

Instructions for scientific theses

This document provides instructions for the process of creating and writing a bachelor or master thesis at the Lehrstuhl für Informationsübertragung (LIT).

These instructions include recommendations and regulations regarding

- organization and style of the thesis itself
- presentations in the process of the thesis

1 Presentations during the process of the thesis

During the lecture period a weekly seminar for thesis students is held at the Lehrstuhl für Informationsübertragung (usually Tuesday, 2.30 pm, room N6.17). Students are supposed to participate at this so-called WKR (german: Wissenschaftliche Kaffee-Runde, scientific coffee break). During the lecture-free period, meetings will be held if required. An invitation is send to the students by mail.

Students are obliged to give two or three (short) presentations during the course of a bachelor or master thesis, respectively.

1.1 Introduction

Short presentation of the topic of the thesis and description of the envisaged approach.

date: as soon as possible after handout of the thesis

duration: **5 to max. 10 min** oral presentation

number of slides: 4 to max. 6

1.2 Intermediate presentation (only master thesis)

Brief review of general topic, overview of state of work, draft of thesis outline, open problems.

date: in the middle of the course of the thesis

duration: **approx. 15 min** oral presentation

1.3 Final presentation

Compact presentation of achieved results including short review of the points covered in the prior presentations. Depending on course regulations, the final presentation is a mandatory part of the thesis or formally a separate academic record.

date: after handin of the thesis.

duration: **30 min** oral presentation

number of slides: 12 to max. 16

1.4 Additional presentations

If during the course of the thesis novel results or open problems should be discussed within the group, additional (short) presentations can be scheduled.

1.5 Additional advices

- Style files for compiling the presentation in \LaTeX are available from the supervisor.
- Slides should be clear and use sufficiently large font size (especially in plots and figures and their labels).
- Colors should be chosen beamer-compatible (especially green and yellow should be avoided)
- Thesis title, student name, supervisor, and date of presentation should be given on the first slide.
- Handouts should be prepared (four slides per A4 page, supervisor prepares copies)
- Interposed questions by the audience during the talk have to be expected. Students are encouraged to actively participate at discussions.
- Demonstrations should be announced before the talk. The duration required for the demonstration does not count to the actual duration of the oral presentation.

2 Writing the Thesis

2.1 Technical advices for writing the thesis

The thesis should be written using \LaTeX ; a style file is available from the supervisor.

Three copies have to be handed in (using an adhesive binding, no spiral binding), which are

- one copy in DIN A5
- two copies in DIN A4 (required for the corrections).

Copies should be single-sided and use black text color. The style of the thesis should be consistent with the previous theses conducted at the lab (see LNT library), in particular using a light-blue cover.

2.1.1 Diction, style, and grammar

Consistent usage of either american or british english is desired.

Proof-reading w.r.t. diction and grammer by a third person is recommended and does not conflict with the statement of authorship (see below).

2.1.2 Preliminary parts of the thesis

The first pages of the thesis have to be organized as follows:

- The title page of the thesis has to be printed on the cover.
- Following an empty double-page, the title page is copied again.
- The next page shows the thesis topic (scan of signed copy).
- The statement of authorship (see below) follows.
- One-page abstract of the thesis.
- Table of contents followed by the actual content.

Statement of authorship: The following statement must be included in the thesis and signed:

Ich versichere, dass ich die vorliegende Arbeit ohne fremde Hilfe und ohne Benutzung anderer als der angegebenen Quellen angefertigt habe, und dass die Arbeit in gleicher oder ähnlicher Form noch keiner anderen Prüfungsbehörde vorgelegen hat und von dieser als Teil einer Prüfungsleistung angenommen wurde. Alle Ausführungen, die wörtlich oder sinngemäß übernommen wurden, sind als solche gekennzeichnet.

[Datum, Ort und Unterschrift]

[student's address]

2.1.3 Organization of the main part

The main part of the thesis covers the presentation of the conducted work and the results. The following advices and suggestions might be helpful, but are not mandatory:

Exemplary outline:

1. Introduction: General problem description and motivation. State of the art.
2. System model: profound mathematical definition of the underlying system model and its assumptions
3. Own contributions (most likely separated into several chapters); What has been done in the work?
4. Summary and conclusions: What are the main findings of the thesis?
5. Outlook: Which open problems remain, and which new problems arise (to be addressed by subsequent scientific work)?

The outline should be discussed with the supervisor.

2.1.4 The appendix

Abbreviations: Abbreviations used in the text have to be defined. Usually, this is done by writing out the abbreviation at its first occurrence. In case of a large number of abbreviations, a tabular list of abbreviations should be included in the appendix. Consider using the L^AT_EX-package “acronym”.

List of symbols: It is recommended to include a tabular list of frequently used symbols and variables in the appendix.

Additional appendices: Parts disrupting the flow of reading, such as lengthy mathematical derivations or proofs, and those not required for understanding the main parts (Matlab and further source code, if relevant for the thesis) can be put in the appendix.

2.1.5 List of figures, tables, glossary, etc.

The given lists can complement the thesis, but are not mandatory.

2.1.6 Citations and references

A list of references has to be put at the end of the thesis. It provides a comprehensive overview on the used references. As stated in the statement of authorship, all parts given in exact wording or substantially have to be marked as such and the sources have to be referenced. Insufficient citations are a severe deficiency and may disqualify the work as a thesis.

Citations in exact wording are uncommon in engineering. Usually, reference of intellectual property is done by paraphrasing, i.e., the recapitulation of an (possibly mathematically formulated) idea in own words. To mark this as a citation, a reference to the respective sources is required (e.g., using cf. [Huber2012], or simply [Huber2012], where [Huber2012] points to the respective details of the source in the list of references) In some cases, it is useful to reference particular parts of the source, such as [Eq. (15), Huber2012].

The main objective of a list of references is to enable easy finding of the sources. This is achieved by a complete specification of the source details (title, author, magazin, publisher, year, pages, etc.). When using \LaTeX it is recommended to use BibTeX in combination with, e.g., JabRef.

For the choice of sources it has to be noted to consider only edited and objectively reviewed sources (i.e., books, journals, etc.). For this reason Wikipedia is not a valid source and does not meet the standard of scientific working. If references to web pages can not be avoided, the date of download must be given and a copy of the respective version of the page should be made available upon request.