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English Title of the Thesis

Deutscher Titel der Arbeit

Bachelor Thesis

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Declaration of Originality

I confirm that this assignment is my own work and that I have not sought or used inadmissible help of third parties to produce this work and that I have clearly referenced all sources used in the work. Further, I confirm that this print copy is identical to the digital copy.

Hamburg,

....

(Date) (Signature)

Erklärung

Hiermit versichere ich, dass ich diese Arbeit selbständig verfasst, keine anderen als die im Quellen- und Literaturverzeichnis genannten Quellen und Hilfsmittel, insbesondere keine dort nicht genannten Internet-Quellen benutzt, alle aus Quellen und Literatur wörtlich oder sinngemäß entnommenen Stellen als solche kenntlich gemacht habe und dass die auf einem elektronischen Speichermedium abgegebene Fassung der Arbeit der gedruckten entspricht.

Hamburg,

....

(Datum) (Unterschrift)

Foreword

Thanks to various people etc. (Only if absolutely necessary. This is not usual for student papers. Usually the preface can be omitted completely).

Contents

Frequently Used Formula Symbols and Abbreviations

$\vec{E}$	Electric field strength
EMV	Electromagnetic compatibility

1. Introduction

The introductory chapter shall contain in a few (≤ 4) pages:

- Motivation and introduction to the topic
- Aim of the work
- Outline of the work (one paragraph for each chapter), understandable for a reader who has not yet read the rest of the thesis.

The following chapters are intended to present the (e.g. theoretical) basics, your own contributions (in one or more chapters) and a retrospective summary. The individual chapters can be written in separate files.

1.1. Style

- Plausible order of subjects
  - Keep to logical thread, e.g.: Problem, boundary conditions, solution concept, solution
  - Avoid mind jumps

  Hint: First draft the outline of the thesis in pencil on paper, i.e. determine content and sequence and divide into chapters and sections.
- Concise, succinct wording
  - Avoid repetitions, empty phrases, unnecessary words
  - Avoid misleading choice of words
  - Avoid first person form: 'It has been measured' instead of 'I have measured'.
  - Avoid one-form: 'It was measured' instead of 'One can measure'
- Names/symbols
  - Do not change names and symbols for terms within the thesis, e.g. always use 'printed circuit board' and never 'board'.

  - Define abbreviations only once, at the first occurrence in the text, by indicating the abbreviation in brackets after the term to be abbreviated. Afterwards use only use the abbreviation. Example: 'Electromagnetic compatibility (EMC) means ... '
  - Do not use unnecessary indices and symbol additions.

- Clarification of authorship
  - Avoid formulations that do not clearly distinguish between the author's own authorship and that of others, e.g.
    '... the following method is applicable ... '
  - In case of foreign authorship instead: '... the following method [1, 2] is applicable ... ' or '... the following known method is applicable ... '
  - In case of own authorship instead: '... the following method is proposed here ... '

- Elevations
  - Formulate particularly important concepts, statements, and procedures as quotable. Formulate definitions, sentences, rules, and algorithms, respectively
  - Explanations to definitions, sentences, rules and algorithms can follow, i.e. here terms, quantities, procedures etc. can be introduced, before they can be quoted, procedures etc. can be introduced before they are explained.

  Example:

  Definition 1.1 (Linear two-terminal) *A linear two-terminal is a two-terminal for which holds: ...*

1.2. Formatting

1.2.1. Images/Tables

- Provide a caption for each image and a table caption for each table
- Examples of references to an image:
  ' ... according to Fig. 1.1 ... ' and ' Fig. 1.2 shows ... '
- Example of a reference to a table: '... in Table 1.1 are compiled ... '

- Insert images/tables after paragraphs, not after a colon. Leave the positioning to LaTeX. Optimize the positioning only as last step, when the text of the paper is already complete! Positioning is difficult when there is little text between the images. Optimize by omitting the options t(op), b(ottom), p(age) and forcing h(ere) with the option [h!]

Figure 1.1.: Image as jpg file

Figure 1.2.: Image with subsequently inserted text (overpic)

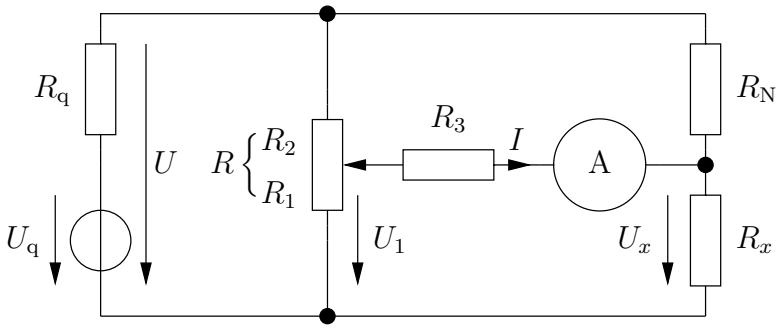
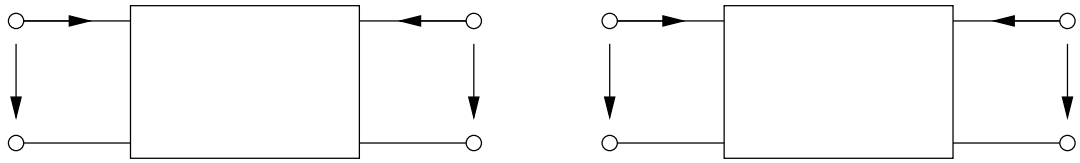


Figure 1.3.: Image generated with xfig

1.2.2. Equations

- Symbols for quantities and variables are always in italics, i.e. in math mode, e.g. $a = b + c$ or $U = R\,I$.



(a) Caption01 (b) Caption02

Figure 1.4.: 2 Images

Table 1.1.: Input parameters

Designation	Value
L_1	9μH
L_2	8μH

- The following must *not* be printed in italics. In formula mode, use `\mathrm{...}` to print:

  Euler's number e,
  the imaginary unit j,
  the differential symbol d,
  unit symbols including their prefixes (kV, mA),
  names of math. Functions ($\mathrm{si}(x) = \sin(x)/x$),
  as well as abbreviations in general, which stand for words (not quantities, variables).
  This also applies to indices!

- Use punctuation marks before and after equations, e.g. there must be a period at the end of an equation. a period at the end of an equation if a sentence ends with the equation.

- Arrange several independent equations one below the other, not side by side.

$$\underline{U} = \mathrm{j}\,5\,\mathrm{V} = \mathrm{j}\,5000\ \mathrm{mV} = 5000\,\mathrm{e}^{\mathrm{j}\pi/2}\ \mathrm{mV}\,,$$

$$\mu = \mu_\mathrm{r}\,\mu_0 = \text{const.}\,, \tag{1.1}$$

$$\mu_0 = 4\pi \cdot 10^{-7}\ \mathrm{Vs/Am} \tag{1.2}$$

$$\boldsymbol{A}\boldsymbol{x} = \boldsymbol{b} \tag{1.3}$$

$$\begin{aligned} i_C(t) &= \frac{\mathrm{d}Q}{\mathrm{d}t} = C\frac{\mathrm{d}U_C}{\mathrm{d}t}\,, \\ I_\mathrm{k} &= U_0/R_\mathrm{i}\,. \end{aligned} \tag{1.4}$$

- Reference to equation, e.g.: 'as (1.1) shows ...'

1.2.3. References

- Provide a bibliography at the end of the thesis: Collect bibliographical references in a separate .bib file or specify them in the bibliography environment.
- Each entry of the bibliography must be cited at an appropriate place in the text of the thesis.
- Literature reference e.g. '... solved by the method of Hampe [1]' or '... solved by an optimization procedure [3, 4, 5, 6]'.

2. Theoretical Foundations

Purpose of this chapter: The thesis can be read as a whole without the aid of further literature.

Compile here those fundamentals on which the work is based. Things that are subject of compulsory subjects of the study should not be explained in detail. Mention complicated contexts, which are used later in the work and make them plausible, but do not derive them in detail.

3. Chapter of own Contribution

Possibly several chapters in reasonable order.

4. Summary and Outlook

Summarize the work here in retrospect, i.e. briefly discuss ways, methods and briefly discuss the results. Terms introduced in the thesis may be used here (in contrast to the summary and the introduction).

A. Appendix

Place here (possibly also in further appendices) only such things, which are so special and extensive that they would hinder the flow of reading if they were dealt with in the regular chapters. The work must be readable and plausible even if you ignore the appendix. Do not include things in the appendix that are not of interest to the reader anyway, but omit them or include them as a separate file on the data medium.

Example of contents of appendices:
Own, longer, non-trivial derivations, intermediate calculations or formula compilations, tables with measurement results, source code

Examples of content to be omitted altogether: Longer program printouts, long lists of unevaluated data.

A.1. Source Code

Only attach source code that is of interest to the reader. Further only on data medium.

Print source code verbatim:

```
function out = sum(In1)
  x=0;
  for a = 1:In1 % loop
    x = x+a;
  end
  out=x;
endfunction
```

Bibliography

[1] M. Hampe. *Analyse und Optimierung des Spannungsversorgungssystems mehrlagiger Leiterplatten*. PhD thesis, Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, 2006.

[2] H. Hugo. Untersuchung zu xyz. In *IEEE Int. Symposium on xyz*, pages 450–454, Chicago, 2005. IEEE.

[3] M. Hampe and S. Dickmann. Single Summation Expression for the Impedance of Rectangular PCB Power-Bus Structures Loaded with Multiple Lumped Elements. *IEEE Transactions on Electromagnetic Compatibility*, 49(1):58–67, Feb. 2007.

[4] O. Zinke and H. Brunswig. *Hochfrequenztechnik I - Hochfrequenzfilter, Leitungen, Antennen*. 5. Auflage. Springer-Verlag, 2000.

[5] www.wikipedia.de/wiki/gleichstrommaschine, version 16:03, 08.10.2009.

[6] M. Mustermann. Untersuchungen zur EMV von Gleichstrommotoren. Master's thesis, Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, 2005.