

Hints for Writing a Project Report or Thesis

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A project report or masters thesis is often the first scientific document students write under the guidance of a supervisor. Scientific documents follow a rather strict formal outline to help to convey the demanding content. This leaflet summarizes the most important hints for writing such a document and should help to successfully complete your project work or master thesis at the Pervasive Computing group.

Basics:

- The project report or thesis presents the results of your (tedious) work. In most cases this document is available to a much larger audience than your work (experiment, prototype etc.). Thus, the quality of your work is often evaluated based on your document only. **You should put every effort in preparing and writing your thesis!**
- **Start early with your writing!** Do not wait until your practical work (project, implementation etc.) has been concluded. Plan your document right from the beginning and fill in parts over time.
- **Document your progress** throughout the whole project or master thesis. These notes, reports or protocols help in your writing process. This is especially true when you do research on the state of the art or related work. Without detailed notes most parts of the literature study must be conducted again at the time of writing the corresponding parts of your thesis

Formal outline:

The most important part of a scientific work is their content. However, the content must be communicated to a potential reader. A strict formal outline is a precondition for an effective communication. The general outline of a project report or master thesis looks like the following:

- Titlepage [template]
- Abstract German (100-300 words) [optional]
- Abstract English (100-300 words)
- Acknowledgements [optional]
- Table of Contents
- List of Figures [optional]
- List of Tables [optional]
- Introduction
- Main text
- Conclusion
- Appendix [optional]
- Bibliography

The introduction is the beginning of the actual text. It presents the *context* and the *motivation* of this work as well as the problem tasks and a brief outline of the remainder of the document. The main text often starts with a review and discussion of the *state of the art* and *related work*. The main text describes the *methods, design, implementation* and the achieved *results* (including a *discussion*) of your work. The main text is typically organized in multiple chapters. The conclusion includes a brief *summary* and an *outlook* on future work. All cited literature is enlisted in the bibliography.

Some Hints:

General:

- **Consistent terminology/symbols:** Use the same terminology for the same concept throughout your thesis. This is especially true for symbols in your equations.
- **Abbreviations:** Before you use an abbreviation you should introduce it, i.e., write the term and put the abbreviation in parentheses afterwards. Avoid abbreviations in the title and chapter/section headings (unless they are known for a general audience).
- Write complete sentences in the running text. Use some formatting for enumerations such as (i), (ii), bullets etc.
- You can write your thesis either in German or English. The title page should be in German (except for the title) – adapt the template. Carefully proofread your thesis before you submit it. When you write in English as a non-native speaker use short sentences. Try to write in active voice. When you write in German avoid using „ich“ and „wir“, respectively. Passive voice is more common in German.

Figures and Tables:

- All figures and tables must be enumerated by unique identifiers. Write a concise caption for every figure and table.
- All figures and tables must be referenced in the running text (e.g., Figure 3 shows a...)
- Watch for the font size in the figures and tables.
- Label the axis of the diagrams (including units)
- The meaning of the columns and rows in tables must be clear (put headings in the appropriate places)

Equations:

- Mathematical equations can be given either in the running text or in a separate „block“.
- “Blocked” equations can be enumerated by unique identifiers and referenced in the running text. (cp. “Figures and Tables”).
- Every mathematical symbol (e.g. letters etc.) must be explained.

Bibliography:

- Literature is cited in the running text typically **by numbers in squared brackets**. Note that it is also possible to use other unique identifiers such as combination of the authors' initial letters and the year of publication. LaTeX and BibTeX provide different formatting styles for the bibliography (“bibliographystyles”)
- **Provide complete bibliographic data.** As a simple rule - every entry in the bibliography should consist of the following elements: author(s), title, booktitle/title of journal, volume, issue, page numbers, publisher and year.
- **Format the Bibliography as defined by “standard” style guides such as the IEEE style guides.** Using the standard LaTeX bibliographystyles such as “plain”, “abbrv” or “unsrt” is also fine.

Footnotes:

- Footnotes are numbered consecutively and are positioned at the bottom of the page where the reference appears.
- Footnotes are referenced in the text with superscript numbers.

Basic Formatting Style:

A basic formatting style is proposed as follows:

- Fontsize of text: 11pt
- margin left/right/above/below: approx. 3 cm
- pagination

We strongly encourage you to write your report or thesis using LaTeX. In this case you should use our template for a quick start.