LaTeX

PHSG SEM 3 AND 5

PAPER : SEC A1

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Presentation #8 16-01-2024

Greek letters

αA	\alpha A	νN	\nu N
βB	\beta B	$\xi \Xi$	\xi \Xi
$\gamma \Gamma$	\gamma \Gamma	oO	o O
$\delta \Delta$	\delta \Delta	$\pi \Pi$	\pi \Pi
$\epsilon \varepsilon E$	\epsilon \varepsilon E	$\rho \varrho P$	\rho \varrho P
ζZ	\zeta Z	$\sigma \Sigma$	\sigma \Sigma
ηH	\eta H	τT	\tau T
$\theta \vartheta \Theta$	\theta \vartheta \Theta	$\upsilon \Upsilon$	\upsilon \Upsilon
ιI	\iota I	$\phi \varphi \Phi$	\phi \varphi \Phi
κK	\kappa K	χX	\chi X
$\lambda \Lambda$	\lambda \Lambda	$\psi \Psi$	\psi \Psi
μM	\mu M	$\omega \Omega$	\omega \Omega

INDENTATION

- LATEX WILL AUTOMATICALLY INDENT THE FIRST LINE OF EACH PARAGRAPH.
- TO GET RID OF AN INDENT, YOU CAN USE THE ***\noindent*** COMMAND:

DIFFERENTIATION

```
\documentclass{article}
\begin{document}
        \noindent
        $\frac{df}{dx}$\\
        \\
        $\frac{\delta f}{\delta x}$\\
        \\
        $\frac{\partial f}{\partial x}$
\end{document}
```

$$\frac{df}{dx}$$

$$\frac{\delta f}{\delta x}$$

$$\frac{\partial f}{\partial x}$$

VERBATIM

- VERBATIM ENVIRONMENT IS USED WHERE ALL TEXT IS PRINTED KEEPING LINE BREAKS AND WHITE SPACES:

```
\documentclass{article}
\begin{document}
        \begin{verbatim}
Text enclosed inside \texttt{verbatim} environment
is printed directly
and all \LaTeX{} commands are ignored.
        \end{verbatim}
\end{document}
```

```
Text enclosed inside \texttt{verbatim} environment
is printed directly
and all \LaTeX{} commands are ignored.
```

IMPORTING GRAPHICS

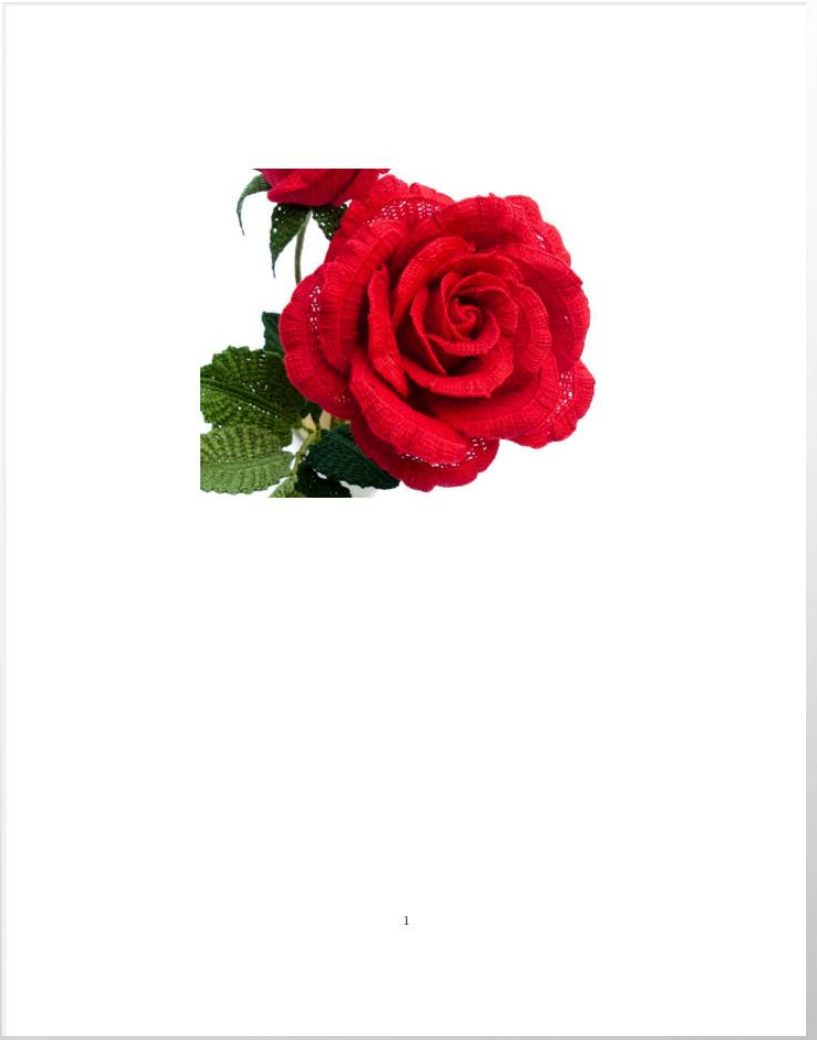
- THE GRAPHICX PACKAGE NEEDS TO BE USED IN PREAMBLE: *usepackage*{*graphicx*}
- *THE ALLOWED IMAGE FORMATS WILL DEPEND ON THE COMPILER YOU ARE USING. EPS AND ONE OF JPG, PNG OR PDF.*
- AFTER YOU HAVE LOADED THE GRAPHICX PACKAGE IN YOUR PREAMBLE, YOU CAN INCLUDE IMAGES WITH ***includegraphics**, WHOSE SYNTAX IS THE FOLLOWING:

  ***includegraphics[optional arguments]{imagename}**ARGUMENTS IN SQUARE BRACKETS ARE OPTIONAL, WHEREAS
- ARGUMENTS IN CURLY BRACES ARE COMPULSORY. THE ARGUMENT IN THE CURLY BRACES IS THE NAME OF THE IMAGE, WITHOUT THE EXTENSION. THIS WAY THE LATEX COMPILER WILL LOOK FOR ANY SUPPORTED IMAGE FORMAT IN THAT DIRECTORY.

IMPORTING GRAPHICS

```
\documentclass{article}
\usepackage{graphicx}
        \begin{document}
\includegraphics{flower}
\end{document}
```

- THE ABOVE LATEX CODE IMPORTS AN IMAGE ‘flower.png’ WITHOUT ANY COMPRESSION IN SIZE.
- THE IMAGE IS KEPT IN THE PWD OF LATEX COMPILER. OTHERWISE LATEX WILL NOT BE ABLE TO LOOK FOR THE IMAGE.



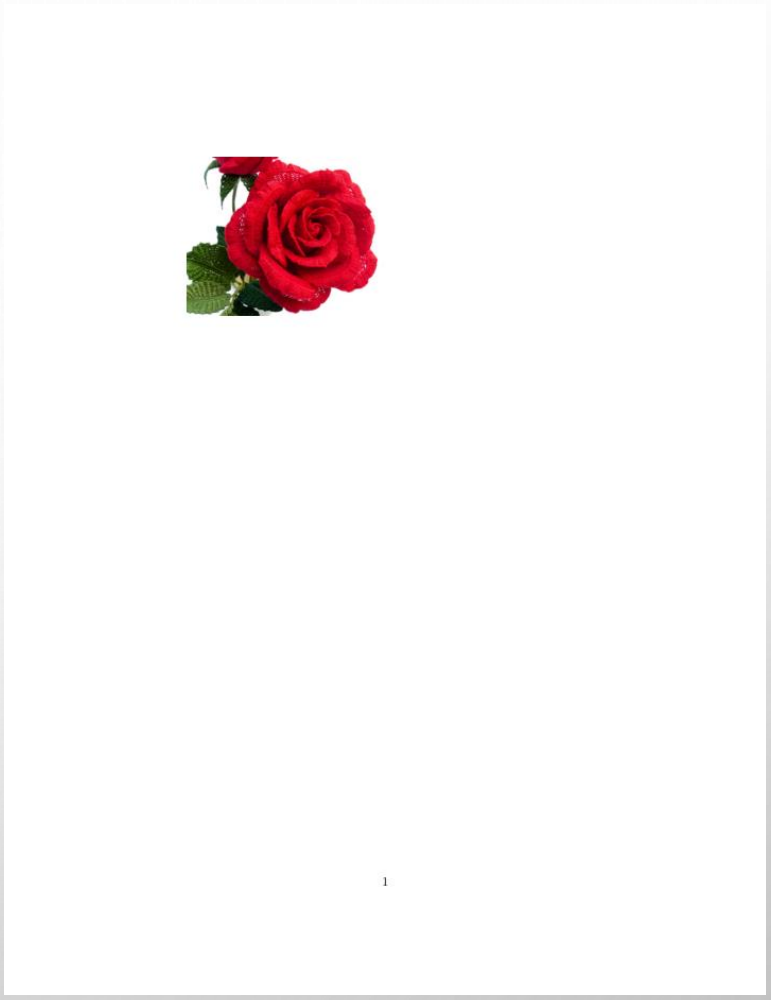
SCALING OF GRAPHICS

```
\documentclass{article}
\usepackage{graphicx}
        \begin{document}
\includegraphics[scale=0.5]{flower}
\end{document}
```

- THE ABOVE LATEX CODE IMPORTS AN IMAGE ‘flower.png’ BY SCALING ITS DIMENSION BY HALF OF ITS ORIGINAL DIMENSION, IN BOTH DIRECTIONS.
- TO BE MORE SPECIFIC AND GIVE ACTUAL LENGTHS OF THE IMAGE DIMENSIONS:

```
\documentclass{article}
\usepackage{graphicx}
        \begin{document}
\includegraphics[width=5 cm]{flower}
\end{document}
```

- THE HEIGHT OF THE IMAGE GETS ADJUSTED ACCORDINGLY, MAINTAINING ASPECT RATIO.



SCALING OF GRAPHICS

```
\documentclass{article}
\usepackage{graphicx}
        \begin{document}
\includegraphics[width=12 cm,height=5 cm]{flower}
\end{document}
```

- BOTH WIDTH AND HEIGHT OF THE IMAGE IS SCALED BY MENTIONING THESE DIMENSIONS.

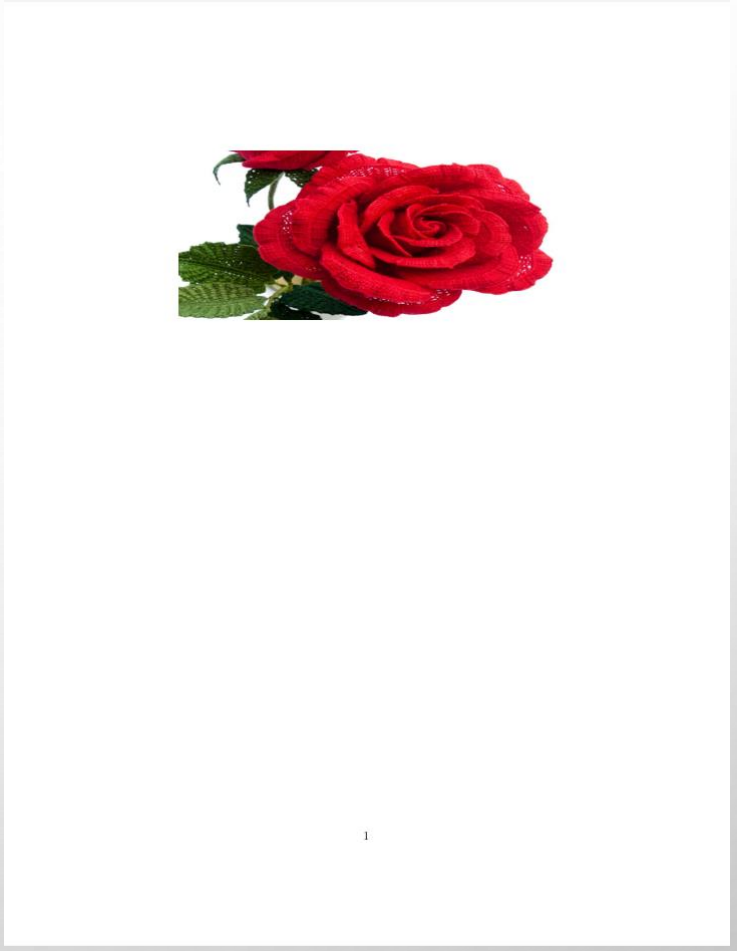


IMAGE NAME WITH SPACES

IF THE IMAGE FILE WERE CALLED ‘flower 1.png’, THEN YOU NEED TO INCLUDE THE FULL FIENAME, INCLUDING EXTENSION WHEN IMPORTING THE IMAGE:

```
\documentclass{article}
\usepackage{graphicx}
        \begin{document}
\includegraphics[scale=0.5]{flower 1.png}
\end{document}
```

FOLDER PATH TO IMAGES

- IT IS POSSIBLE TO KEEP ALL IMAGES IN ONE OR MORE SEPARATED FOLDERS.
- THE COMMAND ***\graphicspath*** TELLS LATEX WHERE TO LOOK FOR THE IMAGES.
- EXAMPLE:

  \graphicspath{ {C:\picture\camera} }

- NOTICE THAT, EVEN IF THERE IS ONLY ONE PATH GIVEN, THERE ARE TWO CURLY BRACKETS AROUND THE PATH NAME.

ROTATING IMAGES

- TO ROTATE THE PICTURE, THE ANGLE (IN DEGREES IN ANTI-CLOCKWISE DIRECTION) OF ROTATION IS TO BE SPECIFIED.
- ***\documentclass{article}***

\usepackage{graphicx}

\begin{document}

\includegraphics[angle=45]{flower 1.png}

\end{document}

ADDING IMAGES

- MORE THAN ONE OPTION CAN BE SPECIFIED SEPARATE USING COMMAS.
- THE ORDER OF THE OPTIONS MATTER.
- THE INCLUDED GRAPHICS WILL BE INSERTED JUST THERE, WHERE YOU PLACED THE CODE.

CROPPING IMAGE

- TO CROP AN IMAGE AND TO FOCUS ON ONE PARTICULAR AREA OF INTEREST, THE FOLLOWING COMMAND TO BE USED:

\includegraphics[trim = l b r t, clip,width=3cm]{flower}

- THIS OPTION WILL CROP THE IMPORTED IMAGE BY l FROM THE LEFT, b FROM THE BOTTOM, r FROM THE RIGHT, AND t FROM THE TOP. WHERE l, b, r AND t ARE LENGTHS.
- FOR THE TRIM OPTION TO WORK, YOU MUST SET THE ***clip*** OPTION.

CROPPING IMAGE

```
\documentclass{article}
\usepackage{graphicx}
        \begin{document}
\includegraphics[trim={2cm 2cm 2cm 2cm},clip]{flower}
\end{document}
```

- THE ABOVE CODE CROPS THE IMAGE BY 2 CM FROM LEFT, BOTTOM, RIGHT AND TOP EDGES, RESPECTIVELY.