

**INSERT YOUR UNIVERSITY NAME
HERE**



Insert Your Degree Course Here

**Insert you freaking long thesis title here
and adjust it as you wish**

Thursday, September the 27th, 2012

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1 Introduction

Just a quick template with the setup I used in my thesis, plus some packages and tweaks I've found extremely useful and nice to share. It contains almost everything needed to start with L^AT_EX, so even unexperienced users will have something to start with.

I hope it will be useful for you too.

1.1 Some Text

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean adipiscing pharetra suscipit. Integer pellentesque iaculis justo, id convallis felis facilisis eu. Phasellus in massa turpis, vitae venenatis turpis. Donec in libero vitae magna vestibulum vehicula eu vehicula massa. Morbi congue aliquam metus, eu tristique nibh viverra porttitor. Aliquam dignissim pretium massa, eu lobortis sem cursus ac. Donec tempus porttitor malesuada.

Donec pulvinar interdum libero, eu auctor felis adipiscing vitae. Pellentesque quis massa eu enim imperdiet euismod at id magna. Mauris ullamcorper venenatis laoreet. Vestibulum eu massa a lorem varius scelerisque. Vivamus nec nunc sapien, non dapibus nisl. Fusce at enim id odio commodo sodales. Integer nibh dui, tempus id mattis vitae, gravida vitae lorem. Suspendisse dolor magna, consequat id ornare nec, vulputate sed risus. Suspendisse pharetra quam felis, vel gravida eros. Curabitur euismod enim vitae tellus tincidunt pharetra. Sed quis placerat nunc. Nullam ultricies eleifend leo a convallis. Suspendisse dictum tincidunt metus, ut hendrerit ipsum feugiat a. In purus ipsum, porttitor sit amet vehicula a, placerat sed dolor¹.

1.1.1 Other Text

Nulla suscipit ante vitae dui fermentum sed blandit ipsum suscipit. Ut porttitor augue vitae ante tempus pharetra. Vestibulum porta lacus vel ipsum feugiat eleifend. Duis sodales risus in libero tristique volutpat. Quisque libero metus, tristique vitae malesuada a, euismod eu risus. Quisque feugiat consectetur diam in mattis. Nulla ultrices ultricies urna eu placerat. Maecenas sagittis volutpat enim sit amet malesuada. Donec dapibus, sem ac pulvinar dignissim, neque augue feugiat leo, non auctor mi felis lobortis nulla.².

¹Nam ac lacinia eros. Ut vestibulum ultricies augue facilisis consectetur.

²Donec pulvinar augue eget dui imperdiet vestibulum. Donec tincidunt laoreet pellentesque.

1.2 Calligraphic Text

This is an awesome calligraphic text with the Calligra font face. Don't misuse it anyway!

1.3 Special Text

Say you want to insert some sourcecode, you can use the `verbatim` class or instead, the more fancy (imho) `Verbatim` one with a frame around.

```
                                // loop until the conversion is finished
                                while (ADCON0bits.GO_DONE != 0)
000114    a2c2    BTFSS    0xc2,0x1,0x0
000116    d006    BRA     0x124
000122    d7f8    BRA     0x114
                                acLoopCounter++;
000118    0e1e    MOVLW   0x1e
00011a    2adb    INCF    0xdb,0x1,0x0
00011c    0e1f    MOVLW   0x1f
00011e    e301    BNC     0x122
000120    2adb    INCF    0xdb,0x1,0x0
000124    50c4    MOVF    0xc4,0x0,0x0
```

2 Figures

You can include **.png* images, like the one in Figure 1, and the cool stuff is that the number next to *Figure* word is clickable and will bring you here regardless where you put the `\ref{fig:logo_png}`. It's a reference command, afterall ;)

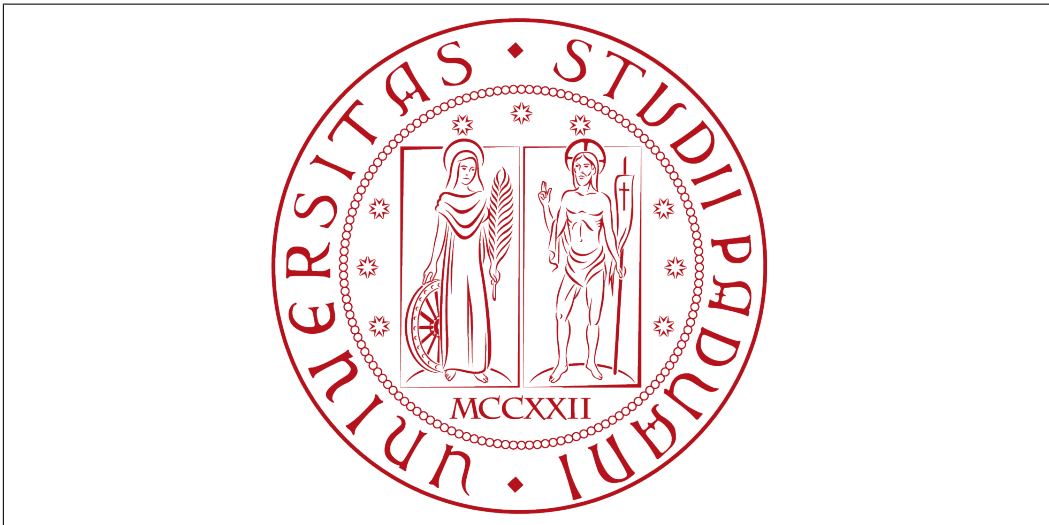


Figure 1: University of Padua logo, png format

2.1 Moarr Figures

Say you want to insert 2 or more figures, each one with a specific caption, and group them with a global caption, this is how you could do that

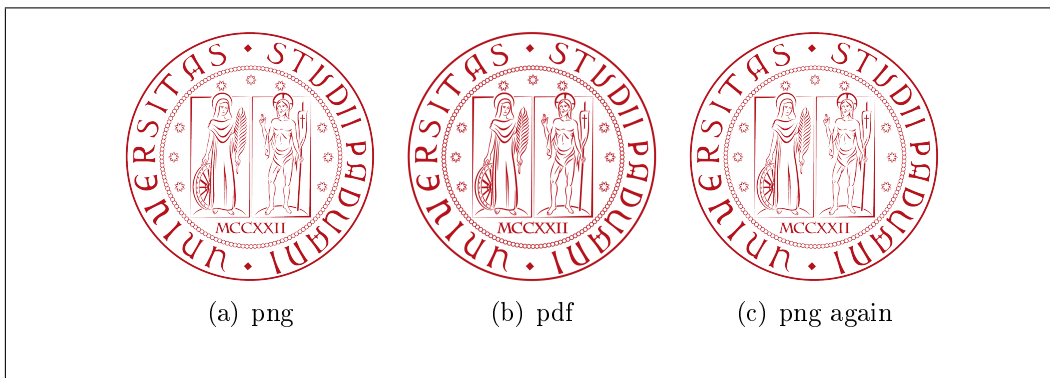


Figure 2: Unipd logos in different file formats

Of course, you can insert **.pdf*, **.png*, **.jpg* and other formats, but I **strongly** suggest you to use **.pdf* format and, if you can't, fall back to

the *.png* one, because they got rendered wayyy better.

If you play a little more with figure sizes, you can achieve this nice layout

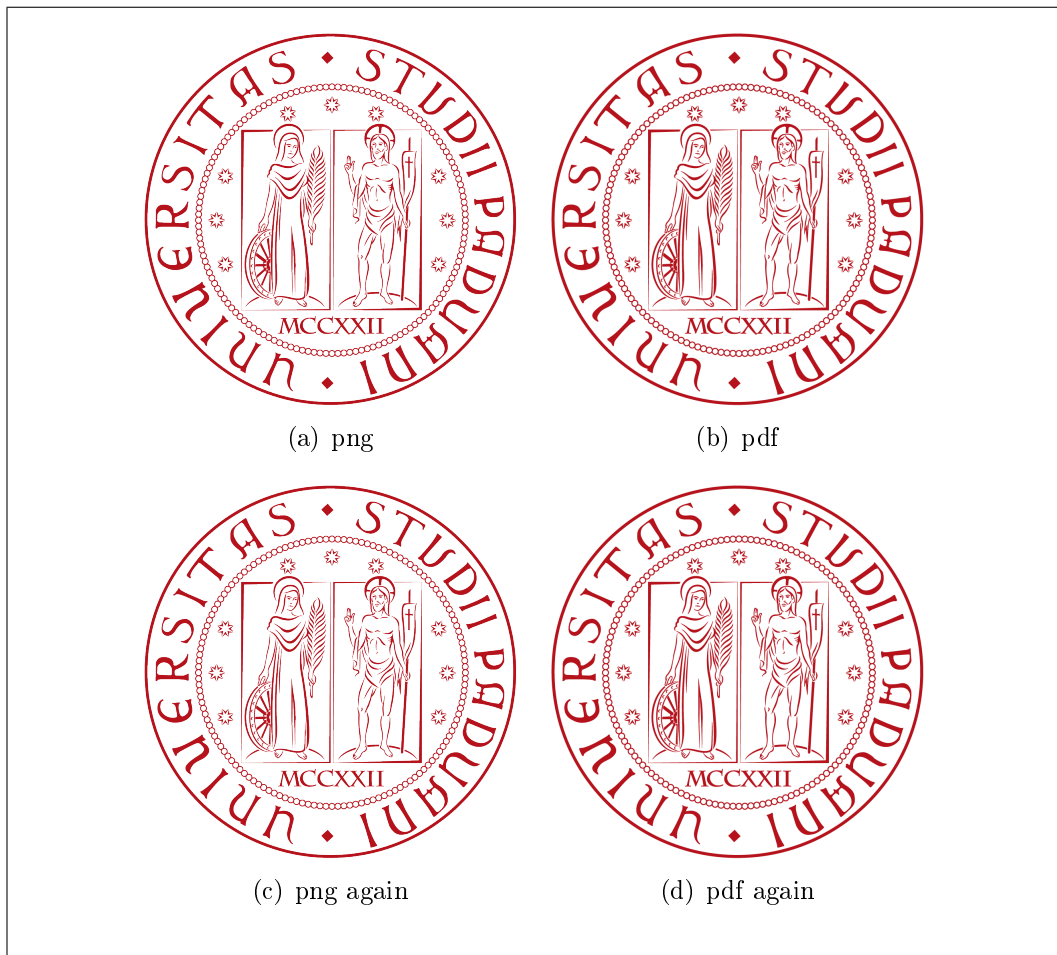


Figure 3: Unipd logos in different file formats

Which is useful to group, for example, related graphs all together.

3 Equations

Assuming you already know how to write a basic math formula, here you are an example of the `boxed` environment

$$\boxed{\frac{\Delta n_B}{\Delta \delta} = k_1 \cdot \frac{1 - \frac{s^2}{\omega_Z^2}}{\frac{s^2}{\omega_{AF}^2} + \frac{2 \cdot \xi_{AF}}{\omega_{AF}} \cdot s + 1}} \quad (3.1)$$

An example of the `cases` environment

$$\begin{cases} \omega_n = \omega_{AF} \sqrt{1 - K_R \cdot k_3} \\ \xi = \frac{\omega_n}{2} \cdot \frac{\frac{2 \cdot \xi_{AF}}{\omega_{AF}} - K_R \cdot k_3 \cdot T_\alpha}{1 - K_R \cdot k_3} \end{cases} \quad (3.2)$$

But this will not number each equation written, which could be what you need, or not. If you need to number every equation inside the `cases` environment, you need to use the `subnumcases`, obtaining

$$\begin{cases} \omega_n = \omega_{AF} \sqrt{1 - K_R \cdot k_3} & (3.3a) \\ \xi = \frac{\omega_n}{2} \cdot \frac{\frac{2 \cdot \xi_{AF}}{\omega_{AF}} - K_R \cdot k_3 \cdot T_\alpha}{1 - K_R \cdot k_3} & (3.3b) \end{cases}$$

4 Refer to something

In your thesis you often need to refer to a given equation, image or book citation. Labels are specified by the `\label{a_label}` command, placed inside a `equation` or `figure` environment (or in usual text) and recalled by the `\ref{a_label}` command.

However, for the equations, there is the handy `\eqref{an_equation}` command that does almost the same of the `ref` command, but also encloses the equation number with parenthesis. They are still clickable, try for example to go to Equation (3.1). If we want to refer to a particular book, essay, paper or whatever else, you need to define it inside *your_bibliography.bib* file, and include it at the end of the \LaTeX source file. Then, whenever you need to cite the book/essay/paper, just use the `\cite{bib_label}` and it will automatically appear next to the word you put the command, and also append the paper details in the Bibliography section. Examples:

- PIC Analog-To-Digital Converter[1]
- Enhanced PWM Mode[2]
- AWGN noise defined in[3]

A More Explanations Here

B And Here

B.1 And Here Too

References

- [1] *PIC18F2525/2620/4525/4620 Data Sheet*, ch. 19.0 10-Bit Analog-To-Digital Converter (A/D) Module, Microchip, 2004.
- [2] *PIC18F2525/2620/4525/4620 Data Sheet*, ch. 16.4, Enhanced PWM Mode, Microchip, 2004.
- [3] Benvenuto N., Corvaja R., Erseghe E., and Laurenti N., *Communications Systems - Fundamentals and Design Methods*, Wiley, 2007.