**Universität für Bodenkultur Wien**

University of Natural Resources and Life Sciences, Vienna

Department of Water, Atmosphere and Environment

Institute of Sanitary Engineering and Water Pollution Control

**TOPIC OF THE THESIS (IN CAPITAL LETTERS)**

**Master thesis**

**In partial fulfilment of the requirements**

**for the degree of**

**Diplomingenieur**

submitted by:

**SURNAME, NAME (IN CAPITAL LETTERS)**

Supervisor: Surname, name (Ertl/Fürhacker/Langergraber/Perfler)

Co-Supervisor: Surname, name

Student number 0000000 DD.MM.YYYY

This MS-Word-document in fulfilment of the requirements of this guide line is basically qualified to support the creation of the own master thesis. It is available for DOWNLOAD at **www.wau.boku.ac.at/lva.html.**

**Important information at the beginning and
before submitting a master thesis**

**Beginning**

At the beginning of the master thesis some formalities are to be carried out upon consultation with the supervisor:

* Official registration of the master thesis at BOKU using the of form the registration office (download the form from the BOKU homepage: <http://www.boku.ac.at/18929.html>)
* Registration at the Institute by using the form (file card) in the office of the institute

**Submission of the master thesis at the Institute**

The final version of the thesis has to be submitted as a hard copy (single copy) and in electronic form as doc-file and pdf-file (CD). Additionally, all data files used and files of the analyses have to be submitted to the supervisor and should be included on the CD.

Double-page prints are preferred.

**Submission of the thesis at the BOKU**

The submission of the thesis at the registration office of the BOKU has to be carried out according to the current guidelines.

**Notes on the binding (2 pieces for the institute)**

* black binding
* golden or white letters for the first name (small letters) and SURNAME (capital letters)
* starting 4 cm from the bottom
* hard binding (thread less binding)
* hardcover

**Instructions for formatting**

This template gives an example for the layout of the master thesis. The format can be changed if necessary.

Heading: at least Arial 12 (or Times New Roman 14), text colour black

Text style: Arial 11 (or Times New Roman 12), text colour black, justification

Page header: left: heading of chapter – no subchapter (e.g. „Introduction“ [note: the use of shortcuts is advantageous])

Page footer: left: first name and SURNAME, right: page number

Line spacing: 1 line;

Paragraph spacing: before and after a paragraph 6pt (if necessary use other spacing!)

**Structure and content**

The thesis must be structured logically and clearly. Basically, the thesis should be structured in main sections. Cross references [note: the use of shortcuts is advantageous] can be helpful. The single-person form is not commonly used in scientific papers.


##### Acknowledgements

It should include a short description at which institute and under the direction of whom the master thesis was carried out. In this context it is common to thank all persons (full name including their academic titles), who helped the candidate and allocated the necessary tools to carry out the thesis. Thanks can also be given to other persons.

##### Table of contents

Numbering of chapters with Arabic numerals and page numbers. Not more than 3 subchapters should be used (see example below) unless really necessary

1. Introduction 1

2. Objectives 2

3. Fundamentals 3

4. Material and methods 4

5. Results and discussion 5

6. Conclusion and outlook 6

7. Summary 7

8. References 8

8.1 List of references 8

8.2 Citation of references in the main text 8

8.3 Literature recherché 9

9. Appendix 10

10. Curriculum Vitae 11

11. Affirmation 12

##### Abstract

* Short summary of the master thesis in English and German.
* should be identical with the version according to „Abstract Eingabe“ (maximum 2000 characters each, incl. blanks),

##### Abbreviations (if applicable)

|  |  |
| --- | --- |
| COD | Chemical Oxygen Demand |
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# Introduction

The introduction should show briefly and concisely the problems concerned and the reasons which lead to the thesis. The working time is to be mentioned. Here (or also in the chapter 3 “Fundamentals”), existing gaps in this field, open questions, uncertainties or disagreements should be pointed out.

# Objectives

Here, the tasks or questions taken as a basis for the master thesis are to be specified and the exact objective of the thesis is to be described. Furthermore, an overview of the chosen approach is to be given and the structure of the thesis is to be drafted.

Note: Please do not mistake objectives with measures!

# Fundamentals

This section, which can contain a generally undefined number of sub items, should examine the fundamentals the master thesis in general and outline the present state of science and research in this field (literature study). Essential citations referring to the topic should be discussed from a technical point of view or chronologically organised. Results form the own studies should refer to existing results from investigations from other authors.

# Material and methods

This section together with chapter 5 usually forms the main section of the thesis. According to the topic this section has to be structured appropriately. At the beginning the **research methods** used and the necessary pilot tests, which have lead to the elaboration of the methods and the specification of the problem etc. are to be described. Furthermore, the investigated sites, the methods of analyses, the test procedures, the sample taking, the schedule etc. are to be presented.

In the case of a theoretically orientated thesis the methods of the information gathering (e.g. interviews), analysis of the information and approach of the aggregation of the single information to a statement / a conclusion are to be described.

# Results and discussion

Here, all the results of the thesis are presented in a structured way. The results of related tests should be presented in logical order and in such a way, that repetitions or the anticipation of results of later described tests do not occur. The results should be analysed and described here as the experiment programs and procedures show in chapter 4.

At the end of the various sub items the essential results are to be summarised in a few concise sentences.

Clear and immediately understandable tables and figures can be inserted in the text. Pictures are especially valuable for the illustration. Comprehensive protocols, plans, etc. are to be attached at the end of the thesis in the **Appendix**. The labelling of the tables is done on the top, the one for the figures below. They should be clear and precise and should contain literature remarks as well as keys, scales etc. if necessary. The tables and figures are to be numbered in continuous order or by chapter with Arabic numerals.

All Figures and Tables need to be referred to in the main text (Figure 1 and Table 1). The use of cross referencing is highly recommended.

Figure 1: Figure heading

Table 1: Table heading.

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In the discussion the interpretation and explanation of one’s own experimental results should be carried out as well as comparisons with the data known from literature. Contradictions to previous results and experiences must be pointed out and explained. New findings must be highlighted particularly and out conclusions drawn if possible (see chapter 7).

# Conclusion and outlook

In this chapter the objectives and tasks of the thesis are to be finally evaluated. The basis for this is the discussion and interpretation of the results.

All statements and conclusions must be clearly understandable and logically comprehensible.

Based on the results of the thesis an outlook for the future should possibly be made and further necessary research activities are to be pointed out.

# Summary

This chapter should be two to four A4 pages at most and should answer the following questions in the context of the thesis: **Why? What? How? Where? When?**

The essential results of the thesis are to be summarised in clear sentences and if viable in one or two tables/figures.

The summary definitely gains clarity and clearness, if logically related results and the conclusions derived are structured in short sentences, which may be numbered continuously.

# References

## List of references

The list of references should only include quotations, which are namely referred to the context of the thesis. The particular quotations must be listed alphabetically according to the author. If several quotations from one author are used, then they are to be arranged according to the date of publication.

Please use the following formatting for the list of references:

1) Journal papers:

Roorda, J.H., te Poelle, S., van der Graaf J.H.J.M. (2004): The role of microparticles in dead-end ultrafiltration of WWTP-effluent. Water Science & Technology 50(12), 87-94.

2) Conference papers:

Otterpohl R. (2004): New technological developments in ecological sanitation. In: Werner, C., et al. (Eds.): *"Ecosan - closing the loop" - Proceedings of the 2nd International Symposium on ecological sanitation*, 7-11 April 2003, Lübeck, Germany, pp.455-462.

3) Books:

WHO (2006): *Guidelines for a safe use of wastewater and excreta in agriculture and aquaculture*. 2nd edition, World Health Organisation, Geneva, Switzerland.

4) Book chapters:

Wilderer, P.A. (2001): Decentralized versus centralized wastewater management. In: Lens, P., Zeeman, G., Lettinga, G. (editors): *Decentralized sanitation and reuse - Concepts, systems and implementation*. IWA Publishing, London, UK, pp.39-54.

5) Reports:

Kadlec, R.H., Knight, R.L., Vymazal, J., Brix, H., Cooper, P., Haberl, R. (2000, eds.): Constructed wetlands for pollution control – Processes, performance, design and operation. *IWA Scientific and Technical Report No.8*, IWA Publishing, London, UK.

6) PhD, master, diploma thesis

Mayr, E. (2006): Instrumente zur Qualitätssicherung und Betriebsoptimierung bei kleinen Wasserversorgungsanlagen. *Masterarbeit*, Institut für Siedlungswasserbau, Industriewasserwirtschaft und Gewässerschutz, Department für Wasser-Atmosphäre-Umwelt, Universität für Bodenkultur Wien [*in German*].

7) Documents from the internet:

SuSanA (2008): Towards more sustainable sanitation solutions. *Vision statement*, Sustainable Sanitation Alliance, http://www.susana.org/lang-en/intro/vision (date of visit: 26 August 2009).

**Wikipedia is not a suitable reference for citation in a master thesis!**

8) Other:

Navarra, G. (2005): Personal communication.

## Citation of references in the main text

Cite the references in the following style:

1. Put the authors name and add the years of the respective publication in brackets.

e.g. Otterpohl (2004)

Alternatively the authors name and the year of the publication can be put in brackets as well.

e.g. The project has lead to develop a new proceeding (Otterpohl, 2004).

1. If two authors' names are identic, or if you refer to publications of on author published in the same year, add a,b,c... to the year, e.g.:

Muller (2004a), Muller (2004b)

1. for publications with several authors: up to 2 authors name both, from 3 authors on, just name the first author, e.g.:

(Langergraber and Müllegger, 2005)

(Kadlec et al., 2000)

1. at citing a statement of several authors:

The described method has been use several times already (Muller and Maier, 2000; Muller, 2004a, 2004b).

## Literature recherché

Information on literature research available at BOKU is provided by the University library (see <http://www.boku.ac.at/literatursuche.html>).

# Appendix

Larger graphical figures, construction plans, minutes, tables etc. can be added at the end of the thesis as an appendix or attachment. However, an attachment has to be numbered continuously. Furthermore, the number and content of the attachment has to be quoted on a separate sheet. In the text the attachment is shortly quoted by mentioning the attachment number (e.g. Attch. 1, appendix, etc.)

# Curriculum Vitae

As last part of the master thesis the curriculum vitae is to be included. Besides personal data (incl. picture) it should give information on the educational career in schools and universities, and possibly on the professional course of education including internships as well as exams taken.

The format of the curriculum vitae is optional (e.g. in table form).

# Affirmation

I certify, that the master thesis was written by me, not using sources and tools other than quoted and without use of any other illegitimate support.

Furthermore, I confirm that I have not submitted this master thesis either nationally or internationally in any form.

*Place, date, name surname, signature*