Guidelines

for

Student Theses

at

Krcmar Lab

Version 6.2, 2023-04-14

Technische Universität München
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Table of Contents

1 Area of application

All student theses written at the Krcmar Lab have to comply with the guidelines at hand. Examples of student theses comprise:

1. Seminar papers: written work in proseminars, seminars, seminars belonging to the Ueberfachliche Grundlagen, and practical courses
2. Final theses: diploma theses, bachelor theses, master theses
3. Project reports (SEP, IDP, project studies TUM-BWL, Application project (Data Science))
4. Guided Research

2 Basic requirements

It should be kept in mind that all student theses are autonomous scientific theses and require a scientific way of working. References from popular sources, e.g., Wikipedia, should be avoided.

Announcements and regulations of the respective examination boards, e.g., the Fachprüfungsordnungen, have to be adhered to. For students at the TUM CIT these announcements and regulations can be found on the examination board's website:

https://www.cit.tum.de/cit/studium/studierende/abschlussarbeit-abschluss/informatik/

In case these regulations contradict with the guidelines at hand, contact your advisor in advance.

General requirements include:

- Student theses have to comply with the guidelines at hand, in particular with regard to the formal structure, the scope, and the consistent and the correct use of references.
- The deadlines originating, e.g., from the Fachprüfungsordnungen or from announcements in your seminar, are binding. In case of doubt, contact your advisor.
- Avoid spelling or grammar errors. If you write in German, adhere to the Neue Deutsche Rechtschreibung.
- Student theses can also be written in English. Contact your advisor in advance.

For seminar papers:

- Adhere to the guidelines given by your advisor during the seminar, in particular with regard to the formal structure or the scope of the paper.

For final theses and project reports:

- Sign the copyright agreements (see Appendix)
- Your software has to pass tests defined by your advisor.

3 Formal structure

3.1 Page layout

Student theses have to be submitted in DIN A4, printed on one side only. Left and right page margins are 2.5 cm. Upper and lower page margins are 2.35 cm (type area 16.0 x 25.0 cm including headers and footers). Page numbers (without brackets or dashes) should be placed at the lower right bottom of the page or, in case a running title is used in the header, should be integrated in the running title, aligned to the right.

3.2 Scope

Seminar papers, including IDP and SEP, must not exceed 15-20 pages per author including references. Keep it short and simple, the other seminar participants will thank you. In case of several authors, a single paper has to be submitted with one table of contents and one list of references only.

Guided research should not exceed 8-12 pages of text.

Bachelor's theses and application project reports should not exceed 60-80 pages, Master's theses should not exceed 80-100 pages per author including indices, references, and appendices. In particular cases, such as practical or empirical theses, your advisor may have different requirements.

3.3 Sequence of chapters

The table below illustrates the sequence of the required chapters depending on the type of student thesis.

Type of thesis / **Chapter**	Seminar papers	Final theses, project reports, guided research
Cover		X
Title page (**first page**)	X	X
Declarations (**second page**)		X
Summary (one page, complemented by key words)		X
Table of contents	X	X
List of figures	X	X
List of tables	X	X
List of abbreviations	X	X
Main text	X	X
Bibliography	X	X
Appendix	X	X

In case of multiple authors, a table has to be added to the appendix that details each author's contributions. Copyright agreements for final theses or project reports should not be integrated into the final document but rather have to be submitted as a lose sheet of paper.

3.4 Guidelines and requirements for single chapters

3.4.1 Cover

The cover has to follow the regulations of the examination board of the respective departments. The regulations of the TUM CIT can be found here:

https://www.cit.tum.de/cit/studium/studierende/abschlussarbeit-abschluss/informatik/

If there are no regulations by the board of examination of your course of studies, adhere to the regulations of the TUM CIT.

3.4.2 Title page

The title page has to follow the regulations of the examination board of the respective departments. The regulations of the TUM CIT can be found here:

https://www.cit.tum.de/cit/studium/studierende/abschlussarbeit-abschluss/informatik/

If there are no regulations by the board of examination of your course of studies, adhere to the regulations of the TUM CIT. The department name and the department logo have to be adapted accordingly.

3.4.3 Declaration

On the second page, final theses or project reports have to include declarations concerning the single handed composition and the resources used in the theses. The declaration has to follow the regulations of the examination board of the respective departments. The regulations of the TUM CIT can be found here:

https://www.cit.tum.de/cit/studium/studierende/abschlussarbeit-abschluss/informatik/

If there are no regulations by the board of examination of your course of studies, adhere to the regulations of the TUM CIT. In case of multiple authors, each author has to sign a separate declaration.

In case you have to include a confidentiality clause, include it beneath the above mentioned declaration on the second page.

3.4.4 Summary

Summaries in final theses and project reports have to be listed in the table of contents. The content and structure of the summary should follow the guidelines provided by Emerald:

https://www.emeraldgrouppublishing.com/how-to/authoring-editing-reviewing/write-article-abstract

Theses written in German have to include a summary written in English in addition to the German summary. The summary should not exceed one page.

3.4.5 Table of contents / document structure

The table of contents / document structure should follow the DIN norm **1421**. There have to be at least two sub-items in order to structure content into sub-items. Balance and consistency should be kept in mind when structuring content into sub-items.

The table of contents should include all chapters of the theses including page numbers. All chapters before the main part should use Roman numerals for page numbers. The main part and all chapters after it should use Arabic numerals for page numbers. An exemplary table of contents can be found in the appendix.

Item numbering must **not** be followed by a period / full stop. Item names in the table of contents must be identical to the headers used to structure the document. Item names must be meaningful. Sub-sections must neither be too short (less than half a page) nor too long (more than two pages in case of seminar papers, more than four pages in case of final theses).

3.4.6 List of figures and list of tables

All figures and tables have to be included in the list of figures or in the list of tables, respectively, with their captions and their page numbers.

3.4.7 List of abbreviations

All subject-specific abbreviations, in particular abbreviations of journals, organizations, associations, and legal documents, have to be included in the list of abbreviations. The list of abbreviations has to be ordered alphabetically.

Examples:

ACM	Association for Computing Machinery
CATeam	Computer Aided Team
GDSS	Group Decision Support System
IEEE	Institute of Electrical and Electronics Engineers Inc.
SOP	Study Organization Plan

Abbreviations may only be used after introducing them once.

Symbols used in the thesis, e.g., in formulas, have to be included in the list of abbreviations. Symbols have to be used in a consistent manner, e.g., using the same symbol for various variables should be avoided.

Common abbreviations, such as e.g., i.e., and so on, should not be included in the list of abbreviations.

3.4.8 Main text

The line spacing in the main text has to be 15 pt. The line spacing in footnotes has to be 12 pt. A proportional type font, such as Times New Roman, has to be used **throughout the whole document**. The font size has to be 12 pt. The font size in footnotes has to be 10 pt. The font size for numbering footnotes has to be 8 pt.

The main text should be justified. Large spaces between words should be avoided by splitting words manually where necessary.

Emphases should be made using bold or italic formatting. Other emphases, such as SMALL CAPS, LARGE CAPITALS, underlinings, or ***MULTIPLE FORMATTING*** have to be avoided.

When using bullets attention to the correct typeset has to be paid.

Example:

The results illustrate
- the affective benefit,
- the protocol benefit,
- the information benefit

as three essential effects of using GDSS.

Paragraphs should be separated with a new line. Additional page formatting, such as spaces between chapter headers, can be used at the author's own discretion, but should be applied **in a consistent manner throughout the document**.

Tables and figures have to be numbered and labeled in a meaningful way. Tables should include meaningful row and column names. Figures often benefit from keys or explanations, respectively. Sources have to be added to all figures and tables. The caption and source of a figure or table has to be placed below the figure or table. Figures or tables adapted from other authors should be labeled with "Source: Based on [Source]". Own figures should be labeled with "Source: Own Analysis".

Example:

Fig. 1: Types of group support
(Source: Based on Krcmar (1988, 10))

Figures and tables have to be referenced and explained in the text. Figures and tables that are only indirectly connected with the text have to be moved to the appendix.

Figures and tables have to be translated into the language in which the thesis is written, i.e., English or German. Exceptions may include difficult or complex figures or tables. These figures or tables may be integrated in their original language, as long as it is either English or German.

Folded figures or tables and figures or tables in landscape format should be avoided. If such figures or tables cannot be avoided, they should be arranged in a way that the reader can turn the document clockwise to read these figures or tables.

Footnotes should include supplements or comments to the text. Footnotes are marked by superscripts within the text and in the footer. Footnotes have to be included in the footer of the same page in which they are marked in the text. If possible footnotes should be separated by a horizontal 5cm line.

3.4.9 Bibliography

The bibliography has to contain all sources referenced in the text. Accordingly, sources not referenced in the text must not be included in the bibliography. The bibliography has to be ordered alphabetically by author surname. Several publications by the same author have to be listed by year in descending order. Single author publications of one author have to be listed before multiple author publications of the same author.

3.4.10 Appendix

Figures and tables and other documents that are not directly connected to the text belong in the appendix. The appendix has to be labeled accordingly with continuing page numbers. All formal guidelines discussed in this document also apply to the appendix.

4 Citation guidelines

The use of someone else's ideas – even if applied by analogy – has to be identified by indication of source. A student thesis that lacks references is deficient. Moreover, each reference has to include the exact page number indicating where you found the citation, e.g., (Krcmar, 2010, p. 5). For citations spanning more than one page, a hyphen (e.g., pp. 5-7) or f. and ff., respectively, (e.g., pp. 5 f.) must be used.

Use direct quotes where appropriate. Direct quotes don't substitute but rather induce own explanations. Longer direct quotes (more than 2-3 sentences) have to be indented and written single-spaced. Omissions in direct quotes have to be indicated using 2 points (one word) or 3 points (more words) that are placed in brackets, e.g., […]. For direct quotes that start or end in the middle of a sentence, the above-mentioned ellipsis points must be used, too. For quotations containing emphasis, you have to state whether you or the author added the emphasis (e.g., "emphasis added", "emphasis in the original"). Deviations from the original quotation must be indicated (e.g., "author's note"). Quotations within a quotation must be enclosed in single quotation marks.

4.1 Citation style

The Krcmar Lab adopts the citation style "APA Style 7th Edition" ((https://apastyle.apa.org/style-grammar-guidelines/references/examples). The corresponding manual "Publication manual of the American Psychological Association: the official guide to APA style, 7th Edition" can be borrowed from the university library. The reference management software Endnote offers a corresponding style. In the appendix, section 8.4 lists some exemplary citations.

5 Registration and Submission

5.1 Registration of final theses

The registration of a final thesis requires two documents: (1) the official registration form from the faculty's examination board and (2) a proposal.

For example, the registration form for a bachelor thesis in the program information systems is available here:

https://www.cit.tum.de/fileadmin/w00byx/cit/Studium/Studiengaenge/Bachelor_Wirtschaftsinformatik/anm_ba_Winfo.pdf

The proposal should comprise about 3-5 pages and contain the following elements:

- Title
- Motivation
- Objective of the thesis (three research questions must be specified here)
- Method
- Expected results
- Schedule
- References

The official registration form and the final proposal should be submitted to the advisor at least 14 days prior to the registration date.

5.2 Registration of guided research

A guided research must be registered with the examination board in the first week of lectures each semester after consultation with the supervisor. The registration form can be found at:

https://www.cit.tum.de/fileadmin/w00byx/cit/Studium/Studiengaenge/Master_Informatik/anm_GuidedResearch.pdf

More information about guided research projects is available at:

https://www.cit.tum.de/cit/studium/studiengaenge/master-informatik/

5.3 Submission of final theses

The submission requirements depend on the student's faculty.

Students enrolled in the **faculty of Informatics** must hand in **one copy** as official evidence to the Studiensekretariat (Infopoint, room MI 00.10.013) by 3 p.m. the 15th every month or the first working day following the 15th. In addition, the **electronic version of the thesis must be submitted to the KrcmarLab by the same deadline**, including all materials listed in 5.4 and including the digitally or hand-signed and scanned copyright agreement (see section 5.4). **It**

is not necessary to hand in a printed copy to Krcmar Lab, unless explicitly requested by the supervisor.

Students enrolled in **other faculties** should refer to the **respective examination regulations** and/or announcements by the responsible examination board to gather the submission requirements. However, **the digital version** (see section 5.4) **must always be submitted** to the Krcmar Lab.

A copy may be submitted to the faculty library by your own choice.

5.4 Submission of seminar papers, guided research, project reports, SEP, IDP

By the **agreed upon** deadline, the **electronic version** must be submitted by email to the **Krcmar Lab** (lehre.winfo@tum.de) and by email to the **supervisor**. To this end, the rules and the procedure as described in 5.5 apply.

5.5 Submission of an electronic version

For all student theses, an electronic version must be submitted by the deadline. The electronic version must be submitted via the portal GigaMove (https://gigamove.rwth-aachen.de/de, instruction at https://www.it.tum.de/it/faq/gigamove/). The link to the GigaMove folder should be send via email to the supervisor **and** the address lehre.winfo@tum.de. The folder structure in the GigaMove folder must adhere to the following guidelines:

Folder name	Content	Compulsory
01 Registration	Digital version of the registration and proposal.	Yes (for final thesis and guided research)
02 Electronic version	Acceptable formats are either Microsoft Word format (.doc, .docx), the Rich Text Format (.rtf), or, **upon agreement with the advisor**, the TeX format (including all source files and figures). Additionally, the document **must** be submitted as Protable Document Format (.pdf). **For submissions in TeX format only:** If the thesis is submitted using TeX format, the file must also be submitted in Rich Text Format (.rtf).	Yes
03 Figures	All figures that are used in the thesis. Acceptable formats: PowerPoint, Visio.	Yes
04 Data	All data that were used in the work (e.g., interviews, survey data, etc.) and all evaluations/analyses of the data (e.g., coded transcripts, statistical evaluations, etc.).	For empirical theses
05 Implementation	Source code, compiled programs, libraries, etc.	For theses containing implemenation
06 Literature	All sources quoted in the thesis as PDF files. Additionally, an Endnote library containing all sources quoted in the thesis.	Yes

07 Presentation	The presentation presented in the Oberseminar/Final Presentation as .pdf and .pptx.	For theses and for other reports if available
08 Copyright agreement	The copyright declaration that is included in section 8.1 must be completed and digitally signed or handwritten signed and scanned by the student and submitted as a PDF in this folder.	Yes
09 Miscellaneous	All other files that arose while the thesis was created.	Yes

The file names should adhere to the following format:

<IDENTIFIER>_v<VERSION NUMBER>

A meaningful identifier should be used.

6 References

Gottsched, J.C. (1728). *Grundriß einer vernunftmäßigen Redekunst*.

Schneider, W. (1988): *Deutsch für Kenner* (3rd ed.). Hamburg, Germany: Gruner+Jahr AG & Co.

Strunk, W. (1919): *The Elements of Style*.

7 Further reading

Davis, G. B., & Parker, C. A. (1997). *Writing the Doctoral Dissertation: A Systematic approach* (2nd ed.). New York, NY: Barron's Educational Series.

Krämer, W. (1993). *Wie schreibe ich eine Seminar-, Examens- und Diplomarbeit* (2nd ed.). Stuttgart, Germany: Gustav Fischer.

Rückriem, G., Stary, J., & Frank, N. (1987). *Die Technik wissenschaftlichen Arbeitens*. (4th ed.). Paderborn, Germany: UTB.

Scheibler, A. (1976). *Technik und Methodik des wissenschaftlichen Arbeitens*. Munich, Germany: Vahlen.

Thomas, U. (1987). Empfehlungen zur formalen Gestaltung von Diplomarbeiten. *Wirtschaftswissenschaftliches Studium, 7*, 367–372.

8 Appendix

8.1 Copyright agreements

Copyright agreement

for a diploma thesis (DA), bachelor thesis (BA), master thesis (MA), system development project (SEP), guided research (GR), application project (AP) or an interdisciplinary project (IDP) at the Krcmar Lab at TU München.

of: ☐ DA ☐BA ☐MA ☐SEP ☐GR ☐ AP ☐IDP (tick where applicable)

from: _____

title: _____

Rules:

1) The thesis is copyrighted by the author.
2) In advance, the author grants the university, the Krcmar Lab, and Prof. Dr. H. Krcmar the exploitation right free of charge, which excludes direct exploitation by sale.
3) In case of an external inquiry, the Krcmar Lab may provide the thesis for third parties for a token charge. The author is notified about this if he signs the agreement accordingly. If the author wants to deny the provision of the thesis, he has to sign the agreement accordingly. The exploitation rights by the author remain unaffected.
4) The author is obligated not to unveil the thesis prior to the assessment or to unveil the completion of the thesis. Non-disclosure provided, a thesis that is transferred by the author to potential liaisons or interview partners is not considered unveiled.
5) Upon agreement between the Krcmar Lab and advisor, top-rated or highly praxis-relevant theses may be published in the series “Studien zur Wirtschaftsinformatik”.
6) In case of interesting partial results and upon agreement, the production of a working paper of the Krcmar Lab can be suggested. The authors comprise the authors of the thesis, the advisor, and the professor.

Agreement:

1) I agree with the above rules.
2) The thesis ☐ **may /** ☐ **may not** be provided for third parties within the meaning of 3). (Mark with a cross where applicable)
3) I ☐ **do /** ☐ **do not** want to be notified if the thesis is provided for third parties within the meaning of 3). (Mark with a cross where applicable)

Garching by Munich, as of _____

Software copyright agreement

for a diploma thesis (DA), bachelor thesis (BA), master thesis (MA), system development project (SEP), guided research (GR), application project (AP) or an interdisciplinary project (IDP) at the Krcmar Lab at TU München.

of: ☐ DA ☐BA ☐MA ☐SEP ☐GR ☐ AP ☐IDP (tick where applicable)

from: _____

title: _____

Rules:

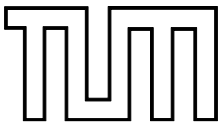
1) The developed software is copyrighted by the author.
2) In advance, the author grants the university, the Krcmar Lab, and Prof. Dr. H. Krcmar any exploitation right free of charge, which excludes direct exploitation by sale.
3) In case of an external inquiry, the Krcmar Lab may provide the software for third parties for a token charge. The author is notified if he signs the agreement accordingly. If the author wants to deny the provision of the software, he has to sign the agreement accordingly. The exploitation rights by the author remain unaffected.
4) The author is obligated not to unveil the software prior to the assessment or to unveil the completion of the software. Non-disclosure provided, software that is transferred by the author to potential liaisons or interview partners is not considered unveiled.

Agreement:

1) I agree with the above rules.
2) The software ☐ **may /** ☐ **may not** be provided for third parties within the meaning of 3). (Mark with a cross where applicable)
3) I ☐ **do /** ☐ **do not** want to be notified if the software is provided for third parties within the meaning of 3). (Mark with a cross where applicable)

Garching by Munich, as of _____

8.2 Exemplary title page



TECHNISCHEN UNIVERSITÄT MÜNCHEN

SCHOOL OF COMPUTATION, INFORMATION AND TECHNOLOGY - INFORMATICS

<Type of student thesis> in <Name of course of studies>

<Thesis title in German>

< Thesis title in English>

Author:	<first and last name of the author>
Supervisor:	<first and last name of the supervisor>
	(Academic title of the professor must be declared, e.g., Prof. Dr. or Prof. name, Ph.D.)
Advisor:	<academic title, first and last name of the advisor>
Submission Date:	<Submission date> (is always the actual submission date, must not be handwritten)

<Logo of faculty>

8.3 Exemplary outline

8.4 Exemplary citations

In-text citations

Book: (Krcmar, 2010, p. 47)

Book section: (Aier & Schönherr, 2006)

Journal: (Amit & Schoemaker, 1993)

Conference paper: (Böhm et al., 2010)

Electronic article: (Weber, 2012)

Webpage with no author: (*Welcome to Krcmar Lab*, 2013)

Unpublished work: (Reynolds & Yetton, 2012)

Report: (Tanriverdi & Du, 2011)

Thesis: (Reynolds, 2009)

Encyclopedia: (WKWI, 2011)

References

Aier, S., & Schönherr, M. (2006). Evaluating Integration Architectures – A Scenario-Based Evaluation of Integration Technologies. In D. Draheim & G. Weber (Eds.), *Trends in Enterprise Application Architecture* (pp. 2-14). Springer Verlag. https://doi.org/10.1007/11681885_2

Amit, R., & Schoemaker, P. J. H. (1993). Strategic Assets and Organizational Rent. *Strategic Management Journal*, *14*(1), 33-46.

Böhm, M., Nominacher, B., Fähling, J., Leimeister, J. M., Yetton, P., & Krcmar, H. (2010). IT Challenges in M&A Transactions – The IT Carve-Out View on Divestments. 31st International Conference on Information Systems (ICIS), St. Louis.

Krcmar, H. (2010). *Informationsmanagement* (5 ed.). Springer. http://www.amazon.com/Informationsmanagement-German-Helmut-Krcmar/dp/3642042856

Reynolds, P. J. (2009). *The Alignment of Business and IT Strategy in Multi-Business Organisations* The University of New South Wales]. Sydney, Australia.

Reynolds, P. J., & Yetton, P. (2012). *Aligning Business and IT Strategies in Multi-Business Organizations*. University of New South Wales.

Tanriverdi, H., & Du, K. (2011). *Trinity Health: Using a Digital Platform and a Unified Model to Create Value in Merger, Acquisition, and Divestiture Transactions* [Teaching Case]. M. I. o. T. M. Sloan School of Management.

Weber, J. (2012). Carve-Out und M&A: 5 Erfolgsfaktoren für die IT-Transformation. *CIO Magazin*(11.04.2012). Retrieved 29.01.2013, from http://www.cio.de/strategien/2309705/

Welcome to Krcmar Lab. (2013). Retrieved 03.05.2021 from https://www.in.tum.de/i17/krcmar/

WKWI, Wissenschaftliche Kommission Wirtschaftsinformatik im Verband der Hochschullehrer für Betriebswirtschaft e.V., Fachbereich Wirtschaftsinformatik der Gesellschaft für Informatik. (2011). Profil der Wirtschaftsinformatik. In K. Kurbel, J. Becker, N. Gronau, E. Sinz, & L. Suhl (Eds.), *Enzyklopädie der Wirtschaftsinformatik* (4 ed.). Oldenbourg. http://www.enzyklopaedie-der-wirtschaftsinformatik.de