

Style Guide

Style Guide for Bachelor and Master Thesis

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Universität Stuttgart

Institut für Straßen- und Verkehrswesen

Lehrstuhl für Verkehrsplanung und Verkehrsleittechnik

Summary

This manual provides advice for students preparing a bachelor or master thesis. It contains recommendations of the Chair for Transport Planning and Traffic Engineering on the structure and format of written papers. It states requirements for texts, figures and tables.

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1 Introduction

Students are expected to deliver a scientific work by writing a master thesis. This manual delivers answers to the most frequently asked questions with respect to the issuing of the written form and is intended to prohibit students from making formal mistakes that could impair the impression about an otherwise very good paper.

- Chapter 2 provides an overview of the contents of scientific papers and explains the most important elements.
- Chapter 3 provides important information on the format of the thesis. Chapter 3.1 refers to the template "Vorlage_Studentenarbeit_VuV.dotx", which is available on the homepage of the chair. Its use is recommended by the chair.
- Chapter 4 deals with the important topic of finding and using literature correctly.
- Chapter 5 provides information on the presentation of the thesis.
- Chapter 6 shows the grading scheme of the chair on which the grading of a student thesis is based.

To a certain extent, this manual follows the recommendations of Keller et al. (2008)

You find further information in the document Guidelines for Writing a Thesis at Faculty 2 https://www.uni-stuttgart.de/studium/studienangebot_assets/bauingenieurwesen/pdf/Leitfaden_Abschlussarbeit_Fak_02.pdf

2 Contents of a Master Thesis

A seminar paper respectively a master thesis must consist of the following elements:

- Title page
- English abstract or summary
- German abstract or “Zusammenfassung”
- Declaration on autonomy of work
- Table of contents
- Main part of paper
- List of tables
- List of figures
- References

The following elements may also be included in the paper:

- Acknowledgements
- List of abbreviations and symbols
- Glossary (Explanation of basic terms)
- Annexes (if necessary with a list of attachments)
- Index (not necessary as a rule)

The compulsory elements of the written work are described in the following chapters.

2.1 Title Page

The title page must contain the following information:

- Title of thesis
- Author of thesis
- Name of study program
- Supervisors of thesis
- Day, month and year of delivery
- Logo of the Chair (optional)
- submitted to
Universität Stuttgart
Institut für Straßen- und Verkehrswesen
Lehrstuhl für Verkehrsplanung und Verkehrsleittechnik

The author may place an appropriate picture on the title page.


<div style="border: 1px solid black; display: inline-block; padding: 2px 10px; margin-bottom: 10px;">Masterthesis No. XX</div> <p style="margin: 0;">Title of Thesis German Titel (optional)</p> <div style="border: 1px solid black; width: 200px; height: 100px; margin: 10px auto; text-align: center; vertical-align: middle; padding: 5px;"> here you may insert a graphic </div> <p style="margin: 10px 0 0 100px;">Author: Max Mustermann Study program: M.Sc. Infrastructure Planning</p> <p style="margin: 10px 0 0 100px;">Co-Supervisor: Titel Vorname Name Supervisor: Prof. Dr.-Ing. Markus Friedrich</p> <p style="text-align: right; margin: 10px 0 0 0;">1. Juni 2018</p> <div style="display: flex; align-items: center; margin-top: 20px;">  <p style="font-size: small; margin: 0;">submitted to Universität Stuttgart Institut für Straßen- und Verkehrswesen Lehrstuhl für Verkehrsplanung und Verkehrsleittechnik</p> </div>
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Figure 1: Example of a Title Page.



You must not give the impression that the work is a publication of the university or the chair. That is why the reference "submitted to ..." is important. Do not use the university logo.

2.2 Summary / Abstract

The summary at the beginning of the paper should inform the reader about the core the work. It should state the objective of the paper and provide the main results.

An abstract should cover 10 to 15 lines. A summary may have a length of one page, but will not contain any figures, tables or information on references.

2.3 Declaration on Autonomy

The wording of the declaration on autonomy can be formulated as follows:

„I hereby declare that I wrote this master thesis independently and did not make use of any support or sources other than those mentioned in the paper.

The declaration on autonomy must be signed in the original.

2.4 Table of Contents

The table of contents lists the title and the starting page of each chapter. The author of the paper must decide about the number of levels of the titles in the table of contents. As a rule, it is sufficient to list the titles down to the third level.

2.5 Main Part of Paper

As a rule, the main part of a paper is built up as follows:

- **Introduction, Problem Description, Motivation, Overview:**

This part introduces the reader to the problem addressed in the paper. At the end of this chapter the reader is supposed to have information on the objectives of the paper, the benefits resulting from the achievement of the objectives and about the procedures adopted in order to achieve the objectives. One chapter, if necessary with a couple of subchapters, is sufficient for this part of the paper.

- **Basics: Literature Review, available Data Sources:**

There are only very few scientific papers that start completely from zero. For most subjects, preliminary work exists. This work needs to be summarized in this part of the paper. Not a complete enumeration of all available sources is required but a summary of the relevant methods and results reported in existing papers. The data sources used should also be explained in this part. One or two chapters should be designated for this part.

- **Own Calculations, Analyses and Research:**

This is the main part of the paper. Depending on the type of paper in this part own calculations, analyses and research are described, discussed and assessed.

- A scientific work is not an advertising brochure. Therefore, it is not necessary that all objectives of the problem description are achieved. A paper delivering a good analysis on why the objectives could not be achieved is a better paper than the one that presents dubious results uncritically and in a too positive light.
- A scientific work should avoid displaying any subjective evaluations. Statements that results are “amazingly good” should be avoided and if unavoidable require

further explanation on what makes them so amazing. However, this does not mean that the own work cannot be assessed positively. The statements about this assessment should be as precise as possible.

- A scientific paper is not an adventure report. Sentences starting with “I think ...” or “afterwards I did...” are not appropriate. Besides the student should decide about which calculations and analyses are to become part of the paper. If for instance in a first step data was imported with software A, but afterwards software B was used due to shortcomings in the software A or due to lack of programming skills this aspect should not be mentioned in the paper. But if a set of methods described in literature are implemented and analyzed, this aspect should be described in detail, even if one of the methods finally turned out to be rather unsuitable.
- It is not the length that makes a scientific paper a good scientific paper. Whereas a complete description of the methods is generally indispensable, it most often suffices to explain the results of the calculations on specific examples instead of overloading the paper with a variety of tables and figures displaying results.
- This part can cover several chapters.
- **Summary, Overview**

Together with the introduction this part frames the paper. The relevant results are summarized here and assessed with respect to the objective formulated in the introduction. If objectives are not achieved, the reasons for this should be explained and possibilities for improvement should be listed. But even if the objectives have been achieved, it may be suggested that additional research is required (e. g. extension of the area of examination, long-term analyzes).

A division into chapters and subchapters is only recommendable, if at least two subsequent points can be listed in the subchapter. The title of chapters and subchapters should enable the reader to deduce from it the contents of the chapter or subchapter. All titles of one level of a chapter should display the same grammatical structure.

Terms should be clearly defined in a paper and should be used consequently in the work according to this definition. Thus, it should be avoided for instance to interchange the term travel time and trip time for one and the same parameter.

2.6 List of Figures and Tables

In analogy to the contents these lists contain the figures and tables of a paper. Before handing in the paper the formatting should be checked and eventually corrected as automatically generated lists might display unfavorable formatting.

3 Layout of Paper

Principally any formatting can be applied for the paper, as long as it is readable and used consequently along the entire paper. However, experience showed that students are more successful and avoid a lot of extra work if they decide to use a given layout. In the following one template from the Lehrstuhl Verkehrsplanung und Verkehrsleittechnik is presented as an example.

3.1 Style GuideVuV

3.1.1 Fonts (*Title 3*)

For a normal text there are 5 classes of templates along with the titles: (*T-03*)

- Texts without indentation: Text „T“ (*L1-03*)
- Listing of 1st level with 0.5 cm indentation: List „L1“ (*L1-03*)
- Listing of 2nd level with 1.0 cm indentation: List „L2“ (*L1-03*)
- Listing of 1st level with 0.7 cm indentation: numbering „N1“ (*L1-03*)
- Listing of 2nd level with 1.2 cm indentation: numbering „N2“ (*L1-12*)

For each class there are 6 values, defining the after-spacing: (*T-03*)

- After-spacing 00 pt: for exceptions (*L1-03*)
- After-spacing 03 pt: for paragraphs with short listings (*L1-03*)
- After-spacing 06 pt: for paragraphs with lost listings (*L1-03*)
- After-spacing 12 pt: for standard paragraphs (*L1-03*)
- After-spacing 18 pt: for longer paragraphs in exceptional cases (*L1-03*)
- After-spacing 36 pt: for paragraphs at the end of chapters and ahead of new titles (*L1-12*)

Ahead and in the following three subchapters the selected fonts are written *cursive and in brackets* next to each paragraph to clarify the principle (*T-36*).

3.1.2 Figures (*Title 3*)

Figures are set into a frame and labeled with “figure” placed at the foot of the figure. The selection of the font “Graphics” to design the framed area positions the figure in the center of the text. (*T-12*)

The following Figure 2 illustrates an example of a figure. This figure is also part of the style guide and thus can be used as template for further figures. (*T-18*)

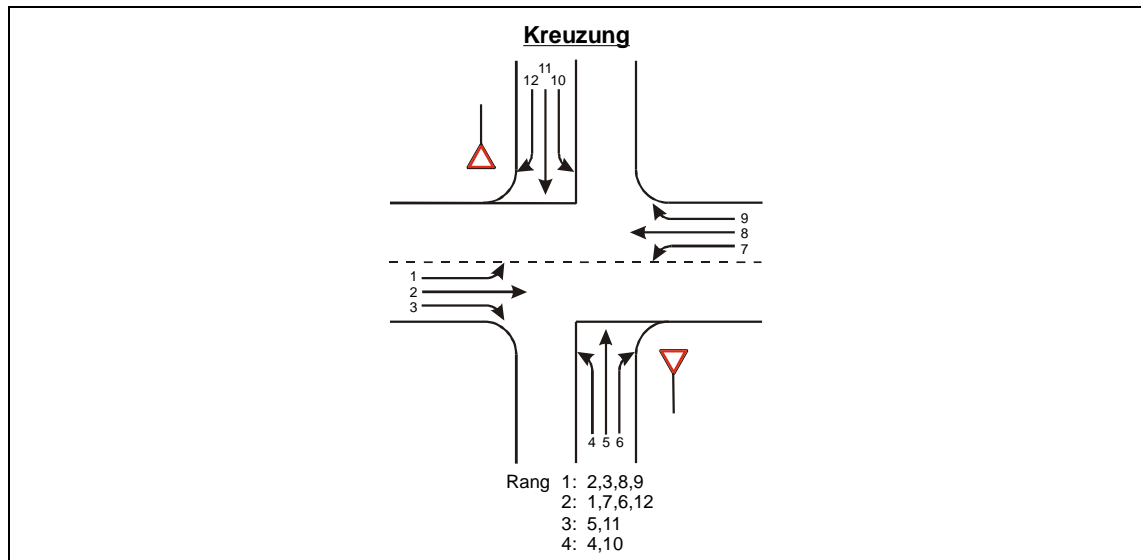


Figure 2: Traffic flows at a junction. (*Labeling*)

If figures from MS Excel are to be used the frame, the Excel-tableau must be deactivated in order to avoid a double frame. (*T-36*)

3.1.3 Tables (*Title 3*)

In tables the following three fonts are used: (*T-03*)

- TabHeader for headers of tables (*L1-03*)
- TabRow for normal rows of tables (*L1-03*)
- TabList for lists within a table (*L1-12*)

The following table 1 shows an example for a table (*T-18*)

Name	Font	Example	Description (<i>TabHeader</i>)
UsrID	Long	12345	Tagesgültige UsrID eines Mobilfunkteilnehmers (<i>TabRow</i>)
t.s	Long	12079146	Sekunden seit UNIX (GMT) (<i>TabRow</i>)
t.m	Int	65	Millisekunden seit „t.s“ (<i>TabRow</i>)
type	Int	2	<ul style="list-style-type: none"> • 0 = Location Area Update (<i>TabList</i>) • 1..n-1 = Cell-ID-Wechsel während eines Telefonates (<i>TabList</i>) • Nmax = 1024 = Gesprächsende (<i>TabList</i>)
cLAC	Long	98765	Location Area Code der aktuellen Funkzelle (<i>TabRow</i>)
cCID	Long	43210	Cell ID der aktuellen Funkzelle (<i>TabRow</i>)
pLAC	Long	12345	Location Area Code der vorherigen Funkzelle (<i>TabRow</i>)
pCID	Long	65432	Cell ID der vorherigen Funkzelle (<i>TabRow</i>)

Table 2: Extensive description of A-data. (*Labeling*)

All columns of a table should display the same width if possible. In the Table 2 above the first three columns have the same width. The labeling should always end with a dot (T-36)

3.1.4 Formulae (Title 3)

Formulae are indented using the font “formula”. If the text often contains references to the formulae used they should be numbered. (T-06)

$$p_{z,i} = \frac{1}{1 + \frac{1-p_x}{p_x} + \frac{1-p_{0,i}}{p_{0,i}}} \text{ (Formula)}$$

with (T-03)

i = 5 or 11 (T-03)

$p_{0,i}$ Probability of congestion-free state in stream i (T-03)

p_x Probability of congestion-free state in streams 1 and 7 (T-36)

3.2 Figures

Figures along with the corresponding labeling should be self-explanatory independent from the text. Despite of this, every figure should be implemented into the text and there should be at least one reference to every figure within the text.

When selecting the colors of your figures please keep in mind that the colors must be distinguishable even in a black-and-white printout of your paper. The size of the texts within a figure should be selected in such a way as to be readable even on half-size printouts.

Diagrams from Excel should display a labeling of each axis (including the corresponding unit) as well as a legend, if several data rows are part of the diagram. The legend can be left out, if all data rows are labeled for instance with arrows. If more than one y-axis is used, it must be observed that a non-ambiguous allocation of the lines to the axis is possible.

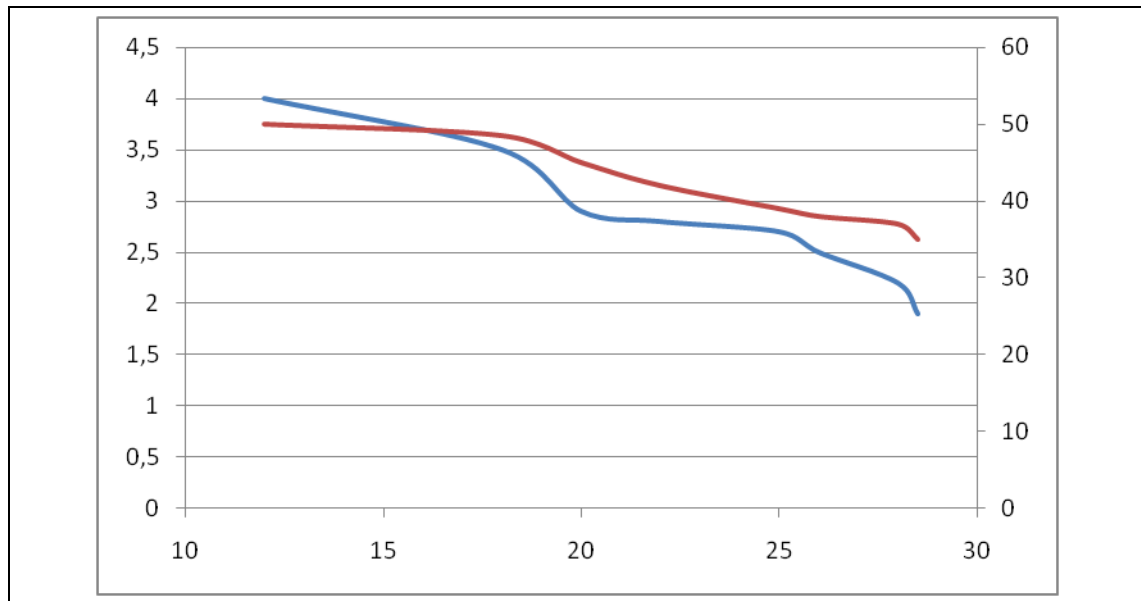


Figure 3: Bus costs and fuel consumption (negative example for a figure).

Figure 3 displays the following errors:

- Significance of x-axis cannot be made out from labeling
- No labeling of axes, no units
- No allocation of the two lines to the y-axes
- Low contrast between the lines (in black-and-white printout the contrast will be almost nonexistent)
- Double frame due to frame of Excel-tableau plus general diagram frame.
- The two Y-axes are not aligned to each other.

The following Figure 4 displays an appealing formatting of the same data.

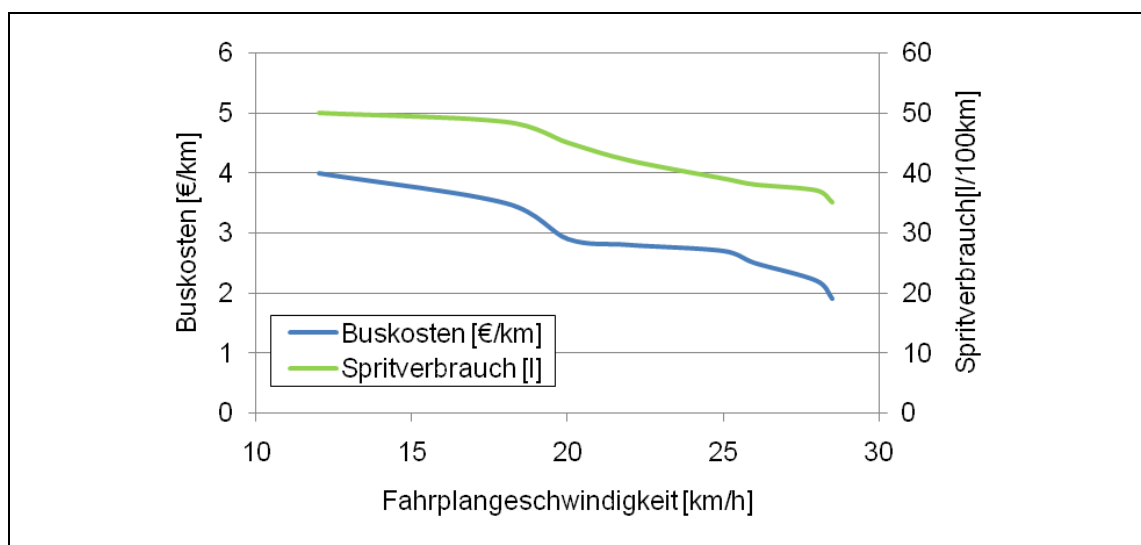


Figure 4: Bus costs and fuel consumption in dependence of the schedule speed (positive example for a figure).

For a uniform picture within the framework of a paper, it is sensible to use for all figures from Excel-tableaus the same template (same font size, etc.). In order to obtain comparable printouts, the figures should have the same size in Excel as they do in Word (maximum width 14 cm in case of the style guide of the Chair for Transport Planning and Traffic Engineering).

3.3 Tables

Tables should also display a uniform formatting. As a rule, the following details should be observed:

- A table should cover the entire paper width.
- The columns building a table should have the same width.
- The table heads should be unambiguous displaying the units used.
- The number of positions after the decimal point should be comparable for comparable columns.
- The comma “,” should be used as 1,000-tag.
- Numbers should be right-aligned. If the column width allows for it, an indentation at the right side (e.g. 0.2 cm) can be applied.

Even if tables and figures do not require any text-explanation, the text should contain a reference to the tables and figures. If the author finds that a reference is dispensable, it might be that the whole table is dispensable.

3.4 Footnotes

Footnotes can be inserted if they contain material that at this specific position cannot be implemented into the text, but is of importance for it. As a rule, one has to integrate all important material directly into the text and thus footnotes most often become dispensable. One should try to use footnotes only in case of exception.

3.5 Checks before handing in the paper

Before handing in the paper it should be checked intensely by the author and by at least one native speaker to detect spelling, grammar and formatting errors.

- For *Spelling –and Grammar Correction* first of all the spell-checker of word should be used. The paper should also be checked as a printout. Frequently occurring mistakes as for instance. double blanks can be found via the search-function to be corrected.

- In order to check the *References* in the paper one should look for „Error!“ as word displays **Fehler! Verweisquelle konnte nicht gefunden werden..**
- A *syllabication* should be carried out. This procedure can be executed automatically or manually. It is advisable to apply the manual syllabication, because the automatic syllabication might not detect all errors and might even lead to unwanted effects.
- The last step before handing in the paper is *the control of pagination*. In the page layout mode, it must be examined whether the pagination is plausible. It might be sensible to place a figure on the same page as text explaining this figure or to place the first line of a new chapter on a new page.

4 Usage of Literature References

Literature references are of major importance for a scientific work. Without the knowledge about the relevant literature it is not possible to be aware of the state of the art of the subject area dealt with in the paper. The correct indication of literature references makes it possible for the author to support statements made in the text with the help of references from literature without having to bring in new proofs for every statement made.

4.1.1 Books

The search for books can be done via the homepage of the Library of the University of Stuttgart. The books available at the Chair for Transport Planning and Traffic Engineering are listed there too:

<http://www.ub.uni-stuttgart.de/>

Some books or abstracts can be read via the book search of Google:

<http://www.google.com/books>

4.1.2 Journals

Possible German journals for a search for appropriate literature are: Straßenverkehrstechnik:

For research the 50-year register (1957-2006) as well as the annual register can be used to be found under:

<http://www.kirschbaum.de/index2.php?selection=zeitschriften>.

- Straße und Autobahn
- Der Nahverkehr
- Internationales Verkehrswesen

English journals suitable for the search for literature:

- Transportation Research Part A: Policy and Practice
- Transportation Research Part B: Methodological
- Transportation Research Part C: Emerging Technologies
- Transportation Research Part D: Transport and Environment
- Transportation Research Part E: Logistics and Transportation Review
- Transportation Research Part F: Traffic Psychology and Behaviour
- Transport Research Record

- Transport Policy
- Transport Reviews
- Transportation
- Transportation Science
- Networks and Spatial Economics
- Journal of Transport Economics and Policy
- International Journal of Transportation Economics

Many of the journals listed are available via one of the following channels:

- Library of the Chair for Transport Planning and Traffic Engineering
- Library of the Chair for Road Planning and Road Design
- Library of University
- Online usage of an Internet PC of the University (probably even if using a VPN access) provided that the University completed the necessary contracts with the publishing houses.

4.1.3 Proceedings of relevant Institutions

The Road and Transportation Research Association (Forschungsgesellschaft für Straßen- und Verkehrswesen – FGSV) and the Federal Highway Research Institute (BASt) release a wide range of publications that can furnish a very good basis for scientific work.

The Road and Transportation Research Association (FGSV) (www.fgsv.de) publishes the following

- Research on Road Construction and Road Engineering (so-called „yellow line“).
- Regulations and Manuals for instance the Manual for Road Design and Road Transport Engineering (Highway Capacity Manual) (Forschungsgesellschaft für Straßen- und Verkehrswesen 2015).

The Federal Highway Research Institute (www.bast.de) publishes the results of work of research in the „Reports of the Federal Highway Research Institute“.

Further relevant institutions are among others the VDI – Association of German Engineers -, (www.vdi.de), the VDV - Association of German Transport Companies – (www.vdv.de), and the BSVI – Federal Association of Road and Transport Engineers (www.bsvi.de).

4.1.4 Online Publications

The number of publications of all named categories to be published on the websites of companies or universities is increasing continuously, for instance on the homepage of the Chair for Transport Planning and Traffic Engineering (University of Stuttgart) and on the website of the Institute for Transport Planning and Systems (ETH Zurich).

<http://www.isv.uni-stuttgart.de/vuv/publication>

<http://www.ivt.ethz.ch/docs/>

Via suitable search engines these websites can easily be found. For instance google offers a search engine for scientific literature on:

<http://scholar.google.de/>

Websites that allow browsing in the sources of an article (so-called citation data bases). A provider in this respect is citeseerx of the Penn State University.

<http://citeseerx.ist.psu.edu>

The online search for literature should always be done via an Internet PC of the University as the University completed a lot of contracts with publishing houses concerning the cost-free online access to articles.

For the listing of the literature reference it should be kept in mind from the very beginning to list all sources that might be used in the paper, correctly with source, data on download, etc (see chapter 4.2).

4.2 Correct Citation

There exists a variety of possibilities of how a source can be referenced (numbering of sources, stating source in footnote, Harvard-style,...). There does not exist the one and only correct procedure, but however one can make many mistakes when it comes to citation:

- Lack of marking of citations (can be considered as an attempt to deception).
- Incomplete data that do not allow for an unambiguous identification of the source.
- Inconsistencies in source description.

In the following one possibility of a correct citation is shown. It is used the Citavi citation-style "*DER Harvard-Style (Author-Date, English)*" which reflects one specific version of the Harvard-Style. In case of using the software Citavi for the management of literature (it is free of charge for students of the University of Stuttgart) it is recommended to use this specific citation-style.

4.2.1 Literature References in the Text

If a source is cited indirectly in the text, meaning that essential contents are not reproduced literally, this aspect must be indicated by stating the author and the year of publication:

According to Schulze (2020) there occurs a correlation between (...).

Another relevant factor is car ownership (Schmaus 2014).

If a source has two authors both authors have to be listed:

According to Schlag and Heß (2020) there occurs a correlation between (...).

Another relevant factor is car ownership (Sammer and Chu 2018).

In case of more than two authors for reasons of clarity only the first author is listed joined by the abbreviation "et al." (Latin for „and others“). The author listed in the first place in the original source should be listed first in the citation and not the one according to alphabetical arrangement.

According to Richter et al. (2019) there occurs a correlation between (...).

Another relevant factor is car ownership (Rieser et al. 2018).

If more than one publication of one author or a group of authors is cited of the same year of publication, for identification these publications will bear a letter next to the year of publication:

This corresponds to the results of Sener et al. (2009a) and Sener et al. (2009b).

If the same statement can be found in different sources, the references are listed using colons:

Another relevant factor is car ownership (Schmaus 2014, Sammer and Chu 2018, Rieser et al. 2018).

If the source of the indirect quotation refers to the content of a single sentence, the source reference is either integrated into the sentence or is placed at the end of the sentence before the period (see the preceding example sentences). If the content of an entire paragraph is taken from a source, this is indicated by the fact that the source reference is placed at the end of the paragraph after the last period:

Another relevant factor is car ownership. By taking this factor into account, it is possible to obtain a much more accurate representation of the target value. (Schmaus 2014)

In case of direct citation, the sequence cited must be clearly identified by using quotation marks and indicating the page number.

According to Quack et al. (2019, 26) „bringt eine zusätzliche CO₂-Steuer auf Kraftstoffe einige Umverteilungswirkungen mit sich.“

If in a direct citation parts of a sentence are to be left out, this should be marked with „(...)“:

„Tendenziell führt die CO₂-Steuer in der kurzen Frist aber zu einer Umverteilung der Steuerlast (...) von Familien zu Kinderlosen“ (Quack et al. 2019, 26).

For direct reproduction of figures and tables from a literature reference the indication of the number of the page or the number of figure/table is necessary. If a figure is build up based on a literature reference or only parts of a figure are reproduced in the paper, this aspect must be marked (for instance “based on”).

4.2.2 References

The references are intended to help the reader find the mentioned literature sources. To this aim the data on the sources must be as accurate as possible. According to the type of literature used the following data must be listed:

- Name and initials of authors (name of company if required)
- Year of publication (respectively year of download)
- Title (title of a website if required)
- Name and initials of editors
- *Name of publication* (for instance title of journal)
- Name of volume
- Year
- Number of issue
- Number of page
- Name of publishing house
- Location of publishing house
- Link to website
- Date of download
- Name of conference (in case of proceedings)
- Location of conference (for proceedings)
- Year of conference (for proceedings)

If available for printed sources a link for download can be listed as this would make it easier to locate the source.

The references should have a simple line-spacing (style guide „References“). The following examples cover most of the possible types of literature references:

- Book with four authors (Maurer et al. 2015):
*Maurer, Markus/Gerdes, J. Christian/Lenz, Barbara/Winner, Hermann (2015).
Autonomes Fahren. Technische, rechtliche und gesellschaftliche Aspekte.
Berlin Heidelberg, Springer.*
- Article from journal (Schlag and Heß 2020):
*Schlag, Bernhard/Heß, Michael (2020). Tempolimit auf Autobahnen. Eine deutsche
Kontroverse seit den 1970er Jahren. Internationales Verkehrswesen 72 (3),
14-18.*
- Article from proceedings of a conference (Richter et al. 2019):
*Richter, Emely/Friedrich, Markus/Migl, Alexander/Hartleb, Johann (2019). Integrating
ridesharing services with automated vehicles into macroscopic travel demand
models. Conference presentation. In: Proceedings of 6th International
Conference on Models and Technologies for Intelligent Transportation
Systems. Kraków, Poland.*
- Pure online source / data from online source (FOR2083 2019):
*FOR2083 (2019). FOR2083\PublicTransportNetworks. Integrated planning in public
transport. Github. Available online at
<https://github.com/FOR2083/PublicTransportNetworks> (accessed 1/16/2019).*
- Legal text on the internet (Richtlinie 2001/42/EG des Europäischen Parlamentes und
des Rates vom 27. Juni 2001 über die Prüfung der Umweltauswirkungen bestimmter
Pläne und Programme of 2001):
*Richtlinie 2001/42/EG des Europäischen Parlamentes und des Rates vom 27. Juni
2001 über die Prüfung der Umweltauswirkungen bestimmter Pläne und
Programme of 2001.*

If there exist various publications of one text, the best available and high-quality version should be listed. If for instance an article was first published in the proceedings of a conference to be published afterwards in a reputable professional journal, the professional journal should be selected as source for the reference.

4.3 Copyright

The widespread opinion that a clear identification of a reference is sufficient in order to be permitted to use foreign material (pictures, figures, charts) is not correct. Even the often used „©“ is not sufficient.

The author does not abandon the rights on his work by publishing it in an article or on the internet. Therefore, it is imperative to work painstakingly if one uses foreign material, as an illegal use can trigger high claims from the author.

This is not the place to offer extensive information on this complex subject. Under the following link one can find a detailed discussion on the copyright in Germany with special emphasis on the copyright in science and research along with a comprehensive reference:

[http://de.wikipedia.org/wiki/Urheberrecht_\(Deutschland\)](http://de.wikipedia.org/wiki/Urheberrecht_(Deutschland))

On the internet one can find various providers that permit the download of pictures that can be used cost-free provided that one complies with the respective terms of use:

<http://www.aboutpixel.de>

<http://www.pixelio.de>

5 Presentation of Thesis

The work is presented in a talk that takes place during the processing. The exact requirements are listed in the corresponding examination rules. The "Presentation_Student_Works_VuV.pot" of the chair can be used as a template for the lecture.

An important note: For these presentations, the regulations on copyright as listed in chapter 4.3 have to be observed.

The talk on a thesis usually lasts 20 minutes. Afterwards there will be 10 minutes for questions and discussion. Presentations and slides can be designed individually, but there are a number of suggestions, which should only be deviated from with good reason:

- The number of slides must comply with the duration of the speech. As a rule of thumb 2 minutes per slide are appropriate, but this duration is highly dependent on the design of the slide. If one has only little experience in giving talks, it is advisable to practice the talk under real conditions and to stop the time needed for the talk.
- The number of words per slide should be reduced to a minimum (for instance 20 to 30 words). Complete sentences should be the exception as they distract the attention of the audience.
- When using illustrations, they should be simplified to the essentials. Diagram parts that are not covered in the presentation should be removed. The font size of the texts (axis labels, etc.) must usually be larger than those in the report.
- Tables from the report should be used with caution, as they often contain too much information that the audience cannot absorb quickly enough.
- All elements (text, photos, graphics, tables) should be large enough to be visible in the last row. For example, the minimum font size for text should be 16. Sentences such as "you cannot read that now" should not appear in the presentation.

All technical questions should be clarified in good time before the presentation: Which notebook and beamer are used? Are the required software versions available? How do the remote control and laser pointer work?

Ideally, the presentation technique should be tested to avoid unpleasant surprises. Sentences such as "a picture should appear here now" or "the video unfortunately does not play now" do not have to be the presenter's fault, but worsen the impression of the presentation.

6 Writing of a Synopsis

To get a first impression already in an early stage of the editing process about the state of the paper, about possible questions of the student, about the requirements of the supervisor, a synopsis should be issued 2 to 3 weeks after the starting date of the paper, to be handed over to the supervisor. The editing of the synopsis is optional but is expressly recommended by our chair. It serves both the student as working guideline and the supervisor as supervision guideline thus facilitating the cooperation between student and supervisor.

The synopsis is built up as follows:

- **Title page:**
Should be identical with the title page of the paper.
- **Content of the Synopsis**
- **Concept of a summary of the student's work**
The length of the summary should lie in between half to one page and furnish answers to the following questions:
 - What is the subject area of the paper?
 - Why is it important to address this subject area?
 - What are the findings of science in this subject area up to now?
 - What methods have been used in science to acquire the findings in question?
 - To which questions science did not deliver any answers so far?
 - Which of these questions is in the focus of my paper?
 - How will I deal with these questions?
 - What are the results I am expecting?
 - What are possible findings based on the achieved results?
- **Draft of a structure of the paper**
The raw structure of the paper (main chapters) should be clear at a very early stage of the work. Depending on the state of editing it might be advisable to invest the structure with subchapters.
- **Sample of the text**
The sample text should cover up to 2 pages. This sample is used to adjust the expectations of the supervisor with respect to the text to those of the student issuing the text, both with reference to form of expression in writing as well as with reference to formal design (usage of templates, citation, reference to tables and figures). Based on this sample text the supervisor can give the student practical advice that should be observed during the further development of the paper.

- **References**

Lists all references used up to this date in the correct form.

- **Time Table:**

The time table should include all steps as planned by the student. The time table should help the student identify the time shares required by every single step.

7 Assessment of Seminar Papers and Master Theses

The assessment is done based on the following three criteria along with the corresponding weighting. As a schematic assessment cannot do justice to all possible problem descriptions and elaborations, in special cases the criteria respectively the weighting will not be considered. Such a situation occurs if the references listed do not comply with the corresponding regulations and therefore the paper will be credited with the mark 5 as it is considered plagiarism.

1. Content (60 %)

- Does the content correspond to the problem description?
- Does the volume correspond to the problem description?
- Does the evaluation of literature come up to the expectations?
- Is the content, the subject matter dealt with scientifically?
- Does the paper contain reports made up by the author on the state of the art respectively on the technological progress?
- Does the paper contain well built-up solutions and a well formulated conclusion?

2. Design and Structure (10 %)

- Are content, list of tables, list of figures and list of abbreviations and references part of the paper?
- Are figures and tables integrated according to the requirements of the text?
- Is the paper structured logically?
- Do the titles suit the content of the paragraphs?

3. Representation, Style and Expression (15 %)

- Language
- Figurative representation, diagrams,
- Optics of layout
- Correct citation mode

4. Autonomy, Volume and Diligence (15 %)

- Did the student edit the paper autonomously?
- Does the invested work load correspond to the expectations?
- Did the student manage to avoid unnecessary ballast?

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