

Lehrstuhl für Energiesysteme und Energiemanagement
Univ. Prof. Dr.-Ing. W. H. Wellßow

Erwin-Schrödinger-Straße
D-67663 Kaiserslautern

Tel.: +49 631 – 205 – 2021
Fax: +49 631 – 205 – 2168

wellssow@eit.uni-kl.de
www.eit.uni-kl.de

Guideline for Writing Student Theses

Seminar-, Study-, Diploma-, Bachelor and Master Theses

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1 Fundamentals

1.1 Purpose and Scope

The present guideline shall support students in formal designing of scientific theses. It subserves purposeful and clear presentation of results according to internationally admitted scientific standards and thereby allows content verifiability.

The guideline is obligatory for all kinds of theses (master and bachelor theses, Diplom-, Studien- und Seminararbeiten) drawn up at the Chair for Energy Systems and Energy Management.

1.2 Determination of topic

The topics for Seminararbeiten are determined by the chair's seminar planning.

The topics of Studien- und Diplomarbeiten as well as bachelor and master theses are result of the chair's current research activities and suggested by the supervising research assistants. Nevertheless topic suggestions from students are welcomed.

The editing of Studien- or Diplomarbeiten / bachelor or master theses in industry (so called external theses) are treated restrictively in the students' interests. Due to the examination character of theses failures have serious consequences for the students. External theses are therefore only supplied if

- a cooperation with the company exists, agreed per contract, or
- a common R&D project with the company is run,
- the functional supervision of students is qualitatively and quantitatively guaranteed.

Well-founded exceptions of the rule are possible.

1.3 Working and deadlines

Generally, student theses must

- be drawn up by the student him-/herself,
- indicate an independent processing of the topic and
- carry out a gain in knowledge beyond state of the art.

For this, usage of up-to-date technical literature is essential. However, plain reproduction and collection of citations is not satisfying. Exceptions are theses explicitly marked as literature research.

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1 Fundamentals

Student theses have to be set up as projects and processed under the usual rules of project management. Further information are given in the lecture "Managementwissen für Ingenieure" (in German).

At process begin a project plan must be created, which describes work packages with sufficient level of detail and which includes deadlines and quality gates. The project plan must be coordinated with the supervising research assistant and released by him/her. An outline proposal for the manuscript can normally derived out of this project plan.

The agreed handover date must be adhered in every case! Extension of time is only possible within the limits defined by Prüfungsamt and will only be approved exceptionally if student does not take responsibility for the delay.

In the student's interest the thesis should be tendered early enough to the supervisor, so that potential corrections can be implemented before the Prüfungsamt deadline. For that a period of two weeks must be planed. The exact dates have to be timed with the supervisor.

To avoid needless extra work, the student should tender single chapters continuously during processing phase, which are revised by the supervisor. This allows a continual quality check and thus an improvement of the student's performance already during processing phase.

Furthermore the student has to defend his/her thesis in a colloquium presentation open to university members and students. For this a maximum half-hour's presentation must be prepared. The presentation as well as the answering on questions in the following discussion are rated and influence the final grade. The date for colloquium presentation is defined by the supervisor.

For scientific work knowledge about the state of the art and publications of other teams or authors is essential. Therefore the supervising assistant gives – so far as it is possible – advices regarding relevant literature, however a literature research can be needed. The relevant citations have to be worked through.

A close cooperation with the supervising research assistant is essential, which includes regular reporting about current state of thesis, discussion of intermediate results and definition of further proceeding.

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1.4 Linguistic style and textual structuring

The language of scientific studies is characterized by clarity, understandability as well as brief and scientific diction. The use of complicated multi-clause sentences, verb-derived nouns, passive and subjunctive shall be avoided as well as use of colloquial language and industry slang.

A clear and for the readers understandable wording requires that the author is fully aware of his/her own argumentation and its logical structure.

The thesis can optionally be written in German or English. In case of doubt the supervising scientific assistant decides. For orthography, grammar and punctuation of German-language theses the rules of the Duden Dictionary applies. For English-language theses the Merriam-Webster's Collegiate Dictionary takes effect.

It cannot be expected from students writing not in their mother tongue that grammar and used vocabulary is flawless.

Nevertheless highest possible accuracy is expected from all students. Especially spell and grammar checkers, as offered by modern text processing programs like Microsoft Word, have to be used. The students are explicitly requested to check all complaints of these checkers carefully and to revise their texts in a way that the checkers do not indicate any more complaints. Theses lacking this care will not be accepted.

Special care is asked for the usage of terms and formula symbols. They are a necessary tool of every scientific discipline and their correct and standard-compliant usage is mandatory to avoid misunderstandings. In case of uncertainty regarding the use of terms and formula symbols, relevant IEC and DIN EN standards or relevant textbooks have to be consulted. For clarifying regarding IEC standards there exist the "International Electrotechnical Vocabulary" (IEV). It is freely available in the web under <http://www.electropedia.org/>.

If new terms are created they have to be uniquely defined and used consistently in the whole thesis. Take care that a term consists of a designation and the related definition.

A glossary of used terms and formula symbols is recommended, it should be put in front of the appendix.

1.5 Formale Gestaltung

The style sheets are identical for all theses. The formatting of this document can be used as template.

- Margin:
 - Left: 3 cm
 - Right: 2 cm
 - Top: 3.5 cm (incl. possible header)
 - Bottom: 2.5 cm (incl. possible footer)
- Header: The usage of a header, which includes the current chapter heading and the page number, is recommended.
- Font: "Times New Roman" or "Arial", also "Calibri" and "Cambria".
- Font size:
 - Main text: 12 point (Times New Roman) or 11 point (Arial)
 - Footnotes: 10 point (Times New Roman) or 9 point (Arial)
- Alignment: Justification
- Line distance:
 - Main text: 1.5 lines
 - Footnotes: 1.0 line
- Heading: Headings have to be marked via formatting (e.g., bold print and font size). Microsoft Word includes style sheets for headings which can be used.
- Syllabification: Use of syllabification is explicitly required. Please keep in mind that automatic syllabification does not always work flawlessly. Soft hyphens (Ctrl + "-"), which become active at line break, can be a useful tool.
- Text passages like "p. 8" or "Fig. 4" must not be separated. This can be achieved by using non-breaking spaces (Ctrl + Shift + " ").
- Figures: Figures have to be centered, uniquely described and marked with figure number and caption (centered and bold with distance 6 point below the figure). A consecutive numbering by chapter after "Fig. x.yy: exemplary heading", whereas "x" is the chapter number and "yy" the consecutive numbering within the chapter. In the text references on figures are written as "fig. x.yy".
- Tables: Tables are no figures! They must get their own numbering system in the style of the figure numbering system. However table number and table heading are located above the table. Suggestions for formal design of tables is given in appendix 1.

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- Page numbers:
 - Title page: no page numbers
 - Consistent Arabic numerals
- Sheets:
 - DIN A4
 - Single-sided printed
 - Left bound

1.6 Extend and Copy

1.6.1 Diplomarbeiten and master theses

Diplomarbeiten and master theses shall consist of 60 to 80 pages. This includes only introduction, main part and final part without lists and appendix. The theses must be bound (pasted).

1.6.2 Studienarbeiten and bachelor theses

Studienarbeiten and bachelor theses shall consist of 50 to 60 pages. This includes only introduction, main part and final part without lists and appendix. Bachelor theses must be bound (pasted).

1.6.3 Seminararbeiten

Seminararbeiten shall consist of 20 to 40 pages. This includes only introduction, main part and final part without lists and appendix. Also the figures and tables used in the main text do not belong to the expected extent of pages. For Seminararbeiten ring binding is satisfying.

Within the stated period, all theses have to be delivered as duplicates to the responsible supervisor, to the secretary, or to the Prüfungsamt, depending on thesis type. Additionally, the thesis must be delivered as electronic document. Internet sources have to be burnt on CD or DVD and enclosed with every printed exemplar in a pasted paper CD cover.

2 Aufbau der Arbeit

2.1 Components

A thesis consists of these components (in that order):

- Title page
- Inner title page
- Declaration of academic honest
- Dedications or acknowledgement (if wanted)
- Abstract and executive summary (one page each in German and English)
- Table of contents
- Introduction
- Main part
- Final part
- List of literature, list of sources (if needed)
- List of abbreviations
- List of symbols
- List of tables
- List of figures
- Appendix

2.2 Title page

The title page is made available by the Fachbereich's secretary and has to be used. Fig. 2.1 shows an example. The information provided there are mandatory.



Fig. 2.1: Example of title page

2.3 Inner title page

The inner title page shall be located on the right of the first double page. It includes the following information:

Title of Thesis

Kind of thesis

[Seminararbeit, Studienarbeit, Diplomarbeit, Bachelor Thesis, Master Thesis]

Author: (Name)

Matriculation Number

Handover Date

Chair for Energy Systems and Energy Management

Examiner: Prof. Dr.-Ing. Wolfram H. Wellßow

Supervisor: (Name)

2.4 Declaration of academic honesty

All theses must include a signed declaration with the following wording (with DPO for diploma degree course, BPO for bachelor degree course, MPO for master degree course):

"Hereby I declare that the present thesis is drawn up after DPO/BPO/MPO Elektrotechnik und Informationstechnik by myself without help of third parties but the support of my supervisor, that all used sources and tools including the internet are completely and exactly mentioned, and that everything is marked which is taken unchanged, shortened or analogous from other literature."

Place, Date

Signature

2.5 Table of contents

For creation of the table of contents (TOC) it must be decided if a provided content is important enough to create an own chapter or section. As a general rule, a section should not be shorter than a half page.

The headings shall appropriately announce the following text and must be content-related excepting introduction and final part. They should be written in a uniform style, whole sentences have to be avoided. Furthermore the following aspects must be considered:

- The outline should include not more than 3 tiers, in exceptional cases 4 tiers are valid.
- Text parts of the first tier are "chapters".
- Text parts of the second and deeper tiers are "sections".
- The outline must be structured with numbers. Chapters get the numbers 1, 2, 3 etc. without a point, sections the numbers 1.1, 1.2 etc., 1.1.1, 1.1.2 etc.
- On the right of the outline elements the page numbers of the beginning of the related chapter or section must be given.
- Chapter headings must not be identical to the thesis title. The same holds true for the relation between main titles and subtitles. Such a outline would indicate that the other outline elements would not be needed.
- The headings within text and the outline elements in the TOC must be identical.
- If a chapter is separated into sections at least two sections must be included. The same holds true for deeper outline tiers.

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- If a chapter is separated into sections all text parts must be assigned to sections, i.e., text parts directly below a chapter heading is not allowed if a section heading follows. The same holds true for deeper outline tiers.
- For reasons of clarity it is recommended to indent the outline elements within the TOC.

2.6 Abstract

The abstract shall represent the objective, the main aspects of the approach and the main results of the thesis. It shall especially support the reader on the decision upon taking a deeper look into it, depending on the reader's context.

You can write your thesis in German or English language. The language is fixed when registering the thesis. Always add abstract and title both in German and English language.

2.7 Introduction

The introduction fills out an own chapter and shall show the following aspects:

- Task and objective of thesis.
- Why, for what and/or for whom the objective is relevant.
- Which adjacent tasks are not approached with arguments.
- State of the art regarding the thesis topic.
- Approach.
- Order and brief description of chapters.

The introduction is the mental link between topic and outline. Considering the always high number of possible approaches, the introduction contains the arguments for the chosen approach.

During thesis development it should always be checked if the task is still processed and the approach is still followed (so-called golden thread).

2.8 Main part

The main part contains the actual solution of the task. The argumentation has to be logically and consistently structured, objectively phrased and has to be outlined in a way that it is fully understandable. For this, all information for thesis verification must be provided.

For engineering theses typically the following process steps have to be depicted: input data, basic assumptions including possible neglects, approach, self developed calculation methods

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(as needed), execution of calculation, analysis results including their verification and interpretation.

For explanation of argumentation, figures and tables are essential. However they must be mentioned and explained within the text. If necessary, figures have to be provided with keys, so that the figure can also be understood without reading the text. Legibility, precise axis labels and a standard-compliant structuring of tables are of great importance. If the figure or table is taken from a source, then the citation has always to be put directly below it.

Mathematic formulas and derivations are essential in engineering sciences. They should be understandable and sufficiently explained within the text. Standard-compliant usage of formulas and indexing are of great importance. Equations must be numbered continuously, while a two-tier numbering consisting of chapter number and equation sub number (starting at 1 for every chapter) is recommended. Equation numbers must be set into brackets. In the text, equation numbers must be used for referencing. The used variables have to be defined at first usage and additionally included into the list of symbols.

To ensure the thesis' readability and a coherent argumentation flow, it is recommended to move extensive representations of input values, mathematic derivations and simulation results to the appendix. However the appendix must be referenced and sufficiently explained within the main text.

2.9 Final Part

The final part is dominated by the content of the main part. It can have the character of a summary, final reflection, prospect, or criticism, also a combination of these components.

It is expected that the author's scientifically founded position is clarified.

For balancing, the discreet wording "in the author's opinion" shall be used instead of wordings like "in my opinion" or "I hold the view". "I" or "we" shall be avoided, in German texts also the indefinite term "man". The same holds true for empty phrases like "of cause" or "needless to say".

Introduction and final part shall give a coordinated frame in a way that the reader can coherently understand the topic's quintessence.

2.10 Lists

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If a thesis includes several figures and/or tables, in each case a separate list with page numbers has to be created.

The same applies to abbreviations, (formula) symbols and terms. They must be defined at their first appearance in main text and completely be included in the corresponding list. Only exceptions are commonly known abbreviations like e.g. "BRD", "VAT", "e.g.", "i.e.", "et al."

Often used terms can be abbreviated. They are written out at first usage, and the abbreviation follows in brackets, e.g. high voltage (HV). Hereafter the abbreviation should be used.

2.11 Lists of literature

The list of literature must contain all literature which is referenced in text and must not contain literature which is not cited.

There are two options for sorting:

- Numbering in the order of appearance in thesis. If using this option, the numbers must be in square brackets in both text and list.
- Alphabetic sorting by the authors' and editors' surnames. In case of multiple literature per author/editor: additional sorting by release date. If using this option, references in text are marked with the author's name (and year if needed) in slashes. Further information in section 3.2.

The decision is dedicated to the student.

Below an exemplarily list of literature formatting is shown. A different approach is valid. It is important to take care of a consistent and uniform reference style. The bibliographic information must be complete.

- Monographs:
Surname, first name: Full title, edition (if not first). Publisher, place (year). ISBN or ISSN number.
Example:
Nelles, Dieter: Netzdynamik. VDE Verlag, Berlin (2009). ISBN 978-3-8007-3016-2.
- Collective and editor volumes:
Surname, first name (of author!): Title of article/chapter, in: Surname, first name (eds.): Full title, publisher: Place (year), p. x-y (page reference of article/chapter).
Example:

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Oeding, Dietrich: Kurzschlußströme und ihre Berechnung, in: Hosemann, Gerhard (eds.): Hütte, Taschenbücher der Technik, 9. edition. Springer Verlag, Berlin (1988), p. 149-204.

If information about publishing date or publisher is not available, n.y. (no year) and N.N. (nomen nescio) can be used respectively.

- Articles in journals:

Surname, first name: Title of article. Name of journal, volume (year), issue no., p. x-y (page reference of article).

First names may be abbreviated.

Example:

Pitz, V.; Wellßow, W.H.: Sicherung der Versorgungsqualität in Europa. Elektrizitätswirtschaft 101 (2002), issue 12, p. 22-25.

Articles from consumer publications and daily newspapers like Süddeutsche Zeitung, FAZ or the like are generally not suitable as source.

- Conference contributions:

Surname, first name: Title of contribution. Conference name, contribution number (if available) (year), place of conference. ISBN or ISSN number of conference volume (if available).

First names may be abbreviated.

Example:

Roth, M.; Schneider, A.; Wellssow, W.H.; Schnettler, A.; Schwan, M.; Zickler, U.: Risk-based Asset Management for Substations in Distribution Networks Considering Component Reliability. International Conference on Large High Voltage Electric Systems (CIGRE), report B3-107 (2006), Paris.

- Internet sources:

For internet sources at least the following information must be given: author and/or editor ("ed."), title of article, exact internet address and date of last query.

Surname, first name: Title of article, in: (ed.). URL: exact internet address, date of query.

Example:

Pluntke, Helge: Einfluss von Speichern auf das deutsche Übertragungsnetz, in: Technische Universität Kaiserslautern, Fachbereich Elektro- und Informationstechnik. URL: <http://www.eit.uni-kl.de/esem/forschung-entwicklung/bereich-uebertragungsnetze/energiespeicher>, as of: 15 February 2013.

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The information can be expanded by the web page names and relevant outline points. Internet sources like "Wikipedia" are generally not suitable for founded scientific theses. If they are used anyhow, the information must be proven carefully.

- Doctoral and professorial dissertations:

Surname, first name: Title of dissertation, name of university, place of university, name of chair (year).

Wellßow, Wolfram Heinz: Ein Beitrag zur Zuverlässigkeitsberechnung in der Netzplanung. Dissertation, Technische Hochschule Darmstadt, Institut für elektrische Energieversorgung (1986).

Furthermore it must be paid attention how the cited dissertation was published – as separate essay, in a journal, in a volume or as monograph. Depending on that relevant information has to be added.

- Standards as e.g. the DIN standards shall be included in the list of literature in the following style:

Name of standard: Title with subtitle, short title, (date of publishing). Publisher, place.

Example:

DIN EN 60909-0 VDE 0102:2002-07: Kurzschlussströme in Drehstromnetzen Teil 0: Berechnung der Ströme, (2002-07). Beuth Verlag, Berlin.

- Acts, EU Directives, EU Regulations:

Abbreviated names of acts, EU Directives and Regulations: Complete reference according to the official publication with date, exact citation with release date, volume number and page number.

Example:

Energiewirtschaftsgesetz - EnWG: Gesetz über die Elektrizitäts- und Gasversorgung dated from 7 July 2005, BGBl. I p. 1970, as amended 5 December 2012, BGBl. I p. 2730.

2.12 List of sources

The list of sources includes all sources which do not fulfill the requirements for citations and therefore not included in the list of literature. Further information in chapter 3.

The structure of the list of source shall be identical to that of the list of literature.

2.13 Appendix

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2 Aufbau der Arbeit

Extensive data, mathematic derivations, programming code, calculations examples etc. can be moved to the appendix if referenced in the text. For a reference the sole notice "see appendix" is not sufficient, the text shall also give an explanation of the information found in the appendix.

The appendix can consist of several chapters, which have to be numbered consecutively. The chapter headings shall indicate the appendix, e.g. "Appendix 1: Table of Grid Nodes".

3 Citation and references

3.1 General rules

Content from external sources can generally be used, for depicting state of the art there are even essential. The content can be reproduced literally, shortened, or analogously.

Content from external sources can be texts, graphics, tables, pictures, audio documents, software, experiment set-ups as well as information from interviews, correspondence, or phone calls (no claim to completeness). The type of source is unimportant, e.g., if texts are used as electronic or printed documents.

In cases of self-conducted interviews, phone calls and correspondence the following information must be documented: name of the contacted person, his/her position in the company/in the institution, and the date of conversation/correspondence. The specific layout is dedicated to the student, however the chosen type must be applied consistently. It is important that the student has the conversation/correspondence partner's agreement prior to usage.

Please note the following principles:

- Contents from external sources must completely be marked as such. It must undoubtedly be recognizable from where and in which extent the author has used the external sources. Therefore a complete list of literature and precise references are needed.
- Literally citations shall be taken from the original source.
- All publicly available external sources, like books, conference contributions, articles in journals, information from the internet have to be included in the list of literature/list of sources.
- All not publicly available sources must not be included in the list of literature and are only to be cited with footnotes. This applies also for external theses, since as examinations they are not publicly available. If needed, additional to the list of literature a list of sources has to be set up.

Citation has the following functions:

- To mark information taken from external sources,
- To proof that the author is familiar with the relevant studies from other authors and oversees state of the art,
- To extend or to carry forward the own thread,
- To introduce a discussion with dissenting opinions,

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- To highlight or to confirm the own position,
- To affirm own theories by recognized authorities and scientific studies from others.

Guideline:

- Those who cite too few raise suspicions of faking originality, or that they were not concerned enough with state of the art. Especially it is unscientific to cite only or mainly literature from the own chair.
- Those who cite too much raise suspicions that they want to boast with literacy, or that they did not contribute own shares.

Theses which break these rules significantly or even intentionally are rated as plagiarism, which has the effect that the examination is rated as ultimately failed.

3.2 Technique of citing

For engineering theses the short citation style is internationally accepted, i.e., the reference is directly located in the main text. For this purpose a list of literature and a list of sources (where required) at the thesis ending is needed. Depending on the chosen type of sorting in the list of literature, every title is referenced either with numbers in square brackets or with the author's name.

- Example for sorting by number:
[4, S. 8]

Page reference:

- For sources with only few pages like conference contributions or essays, the page reference may be omitted. The same holds true for sources where page references are not possible, e.g., internet sources.
- • Is a citation referenced on two or more consecutive pages, the page reference will be extended in the following way: [4, S. 8 ff] with ff. meaning "folio" (Latin for "on the (next) page"). This citation is referred to the pages 8 and 9 and [4, S. 8 ff] referring to page 8 and an undefined number of following pages.

3.3 Literal and analogous citations

There are two ways of citing – literal or analogous citations.

In both cases it must be distinguished if only one sentence or several sentences are based on the cited source. In the first case, the reference is located left of the period at the ending of the

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sentence. In the second case, it is located right of the last period at the ending of the text segment.

3.3.1 Literal citation:

Literal citations are rather unusual in engineering. In the following four cases it is allowed to cite literally:

- 1) If the regarding content cannot be phrased better and especially shorter.
- 2) If a term shall be defined.
- 3) For textual critical discussions, i.e., if the author's statement must be analyzed and interpreted.
- 4) For foreign literature as a supplement to a analogous transmission, so that the reader can proof if the author has correctly translated the text.

As a consequence, the literal representation should be kept as short as possible. Literal citation of several pages must be avoided in every case.

General rule: Literally taken over text passages have explicitly be marked as such, i.e., they must be put in quotation marks. Shall a sentence not completely be reproduced, the omission has to be displayed with ellipses (...). The omission may not change the text meaning.

The original text sources have to be reproduced unchanged, i.e., incorrect or outdated orthography must be taken over.

3.3.2 Analogous citation

The analogous citation shall only reproduce the message and not the author's words. It is indicated by a corresponding reference, with a prefixed "cf." (abbreviation for "confer").

3.4 References in Footnotes

Sources which cannot be listed in the list of literature are marked with footnotes. It is recommended to locate the footnotes at the page bottom (and not at the ending of the whole thesis) to ensure clarity and easier checks. The footnotes shall be numbered consecutively from front to back. A footnote can also contain further information and references to complementary literature from the list of literature.

Footnotes are sentences, therefore they always begin with a capital and end with a period.

4 Recommended literature

The advices for creating theses given in this document are limited to the crucial problems. For those who want to deal more intensive with the technique of scientific working and the shape of scientific studies, they will find a various number of guides, e.g. (in German):

- [1] Becker, Fred G.: Anleitung zum wissenschaftlichen Arbeiten. Wegweiser zur Anfertigung von Haus- und Diplomarbeiten. 3. revised edition, J. Eul, Bergisch-Gladbach/Köln (2004).
- [2] Brink, Alfred: Anfertigung wissenschaftlicher Arbeiten – Im Bachelor-, Master- und Diplomstudium. 3. revised edition, Oldenbourg Wissenschaftsverlag, München/Wien, (2007).
- [3] Corsten, Hans; Deppe, Joachim: Technik des wissenschaftlichen Arbeitens. 3. edition, Oldenbourg Wissenschaftsverlag, München/Wien (2008).
- [4] Rückriem, Georg; Stary, Joachim und Franck, Norbert: Die Technik wissenschaftlichen Arbeitens – Eine praktische Anleitung. 14. edition, UTB Verlag, Stuttgart (2007).
- [5] Theisen, Manuel R.: Wissenschaftliches Arbeiten: Technik, Methodik, Form. 13. edition, Vahlen Verlag, München (2006).

For working with Microsoft Word the following sources can be useful:

- [6] Lambrich, Sabine: Microsoft Word 2010 auf einen Blick, Microsoft Press, O'Reilly Verlag, Köln (2010), ISBN: 978-3-86645-871-0
- [7] http://www.vsxpress.de/downloads/word2007hb_kap14.pdf
- [8] <http://rrzk.uni-koeln.de/fileadmin/zustaendigkeiten/kurse/Kursunterlagen/Word2003.pdf>

5 Examples

5.1 Tables

Tables are built of rows and columns. The first row of a table generally includes the regarding column heading. Take care to keep columns homogeneous, i.e., in the rows of one column there must not be different types of content. E.g., column 1 could include all names of variables, column 2 the units, and the following columns the values for different periods. Table 6.1 shows an example.

Aggregation of cells of a column is valid, also aggregation of cells of column headings if several headings are hierarchically arranged. Table 6.2 shows an example.

The decision if the entries in columns are aligned centered or left is dedicated to the students' convenience and preference. The same holds true for frames and stroke width. Numeric values shall generally be arranged with decimal tabulators.

Tab. 5.1: Heading of table 1

Heading Column	Shared Column Heading	
	Heading Column	Heading Column
Heading Line	Cell	
Heading Line		

Tab. 5.2: Heading of table 2

Heading Column	Heading Column	Heading Column
Heading Line	Cell	
Heading Line		
Heading Line		

5.2 Figures

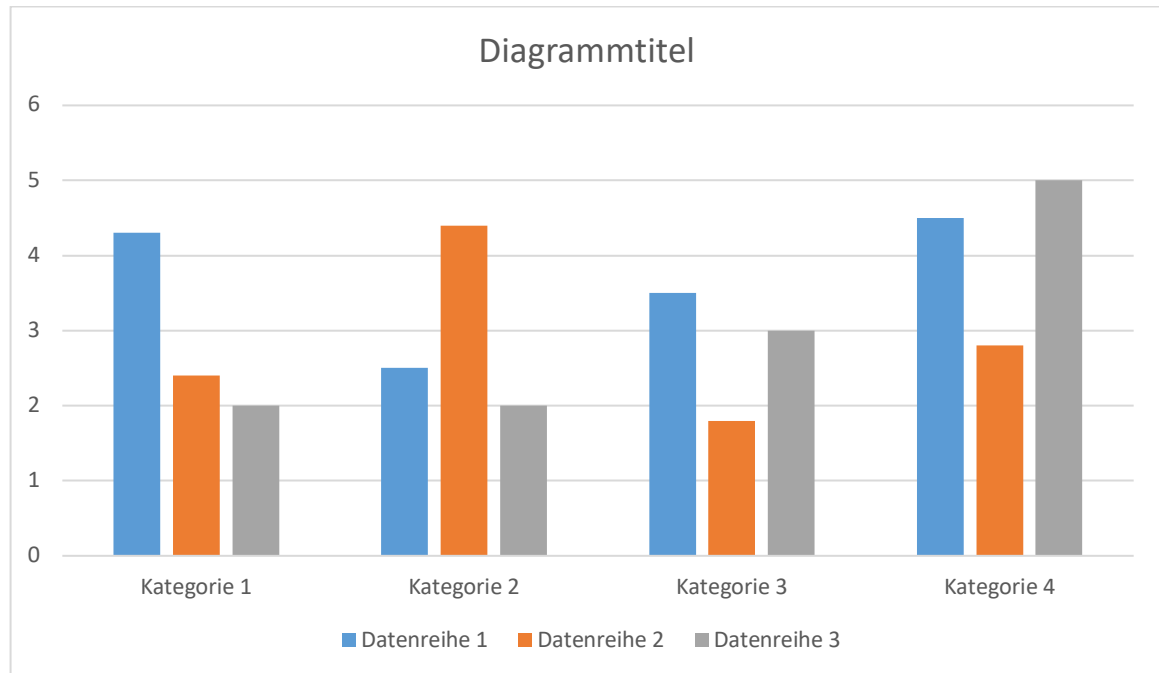


Fig. 5.1: Name of figure

5.3 List

- Point 1
- Point 2

5.4 Numbering

- 5) Number 1
 - a) Level 2
- 6) Number 2

5.5 Formulas

$$n = \frac{z^2 \cdot s^2}{e^2} \quad (5-1)$$

- n: Stichprobenumfang
- z: Aussagewahrscheinlichkeit (z-Wert)
- s: Empirische Standardabweichung
- e: Geforderte Genauigkeit

5 Examples

5.6 Footnote

Text for footnote¹.

5.7 Heading 2

5.7.1 Heading 3

5.7.1.1 *Heading 4*

Standard text

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua.

¹ Text of footnote

5 Examples

5.8 List of abbreviations

Abkürzung:	Begriff:
a	Jahr
BAS	BASF
BNetzA	Bundesnetzagentur

5.9 List of symbols

Variable:	Bedeutung:	Basiseinheit:
P_{Last}^{ij} :	Wirkleistung der Last	[Watt]
$P_{Residuallast}^{ij}$:	Wirkleistung der Residuallast	[Watt]
$P_{EE-Einspeisung}^{ij}$:	Wirkleistungseinspeisung von EE-Anlagen	[Watt]
$P_{sonstige}^{ij}$:	Wirkleistungseinspeisung von sonstiger Erzeugungsanlagen	[Watt]
i :	Betrachtungszeitpunkt	
j :	Netzknoten	
φ :	Phasenverschiebungswinkel	[°]

6 List of tables

Tab. 5.1: Heading of table 119

Tab. 5.2: Heading of table 219

7 List of figures

Fig. 2.1: Example of title page	7
Fig. 5.1: Name of figure	20

8 Appendix 1: Heading of Appendix

Content of appendix