



# **BRNO UNIVERSITY OF TECHNOLOGY**

**VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ**

## **FACULTY OF INFORMATION TECHNOLOGY**

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## **DEPARTMENT OF INTELLIGENT SYSTEMS**

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## **THESIS TITLE**

**NÁZEV PRÁCE**

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**BAKALÁŘSKÁ PRÁCE**

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## Abstract

Do tohoto odstavce bude zapsán výtah (abstrakt) práce v anglickém jazyce.

## Abstrakt

Do tohoto odstavce bude zapsán výtah (abstrakt) práce v českém (slovenském) jazyce.

## Keywords

Sem budou zapsána jednotlivá klíčová slova v anglickém jazyce, oddělená čárkami.

## Klíčová slova

Sem budou zapsána jednotlivá klíčová slova v českém (slovenském) jazyce, oddělená čárkami.

## Reference

ZÁRYBNICKÝ, Jakub. *Thesis title*. Brno, 2019. Bachelor's thesis. Brno University of Technology, Faculty of Information Technology. Supervisor Ing. Ondřej Lengál, Ph.D.

## **Rozšířený abstrakt**

Do tohoto odstavce bude zapsán rozšířený abstrakt práce v českém jazyce, bude mít rozsah 2 až 6 normostran a bude obsahovat úvod, popis vlastního řešení a shrnutí a zhodnocení dosažených výsledků.

# Thesis title

## Declaration

Hereby I declare that this bachelor's thesis was prepared as an original author's work under the supervision of Mr. X. The supplementary information was provided by Mr. Y. All the relevant information sources, which were used during preparation of this thesis, are properly cited and included in the list of references.

.....

Jakub Zářybnický  
September 4, 2018

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# Chapter 1

## Introduction

In order to be able to write a professional text clearly and comprehensibly, we have to meet several basic prerequisites:

- we need to have something to say,
- we need to know who we want to target with the text,
- we have to thoroughly think about the content,
- we have to write in a structured way.

These and other instructions are also available on the school's website [\[3\]](#).

An overview of the basics of typography and document creation using the system L<sup>A</sup>T<sub>E</sub>X is shown in [\[2\]](#).

### 1.1 We need to have something to say

Another important prerequisite for good thesis is to *write for someone*. If we write notes for ourselves, we write them differently than a research report, an article, a diploma thesis, a book or a letter. According to the assumed reader, we decide on the type of writing, the scope of information and the degree of detail.

### 1.2 We need to know who we want to target with the text

Another important prerequisite for good thesis is to *write for someone*. If we write notes for ourselves, we write them differently than a research report, an article, a diploma thesis, a book or a letter. According to the assumed reader, we decide on the type of writing, the scope of information and the degree of detail.

### **1.3 We have to thoroughly think about the content**

We need to thoroughly think about the content and compose the content of the message and create the order in which we want to present our ideas to the readers. Once we know what we want to say and to whom, we need to plan out the subject matter. Ideal is such a layout, which makes a logically accurate and psychologically digestible whole, in which everything is in place and whose parts fit into each other. All contexts are clear and it is obvious where they belong.

In order to achieve this, we must thoroughly organize the subject matter. We will decide what the main chapters and subchapters would be and what are the connections between them. The chart of such an establishment is a chart that is very similar to a tree, but not a string. When organizing a subject matter, the question of what to include in the schema is equally important as a question of what to not include. Too many details can be discouraged by readers as well as no details.

The outcome of this stage is the outline of the text, which is the sequence of the main ideas and the details included therein.

### **1.4 We have to write in a structured way**

We must start writing in a structured way, and at the same time we need to use the most comprehensible form, including good style and perfect marking. As soon as we have an idea, an idea of a future reader, a goal, and an outline of the text, we can start writing. When writing a first concept, we try to capture all of our thoughts and opinions regarding to individual chapters and subchapters. Each thought must be explained, described and proven. The main sentence should always express the main idea, not the secondary.

We should approach the writing process in a structured way as well. At the same time, as we clarify the structure of the written work, we create key points of text that we gradually update. We use those DTP tools that support structured text construction (predefined types for titles and text blocks).

## Chapter 2

### Several formal rules

Our goal is to create a clear and comprehensible text. Therefore, we express ourselves properly, we use good Czech (or preferably English) and a good style according to the generally accepted customs. The text should provide readers with a way to quickly understand the problem, anticipate its difficulties, and prevent them. A good style requires impeccable grammar, correct punctuation, and appropriate word choice. Avoid using a small selection of words otherwise the text might become monotonous, also avoid using some of your favorite words too often. If we use foreign words, it is assumed that we know their exact meaning. We also must use Czech words in the right sense. It is not wrong to use the author's *we*, so we assume that we are solving something, or for example, generalizing with the reader. In bachelor or master thesis author's *I* can be used (for example, when we define a share of our own work in relation to the translated text), but in casual text excessive use of the first person of the single number is not recommended.

Make sure to precisely select symbols that we use to *mark*. We mean the choice of abbreviations and symbols used, for example, to express the types of components to identify the main program functions, to name lethal keyboard keys, to name variables in mathematical formulas, and so on. Appropriate and consistent labeling can greatly benefit reading experience for readers. It is appropriate to give a list of the markings at the beginning of the text. Not only in marking, but also in references and in overall layout, consistency is important.

This is also associated with a typology term called *highlighting*. Here we mean the typesetting for its highlighting. The selected method of marking should match the selected highlighting. For example, the keyboard keys can be placed in a rectangle, the identifiers from the source text may be written in a **typewriter font**, and so on.

If you present some facts, do not conceal their origin and your relationship to them. When you claim something, always explicitly state what has been proven and what will be proven in our text and what we took over from literature with reference to the source. In this respect, never leave the reader in doubt whether this is our idea or an idea taken from literature.

Never waste reader's time with the interpretation of trivial and insubstantial information. Also do not say the exact thing just in different words. With later modifications to the text, some previously written passage may seem unnecessarily detailed or even totally useless. Dropping such passage or at least making it briefer will contribute to better readability of



the work! But this step requires the courage to throw away the time we have devoted to creating it.

## Chapter 3

# It will never be perfect

When you have already written everything you have been thinking about, take a day or two days off, and then read the handwriting again. Make your last edits and finish. We are aware that there is always something left unfinished, there is always a better way of explaining something, but each stage of the adjustment must be final.

## Chapter 4

# Typographic and linguistic principles

When printing *technical report*, When typing a technical text type, a technical report, such as the text of the qualification work, A4 format is often chosen and we often print only on one side of the paper. VIn that case, make the left margin of all pages to be slightly larger than the right - at this place the papers will be bound and the binding technique will force this requirement. When bounding with a rigid back, the left edge should be slightly wider for thick bundles because the pages will be harder to open and the left margin will be less exposed to the eye.

Select the upper and lower edges the same size, or move the printed part slightly upwards (the upper edge is smaller than the lower edge). Keep in mind that the edges will be slightly cropped after binding.

For an A4 page, it is appropriate to use a font of 11 points for basic text. Choose a width of 15 to 16 centimeters and a height of 22 to 23 centimeters (possible headers and footers included). Line spacing usually should be 120 percent of the font used, which is the optimal value for the reading speed of the contiguous text. If you decide to use L<sup>A</sup>T<sub>E</sub>X, use the default settings. When writing a qualification work, make sure to follow the mandatory requirements.

The font level for different levels of title is selected according to standard typographic rules. Typically, for all types of headings semi-bold or bold font are being used (uniformly either semi-bold everywhere or bold everywhere). Size of line spacing is chosen that the following text of regular paragraphs is preferably set on a *fixed index*, that is to say on lines with a predefined and fixed spacing.

The arrangement of the individual parts of the text must be clear and logical. It is necessary to distinguish the names of the chapters and subchapters –write them in lowercase letters except for the capital starting letters. For each paragraph of the text, offset the first line of the paragraph with about one to two squares (always the same preselected value), thus about two widths of the capital letter M of the basic text. The last line of the preceding paragraph and the first line of the following paragraph are not separated by a vertical gap in this case. Spacing between these lines is the same as the spacing between the lines inside the paragraph.

When adding images, choose their size so that they do not exceed the area onto where the text is printed (thus text edges from all sides). For large images, use a separate page. Place pictures or spreadsheets of sizes larger than A4 in a written message in the form of a booklet embedded in an attachment or embedded in the tabs on the backboard.

Pictures and tables must have sequential numbering. The numbering is chosen either continuous throughout the text, or – which is more practical – continuous within the chapter. In the second case, the table or image number consists of the chapter number and the number of the picture / table in the chapter - the numbers are separated by a dot. The numbers of subchapters have no effect on the numbering of pictures and tables.

Tables and pictures use their own, independent numerical series. Thus in the references inside the text we must also provide information about whether we refer to a picture or a table (for example “... *see table 2.7...*”). Additionally, following this principle is very natural.

For sitelinks, chapters and subchapters, figure numbers and tables and for other similar examples, we use special DTP programs to ensure that the correct number is generated even if the text is moved by changes in the text itself or by adjusting the style parameters. An example of such a too in  $\text{\LaTeX}$  is a reference to the corresponding location of the tag in the text, such as a label (`\ref\{navesti\}`) – according to the location of the labels it will be the number of the chapter, subchapter, picture, table, or similar numbered element), the page that contains the tag (`\pageref\{navesti\}`), or a literary reference (`\cite\{identifikator\}`).

The equation to which we refer in the text is given serial numbers at the right margin of the corresponding row. These sequence numbers are written in parentheses. The equation numbering can be continuous in the text or in individual chapters.

If you are in doubt when typesetting a mathematical text, try to keep the  $\text{\LaTeX}$  defined typesetting. If your work contains a large number of mathematical formulas, we recommend using the  $\text{\LaTeX}$  system.

Do not make a space where digits are combined with letters in one word or one character. Punctuation such as dot, comma, semicolon, colon, question mark and exclamation mark, as well as closing brackets and quotation marks are appended to the preceding word without a space. The space is behind them. However, this does not apply to decimal points (or decimal dots). The opening bracket and the front quotes are appended to the following word and the space is omitted before them – (like this) and~ like this.

We do not use the same character for hyphen and dash. For a dash another character is reserved (longer). In the  $\text{\TeX}$  system ( $\text{\LaTeX}$ ), the hyphen is written as one character **hyphen** (example **Brno-město**), For an interval or pairs, rivals, and similarly the source text uses a pair of characters **dash** (such as **match Sparta -- Slavie; price 23--25 Crowns**), For the distinctive separation of a part of the sentence, for the distinct separation of the inserted sentence, for the expression of an unspoken idea, and in other situations (see Czech Spelling Rules), the longest type of dash is used, which is written in the source text as three characters **dash** (such as ~Another term — however it may seem insignificant — will be informally defined in the following paragraph.~). For the mathematical minus symbol, a different character is used. In  $\text{\TeX}$  system it is written as a normal minus symbol in the source text (thus symbol **dash**). The typesetting in the mathematical environment where the formula is surrounded by dollars will ensure that the correct output is generated.

The forward slash is written without spaces. For example, the school year 2008/2009.

The rules for writing abbreviations are set out in Czech Spelling Rules [1]. For other reasons, it is appropriate to have this book at hand.

## 4.1 What is a standard page?

Term *standard page* refers to the assessment of the extent of the work, not the number of sheets printed. From the historical point of view, it is the number of pages of manuscript written on a typewriter on special preprinted forms, with an average length of 60 characters per line and 30 lines per page of the manuscript. Because of the correction markers, line spacing 2 (every other row) was used. These data (the number of characters per line, the number of rows and the line spacing between them) do not determine the final printed result. They are only used for range assessment. One standard page is therefore  $60 * 30 = 1800$  characters. Images included in the text are counted in the scope of the written work approximately same as the amount of text that would produce the same size in the resulting document.

The approximate range of work in standard pages can be determined by the *Word Count* function in the Microsoft Word *Tools menu* by dividing the value *Characters (including spaces)* by constant 1800. Only the text written in the core of the work is included in the scope of work. Parts such as abstract, keywords, statements, content, literature, or attachments do not count towards the scope of work. Therefore, it is necessary first to select the core of the work and then have the number of characters counted for you. You can estimate the approximate range of images manually. Similarly, you can use OpenOffice. When using L<sup>A</sup>T<sub>E</sub>X, the situation is a bit more complicated. For a rough estimate of the number of standard pages, you can use the sum of sizes of the source files of the work divided by a constant of about 2000 (normally we would divide by 1800, but in the source files there are also commands which are not counted in the range). For a more accurate estimate, plain text from PDF can be extracted (for example, using the cut-and-paste or *Save as Text...* method and divide it by 1800.

## Chapter 5

# Conclusion

The final chapter includes an evaluation of the achieved results with a special emphasis on the student's own contribution. A compulsory assessment of the project's development will also be required, the student will present ideas based on the experience with the project and will also show the connections to the just completed projects.

# Bibliography

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# Appendices



## Appendix A

### Obsah přiloženého paměťového média

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## Appendix B

### Plakát

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