

## Курсова Работа

Име на предмета Esse deserunt consequat

Име на университет Dolor eu et enim irure voluptate deserunt official

Тема:

**Deserunt reprehenderit magna laborum  
dolor adipisicing in fugiat**

Лого на унито:



August 13, 2021

Пешо Пешев Пешков

Фак. номер: 123456

# Big Centered Text

## 1. Tiny noindent text:

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.

## 2. Scriptsize text with added additional 4cm indentation, which is then removed -4cm:

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.

## 3. Footnotesize flush right text:

Cillum proident aliquip ipsum do do cupidatat laboris. Mollit proident eiusmod adipiscing ad ipsum nulla consectetur esse. Incidunt laboris irure do eu ad dolore ad ea pariatur sint. Eu ea exercitation incididunt excepteur quis.

## 4. Normalsize flush left text:

Something. This paragraph contains no information and its purposes is to provide an example on how to insert white spaces and lines breaks. Right here -> \\

When a line break is inserted, the text is not indented, there are a couple of commands for line breaks. \\newline

This paragraph contains full line break. \\fill and \\break

For combining two commands

## 5. large centered text:

Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut. Nisi qui culpa pariatur velit deserunt nulla nulla dolor cillum est do nulla ut.

## 6. Large text after 2 newlines (baselineskip) :

The environments center, flushleft, flushright, justify should only be used with text paragraphs. They can NOT format other LaTeX objects!

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List of Tables

## 8 Images and figures

Graphics with set width 0.3 of linewidth:



LaTeX includegraphics wrapped in a figure:

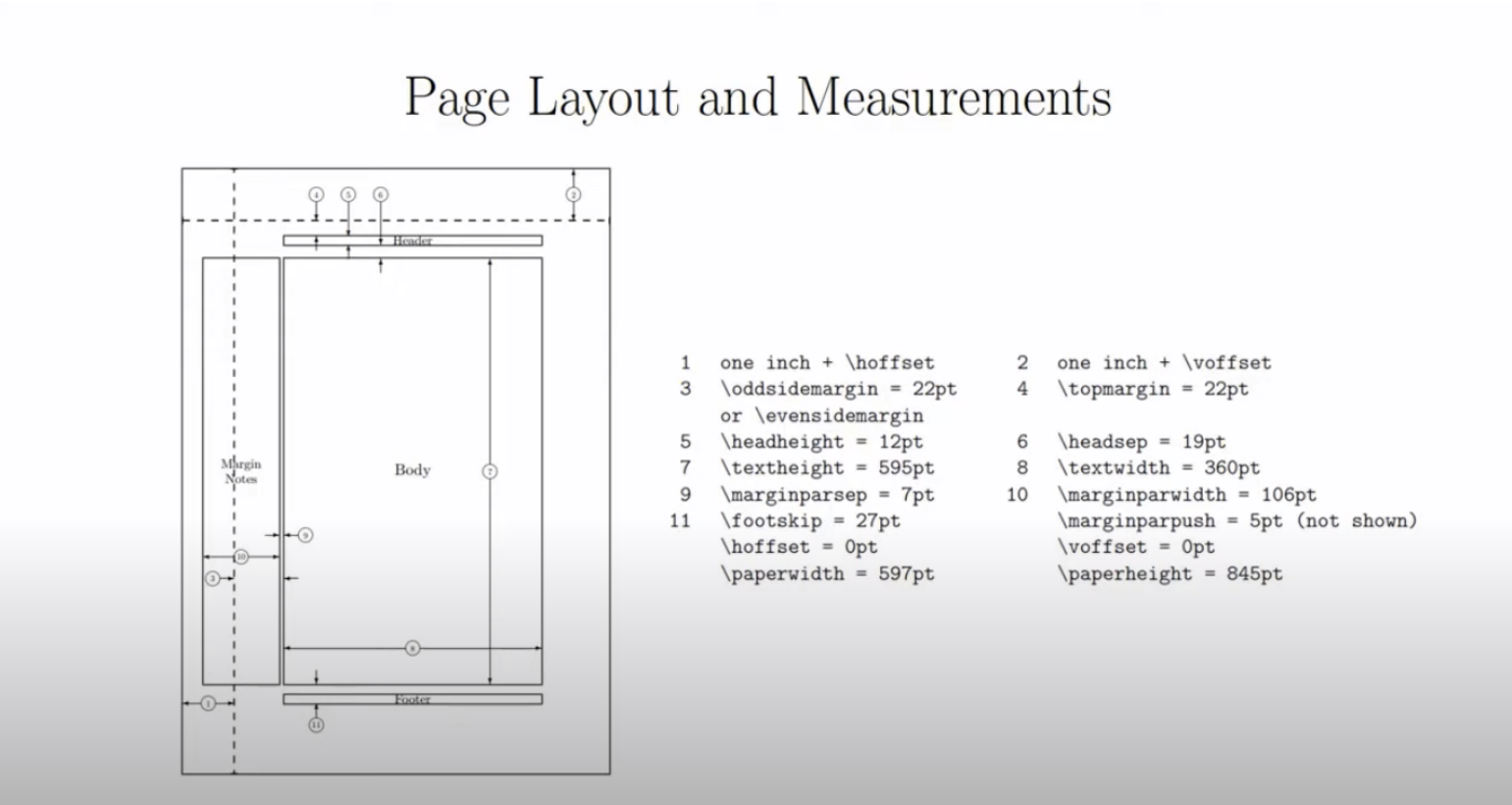


Figure 1: LaTeX Page layout and Measurements (width=linewidth)

## 9 Section with subsections

### 9.1 LARGE text

Nisi qui culpa pariatut velit deserunt nulla nulla dolor cillum est do nulla ut. Nisi qui culpa pariatut velit deserunt nulla nulla dolor cillum est do nulla ut.

### 9.2 huge text with bold, italic and standard underline

Nisi qui **culpa** *pariatut* velit deserunt nulla nulla dolor cillum est do nulla ut.

### 9.3 Huge text with combined bold, italic and standard underline

Nisi qui culpa pariatut velit deserunt ***nulla dolor cillum est*** do nulla ut.

### 9.4 This is what happens when you underline long text

Unerlining a long string of text is kinda hard in latex with the default underline so we can use ulem. Nisi qui culpa pariatut velit deserunt nulla nulla dolor cillum est do nulla ut.

### 9.5 We can fix the above problem with the package ulem using uline

Same with ulem. Nisi qui culpa pariatut velit deserunt nulla nulla dolor cillum est do nulla ut. Nisi qui culpa pariatut velit deserunt nulla nulla dolor cillum est do nulla ut.

ulem also has some other cool underlines.

### 9.6 Line fills and rules

---

Some text before fill

Fill by dots .....

Rule can create more customizable lines:

---



## 9.7 Citation example

This citations is also in a subfile [[1](#)]

## 9.8 Quoting somebody

*”Трябва да сме внимателни с развитието на Изкуственият Интелект. Както с това кой го използва и кой го контролира, и дали ще бъде в интерес на хората?”*

— Елон Мъск

*We must be careful with the development of Artificial Intelligence. As with who uses it and who controls it, and will it be in people's interest?*

— Elon Musk

## 9.9 References to labels

This number will take you to the specified label - [1](#)

It can also be done as a hyperlink - [Any Custom Lable Can Be A Hyperlink](#)

The href command can be used for URL redirection - [This link will go to example.com](#)

## 9.10 Enumeration and listing

1 First Item

2 Second Item

1 First Sub Item

→ Custom label

2 Second Sub Item

3 Third Item

- First Item
- Second Item
  - First Sub Item
  - Custom label
  - Second Sub Item
- Third Item

## 10 Basic Math Equations

### 10.1 Displaystyle math equation

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6} \quad (1)$$

### 10.2 Inline math with display style mode

Ex qui anim eu consequat est excepteur ea est. Exercitation officia pariatur pariatur nostrud. Cillum cillum proident minim officia ex. Aliquip ut officia sit voluptate quis dolor sint proident tempor aliquip qui enim.  $\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$  Elit veniam minim commodo proident do aliqua Lorem sunt ex dolore. Irure adipisicing enim eu velit eiusmod reprehenderit. Sit exercitation minim sunt et.

### 10.3 Inline math with text style mode

Ex qui anim eu consequat est excepteur ea est. Exercitation officia pariatur pariatur nostrud. Cillum cillum proident minim officia ex. Aliquip ut officia sit voluptate quis dolor sint proident tempor aliquip qui enim.  $\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$  Elit veniam minim commodo proident do aliqua Lorem sunt ex dolore. Irure adipisicing enim eu velit eiusmod reprehenderit. Sit exercitation minim sunt et.

### 10.4 Brakets sizes

These are a bit unreadable:

$$\left(\sum_{n=0}^N \left(\frac{1}{a+b}\right)^2\right)^2$$

We can use left and right brakets:

$$\left(\sum_{n=0}^N \left(\frac{1}{a+b}\right)^2\right)^2$$



10.5 Substaking

$$\sum_{\substack{n=0 \\ n \text{ odd}}}^{\infty} a_n x^n$$

$$\sum_{\substack{n=0 \\ n \text{ odd}}}^{\infty} a_n x^n$$

10.6 Spaces in equations

$$\int f(x)\mathrm{d}x$$
$$\int f(x) \, \mathrm{d}x$$
$$\iiint f(x,y,z)\mathrm{d}x\mathrm{d}y\mathrm{d}z$$
$$\iiint f(x,y,z) \, \mathrm{d}x \, \mathrm{d}y \, \mathrm{d}z$$

Spacing Commands:

$$f(x)\mathrm{d}x \quad f(x) \, \mathrm{d}x \quad f(x) \, \mathrm{d}x \quad f(x) \, \mathrm{d}x \quad f(x) \, \mathrm{d}x$$

Using `hspace` and `text` to handle simple spacing issues:

$$x = 1000 \quad \text{and} \quad y = 200$$

10.7 Vectors

Vectors use the `esvect` package:

$$\overrightarrow{\text{proj}} \quad \vec{v_1} \quad \vec{v}_1$$

10.8 Radicals

If  $ax^2 + bx + c = 0$  then  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$$\sqrt[10]{\frac{1}{2}} \quad \sqrt[7]{\frac{\sqrt[3]{\sqrt[8]{1+2}}}{\sqrt{12x}}} \quad \left( {}^{\tau\sqrt{908}}\sqrt{12}^{\sqrt[2]{8}\sqrt{\sqrt[2]{1721}}} \right)^7$$

# 11 Negation

Build-in negations:

$a \neq b$

$a \not\sim b$

$a \nless b$

$a \nless b$

$a \nless b$

$a \nless b$

$P \not\Rightarrow Q$

For negation of symbols that do not have negation by default we can use `\usepackage{centernot}`:

$a \not\approx b$

$P \not\Rightarrow Q$

# 12 Overset and Underset

$a \overset{?}{=} b$

$f(x) \underset{x \rightarrow \infty}{\longrightarrow} 0$

$f(x) \overset{?}{\underset{x \rightarrow \infty}{\longrightarrow}} 0$

## 12.1 Theorems

**Theorem 1** (The Pythagorean Theorem).

$a^2 + b^2 = c^2$

**Lemma 2.**

$a = b, b = a$

**Definition 1.**

$\forall A : \emptyset \subseteq A$

# 13 System of equations

Example with `\package{systeme}`:

$$\left\{ \begin{array}{l} 3x_3 = 9 \\ x_1 + 5x_2 - 2x_3 = 2 \\ \frac{1}{3}x_1 + 2x_2 = 3 \end{array} \right.$$



left justified	centered	right justified
l	c	r

14.2 Long text in column and other table packages

This problem:

long text in table long text in table long text in table long text in table long text in table long text in table long
--

Can be fixed like this, with 3 custom commands defined in the preamble:

For more advanced tables we can use the <code>\usepackage{booktabs}</code> - Provides extra commands to make tables more attractive	For more advanced tables we can use <code>\usepackage{tabularx}</code> , which provides another way to control the width of the columns	For more advanced tables we can use <code>\usepackage{colortbl}</code> to add color to tables, including line colors and cell background colors	For more advanced tables we can use <code>\usepackage{longtable}</code> for large tables that span across multiple pages
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14.3 Multi-column tables

Magna excepteur occaecat culpa voluptate	incididunt officia irure cupidatat	eiusmod consequat ut occaecat anim consectetur.
Proident in culpa consequat fugiat.Anim dolor exercitation voluptate irure exercitation adipisicing proident veniam incididunt sit sunt.		
Testing	Laborum sit aliquip laborum commodo cupidatat.Exercitation fugiat dolore fugiat Lorem sit non enim.Pariatur nulla nulla non ullamco adipisicing velit.	

15 Multi-row tables

We can use the command

```
\multirow[vertical_alignment]{num_rows}{width}{content}
```

Row Merge

Text  
Text

Advanced multi-row example:

Text A	Text B	Text C	Text D	Text E
A	Text F	Text G	Text H	Text I
B	Text J	Text K	Text L	Text M
Text N	Text O	Text P	Text Q	Text R
		Text S	Text T	Text U
			Text V	Text Z

## 16 Arrays

### 16.1 Simple Arrays

Arrays are usually used for matrices:

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{bmatrix}$$

But it’s easier and more versatile to use **pmatrix**, **bmatrix**, or some others from the **amsmath** package:

$$\begin{aligned} A_{m,n} &= \begin{pmatrix} a_{1,1} & a_{1,2} & \cdots & a_{1,n} \\ a_{2,1} & a_{2,2} & \cdots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \cdots & a_{m,n} \end{pmatrix} \\ B &= \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix} \\ &\left\{ \begin{matrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{matrix} \right\} \\ \overrightarrow{v} &= \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix} \end{aligned}$$

## 17 Formatting code

The simplest way to fromat code is to use verbatim:

```
a := int32(0)
for i := 0; i < a; i++ {
    fmt.Println(i)
}
```

More advanced way is with `\usepackage{minted}` which has some level of syntax highlighting:

```
type Client struct {
    rawConn *limitconn.Wrapper
    handshake *clientHandshake
}

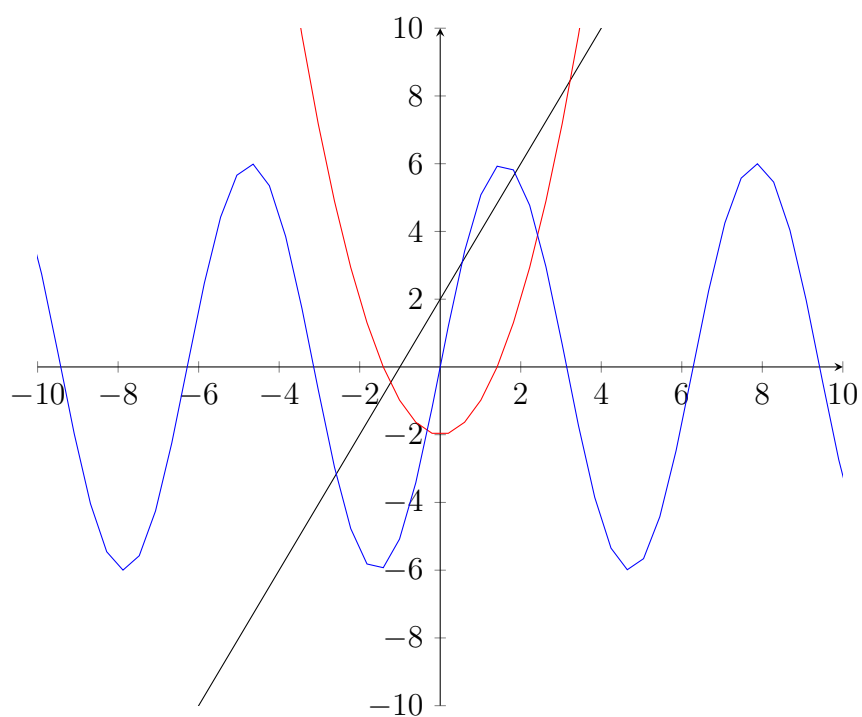
func (c *Client) Connect(ipv4 string, port uint16) error {
    addrss := fmt.Sprintf("%s:%d", ipv4, port)
    conn, err := net.Dial("tcp", addrss)
    if err != nil {
        return err
    }

    fmt.Printf("client connection on %d\n", port)
    c.rawConn = limitconn.Wrap(conn, "client_"+rand.GenString(32))
    c.rawConn.SetLimit(clientHandshakeLimit)
    c.handshake = NewClientHandshake(c.rawConn)
    if err := c.handshake.Handshake(); err != nil {
        c.rawConn.Close()
        return err
    }

    return nil
}
```

If needed, the minted package can also load snippets from files!

## 18 Plotting Equations with tikzpicture and pgfplots axis



## References

- [1] Testing Test. Testing Stuff. URL: <https://example.com>. (published: 09.08.2020).