{ABSTRACT}` is present, followed by `\begin{abstract}`. The main text of the abstract begins with "Protein folding, considered to be the holy grail of molecular biology, remains intractable even after six decades since the report of the first crystal structure." The next line starts with "Computerised protein-structure prediction w", where the word "physico" is highlighted. A context menu is open over "physico", showing options: New, Open..., Save, Close, Paste (highlighted), Undo, Redo, Get Folder, and Set Folder. The rest of the text in the abstract continues: "ter development of novel drugs and le due to better models of protein Over 70,000 X-ray and NMR structures are no repositories and no physico-chemical solution evolved to a stage to provide a computational solution to the tertiary structures of query sequences which share high similarities with sequences of known structures in the databases. The void region thus seems to be medium ( $>100$  amino acid residues) to

## Adding References

- **Save it** and **compile it again**.

```
\addcontentsline{toc}{chapter}{ABSTRACT}  
\begin{abstract}
```

Protein folding, considered to be the holy grail of molecular biology, remains intri  
six decades since

the report of the first crystal structure `\cite{gen1999genetic}`

Computerised protein-structure prediction will enable faster development of novel dr  
treatments for many diseases, and is becoming more feasible due to better models of  
folding and increasing computing power.

Over 70,000 X-ray and NMR structures are now available in protein structural

## Adding References

- **Add** one more reference.

## Common Problem with References

- 1 **??** is come at the place of newly added reference.
- 2 Newly added reference is not visible.

### Solution:

- 1 **Clean**: Removal of temp files and **Compile** 2-3 times.



- 2 Save the bib file and **Compile** 2-3 times.
- 3 Issue occur with the new reference only.

## Working with References

For any problem go to

Google

# **End Practical Session V**

## **Working with References**

# End of Latex Workshop

## Thanks

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