



UNIVERSITY OF VAASA  
Faculty of Technology

**Thesis Writing Guideline - Faculty of Technology  
(for Master of Science in Economics and Business  
Administration degree)**

## **The Use and Purpose of the Guidelines**

At the Faculty of Technology, there are five different guidelines for writing theses: guideline for bachelor's degree in business studies, guideline for bachelor's degree in technology, guideline for master's degree in business studies, guideline for master's degree in technology, and general writing guideline for the Faculty of Technology. The guidelines for specific degrees contain instructions for the structure, printing and submitting of the theses. The general writing guideline contains information about the formatting of text and the use of sources and references.

The student is required to use two of these guidelines, 1) general writing guideline for the Faculty of Technology and 2) guideline for appropriate degree.

The purpose of the above guidelines is to ensure that theses at the faculty fulfil the requirements concerning academic writing and layout.

This guideline is for students studying at Faculty of Technology and writing their *master's thesis* for the degree of *Master of Science in Economics and Business Administration*. In addition, students are required to use the general guideline for the Faculty of Technology.

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## 1. MASTER'S THESIS AND ITS PURPOSE

According to regulations concerning the degree Master of Science in Economics and Business Administration (higher university degree), the student is required to write a master's thesis (pro gradu) and pass a written maturity essay.

Master's thesis is a personal independent academic work prepared by the student. The student is advised to start preparing the master's thesis in the second year of higher degree studies. The student has to sign up for a research seminar group of the major subject.

The master's thesis must show familiarity with previous work in the field and must demonstrate ability to use research methods and academic style. The aim of the master's thesis is to improve the student's ability for independent research work and its practical application as well as to enable the student to apply different research methods both independently and in groups. Furthermore, master's thesis must demonstrate the student's ability to use relevant literature and to present research results as well as show ability for doctoral studies.

## 2. FROM MASTER'S THESIS TO GRADUATION

### 2.1. Thesis Subject

The student has to prepare a master's thesis in order to obtain the degree of Master of Science in Economics and Business Administration (higher university degree). The subject of the thesis is suggested by the student and approved by the thesis supervisor of the major department. Teachers may provide help in choosing the subject.

### 2.2. Credits

During the advanced level studies of master's degree studies, the student prepares a master's thesis, which comprises 30 ECTS.

### 2.3. Supervision

The Master's thesis is supervised by a teacher of the major field. The supervisor gives general guidance during the writing process and more detailed advice when necessary. The supervisor gives feedback about the thesis and may ask the student to report on the progress of the work.

### 2.4. Assessment, Approval and Grading

The thesis must be submitted to the faculty in 3 or 4 bound copies. One copy should be submitted to each examiner of the thesis. In addition, one or two copies should be submitted to the Amanuensis, depending on whether or not the student gives permission to publish the thesis online in Tritonia database. An electronic copy of the whole thesis and an abstract must be saved to the Tritonia's database regardless of the student's

decision on public availability. The work and abstract are submitted to Tritonia by filling in a thesis form at <http://www.tritonia.fi/?d=140&l=1>. The thesis cannot be approved unless the work is successfully submitted to Tritonia. Theses copies submitted to the University are not returned to the student.

One copy of the thesis must be submitted to the Amanuensis if the student allows his or her work to be made publicly available outside the Tritonia network. If the work is not to be shown publicly, two copies must be submitted. In addition, an abstract without page number must be submitted to the Amanuensis of the Faculty of Technology. The student should submit only the abstract which is written in the language used in the thesis.

The evaluation time for a Master's thesis is 30 days. This means that the thesis has to be left to the examiners and the Amanuensis for evaluation approximately 5 weeks before the expected acceptance date. If the Master's thesis is the last study attainment of the student, it should be available for the Dean's decision at least 10 days before the deadline for submitting the application for degree certificate (which is 28 days before the graduation day). The Dean usually processes theses two times each month. It is recommended that students check the schedule for graduation well beforehand from the university web pages at <http://www.uwasa.fi/english/studies/degree-and-postgraduate-students/academic-information/graduation/>. The schedule of the Dean's thesis processing is available from the Amanuensis, if needed.

Two evaluators assigned by the Head of the appropriate department make a statement about the thesis to the Dean within 30 days of the day the thesis is submitted for evaluation. Usually one of the evaluators is the supervisor of the thesis. The student is reserved the right to see the statements and a suggestion for the grading before the work is taken to the Dean for approval. The Dean decides on approval of the thesis and confirms the grade based on the statements and suggestion made by the examiners.

The grading scale for Master's thesis is sufficient, satisfactory, good, very good, and excellent. After the Dean's decision has been made, the student will receive a notification about the grade of the thesis and a copy of the evaluators' statement by post.

The student dissatisfied with the thesis grading may apply to the degree committee of the University of Vaasa in writing for rectification of the evaluation of the Master's thesis within 14 days of the day when the grade was released (Universities Act 558/2009, Section 82, and the University of Vaasa Degree Ordinance, Section 13). An appeal cannot be made against the decision made by the degree committee on the request for rectification of the decision concerning the evaluation of a study attainment.

## 2.5. Maturity Essay

In order to obtain the degree of Master of Science in Economics and Business Administration, the student also has to pass a written maturity essay. In the maturity essay, the student is expected to demonstrate knowledge of the subject matter of the master's thesis in a supervised examination. In addition, the student is expected to show ability to write fluent Finnish or Swedish (see exceptions below).

Finnish students write the maturity essay in the language in which the student has received elementary education (Finnish or Swedish). A completed maturity essay in the language of elementary education gives the student excellent language proficiency in the appropriate language (in compliance with Decree A 481/2003).

In case the student has already completed a maturity essay for a bachelor's degree in the same language, the maturity essay for the higher degree concerns only content, not language proficiency. In this case, the language of the maturity essay is determined by the faculty (see Decree on University Degrees, section 16 subsection 3; or the University of Vaasa Degree Ordinance, Section 17). The same applies in all cases where the student has already completed a maturity essay for another higher education degree; the maturity essay concerns only content.

Students who have completed their elementary education in a language other than Finnish or Swedish or have received elementary education outside Finland are not

required to prove their language proficiency in the maturity essay. Also in these cases the language of the maturity essay is determined by the faculty.

International students who have not received their elementary education in Finnish or Swedish but have obtained sufficient language proficiency in Finnish or Swedish may complete their maturity essay in Finnish or Swedish. In this case, language proficiency is assessed according to the criteria used for Finnish students. A successfully completed maturity essay gives the student good language proficiency in Finnish or Swedish in compliance with Decree A 481/2003, and it will be stated in the degree certificate as well.

The Maturity essay can be completed on any of the general examination days. Registration must be made with a form and registration envelope available at the Academic Affairs office. The form is available also at the web pages of the Language Centre. The student may register for the maturity essay only after the Master's thesis has been left for inspection in its final form. The examination date for maturity essay must be agreed on with the thesis supervisor and should be at least 7 days after the thesis has been left for inspection.

In the maturity essay, the student is given two or three questions on the subject of the student's master's thesis. The student is required to answer one of the questions by an essay. The essay should be written for a reader that is familiar with the appropriate field but has not studied the specific research topic of the master's thesis. In other words, the maturity essay should comprise an independent text and the student should not assume that the reader is familiar with the master's thesis.

In addition to academic content, the essay must also demonstrate good language proficiency and comprise a logical, well-structured whole. It must present the topic in writing, not by graphical presentations like tables or charts. The essay must also have a heading (otherwise the examiner evaluating the language of the thesis will not be able to see whether the essay really answers the question). The essay must have an introduction and a conclusion. Suggested length of the essay is approximately one examination sheet

(four pages). It should be written on each line of the paper with empty lines separating between paragraphs.

After the first draft, it is advisable to rewrite the maturity essay, with special emphasis on clear handwriting. Words should be clearly separate and the difference between capital and lower case letters should be clearly shown. The essay must show knowledge of the basics of grammar and punctuation. Excessive use of abbreviations should be avoided. Sentences and clauses must be clearly connected, and they should be logical and show variation. Incorrect reference relationships must be avoided. Word order must be unambiguous and fit the structure of the presented information. The essay must be written in a factual style. Further advice is available at: [www.uwasa.fi/kielipalvelut/opiskelu/kypsyysnayte/](http://www.uwasa.fi/kielipalvelut/opiskelu/kypsyysnayte/).

The result of the maturity essay must be given within 30 days from the date of examination. The grading scale for maturity essay is pass/fail (no other grade). In case the maturity essay is failed on the basis of its content, the student must meet with the thesis supervisor in order to receive feedback before registering for a retake. If the reason for failing is related to problems in the language, the student must contact the examiner responsible for evaluating the language of the essay.

## 2.6. Publicity

All theses are public documents. According to the Act on the Openness of Government Activities (621/1999), official documents shall be in the public domain, unless specifically otherwise provided by the law. A master's thesis becomes public when it has been officially approved.

With commissioned theses, the commissioner may demand that a thesis or parts of it have to remain non-public in order to protect business or professional secrets. In this case, those parts of the work that contain such secrets are not integrated into the master's thesis, but annexed to the thesis as background material. The background

material must conform to the general guidelines on writing master's thesis and must be left for inspection at the same time and in as many copies as the master's thesis. The background material is not bound together with the master's thesis but submitted separately with its own title page and titled BACKGROUND MATERIAL. However, general, non-specific information from the background material should be incorporated in the text of the master's thesis whenever possible. The minimum requirements for the master's thesis proper are that it specifies the theoretical framework, research methods, material and its analysis, and has a list of references. It must comprise an independent, readable whole. Background material is evaluated together with the actual master's thesis but is not made public. After the evaluation, the background material is archived and kept in a secure place at the appropriate department.

Use of non-public background material must always be discussed in advance with the thesis supervisor.

## 2.7. Further Details

For information on layout and other technical details of mater's thesis, see faculty's general guidelines on writing theses. Further advice is given by the staff of the faculty and departments.

### 3. MASTER'S THESES IN FOREIGN LANGUAGES

The student may write the master's thesis also in languages other than Finnish or Swedish. For practical reasons, this language is usually English as the evaluators of the thesis have to master the language in order to be able to evaluate the academic quality of the thesis. Using a language other than Finnish or Swedish must always be discussed with the thesis supervisor in advance.

International students are advised to consult the thesis supervisor and amanuensis about their thesis and maturity essay before they start preparing their master's thesis.

The student is personally responsible for expenses resulting from for example use of language consultant etc.

Appendix 1 shows the names of the departments, subjects, study programmes and modules in Swedish, and English.

## 4. THE STRUCTURE OF THE MASTER'S THESIS

Master's thesis can be structured as follows:

Title page

Table of contents

(Symbols and abbreviations)

(Pictures)

(Tables)

Abstract

Introduction

Main body text (methods, discussion, results)

Conclusions

List of references

Appendices

Parts in parentheses are not compulsory.

### 4.1. Title

The title of the master's thesis should be short, clear and expressive of the content (field and orientation). The student may use a subtitle in order to add focus to the title. No abbreviations should be used in the title.

### 4.2. Covers

The master's thesis must be bound in hard, dark blue covers (marble blue for licentiate theses for the Faculty of Technology), page size A4. It is advisable to reserve enough time for the printing process – at least a week.

Lettering on the front cover should appear in the colour Gold and font Palatino, Times New Roman or equivalent:

- MASTER'S THESIS or LICENTIATE THESIS. Centred, bottom margin 200mm (font size 34pt)
- Author's name (bottom right corner with 30–35 mm margins from bottom and right, font size 20 pt)

Lettering on the spine of the thesis should appear in the colour Gold and font as above:

- Author's name (on the left of the spine with 40mm margin on left)
- Year of publication (on the right of the spine with 30mm margin on right)

#### 4.3. General notes on printing and editing

The student should pay attention to the printing quality of the master's thesis. The hard copy of the master's thesis should be printed out with a laser printer or equivalent. When attaching images, tables or appendices, care should be taken so that the final thesis is free of smudges and extra marks.

The thesis must be printed, single-sided, on standard A4 paper.

#### 4.4. Title page

The title page must follow the format requirements (appendix 2). Title page must state the following:

- University of Vaasa, Faculty of Technology, study subject (in capital letters, bolded and centred)
- Author's name (centred)
- Title of the thesis (in capital letters, bolded and centred) and possible subtitle (bolded and centred)
- Study subject and the type of thesis (right alignment)
- Possible study programme (right alignment)
- Place (in capital letters and bolded) and year (bolded)

- Title page should not be numbered

#### 4.5. Abstract

The master's thesis must include a one-page abstract (in Finnish/Swedish and in English, international students only in English). The abstract page is numbered and bound after list of symbols and abbreviations or, in case there is no list of symbols and abbreviations, after table of contents, before introduction. When the thesis is left for inspection, the student must also submit one separate, unnumbered abstract page. The separate abstract must be submitted in the language in which the thesis is written, and it is needed as an enclosure of the acceptance decision.

The abstract page must state the research problem, material, research methods and major results of the thesis. The abstract should be understandable without having to consult the thesis itself. In the abstract, the student should use established terminology. References or quotations are not to be used. The title of the master's thesis on the abstract page must be identical with the title on the title page. See examples of abstract in Appendix 3.

Fill out ALL parts of the abstract page and take into consideration the margins of the page. The student must give 1-5 keywords. The first keyword should state, as specifically as possible, the field of study. It is followed by the other keywords which further specify the subject of the thesis. You may discuss the keywords with the assistant or your supervisor, if necessary. Keywords can also be searched from the VESA subject thesaurus of the library of the University of Helsinki.

## 5. EDITING THE MASTER'S THESIS

The master's thesis consists of an introduction, main body text (which may include several chapters), and a conclusions chapter. The specific content, approach and emphasis of the thesis are chosen by the student and revised according to the supervisor's comments. There are many different ways to prepare a (good) master's thesis on the same topic. The only general rule is that the first chapter of the thesis is an introduction and the last presents the conclusions.

### 5.1. Introduction

The introduction should capture the reader's interest. It gives the background for the choice of topic and presents the goals of the thesis. It limits the topic and gives a general outline of the approach to the research problem. Furthermore, the introduction should place the thesis in context by referring to other previous or contemporary academic studies on the topic. It also outlines the content and structure of the thesis. In case the thesis is a part of a larger project, the introduction must clearly define the author's contribution to the project.

The introduction does not give any details of the theory, methods or results of the thesis. The length of a typical introduction is 2-3 pages.

### 5.2. Theory and background information

In the chapter after the introduction, the student should give the technical, theoretical and other background information needed in order to understand the solutions and methods used in the later chapters. The theory part should focus only on things that are relevant to the thesis. However, it should not waste time on things that are self-evident to the reader (in other words, there is no need for a textbook-type presentation of the

basics in the field). The student's own new methods are not presented in this section but given later in the thesis.

The 'ideal reader' for the thesis could be defined as a person who is a professional in the field but unfamiliar with the particular topic. Thus all terms and symbols are to be explained when they are introduced but not later in the work. If several theories are used, it is advisable to present them in separate chapters.

In addition to theory, the background information may include for example a company's old products, a system that is about to be replaced, important standards, internal policies of a company, and possible other parts of a project (in case the thesis forms part of a larger project). These elements are to be explained in as much detail as is relevant for understanding the solutions in and the overall significance of the thesis. Whether this should be placed in the theory part of the work is case-specific and depends on the amount of background information of the thesis. The background information could also be integrated in the general outline of the thesis or be given in a separate chapter or appendix.

A more detailed structuring and titles of the chapters (including the main title) are planned and executed on the basis of the work itself. It is highly important that the theoretical part of the work is closely connected to the later description and analysis of the work. In some clearly constructive work, the theory part may be relatively short. The length, however, is not the mere objective, but emphasis should be put on the contents.

### 5.3. Main subject of the thesis

After theory and background information, the student should focus on the main subject of the thesis and apply the theory to a specific research problem. The structure, headings and analysis in this section depend on the subject and on the approach chosen by the

student (and approved by the supervisor). There is no one correct way to approach the main subject of the thesis.

In case the thesis includes scientific data (such as measurements etc.), the appropriate study or experiment must be explained in such detail that the reader can understand all steps of the process. Methods must be presented in a manner that enables replication. For example the mathematical leads of new findings must be presented in such detail that the reader does not have to make extensive calculations in order to follow the process. In case of generally known methods, a short description or reference is sufficient. Less known methods, especially those developed by the author of the thesis, are to be described in much deeper detail. There should always be a clear connection between the theory and the application sections of the thesis.

#### 5.4. Discussion and results

The last section of the main body text (before conclusions) consists of a ‘Results’ chapter or of two separate chapters with headings ‘Discussion’ and ‘Results’. In ‘Discussions’, the student may make comparisons between theory and (for example) measurement results as well as suggest lines of further research or application. The ‘Results’ chapter should focus primarily on the final results of the study, what the student found out and how it relates to the literature. The results should also be placed in the context of the possible earlier studies on the topic.

#### 5.5. Conclusions

Conclusions chapter briefly summarises the whole thesis from start to finish. Aspects of the work that were discussed in the introduction are revisited in the conclusions chapter in order to find out whether initial plans were followed and initial goals achieved.

At the end of the conclusions chapter, the student may discuss possible future research on the subject. If this requires more extensive discussion, it can be placed in a separate chapter at the end. The conclusions chapter should be no more than 3 pages long and should not introduce any new ideas or include references to source materials.

## APPENDICES

### APPENDIX 1. Glossary

#### **Faculty, departments, study subjects, study programmes and orientations in Swedish and English**

##### **Teknillinen tiedekunta**

- Tekniska fakulteten
- Faculty of Technology

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##### **Matemaattiset tieteet**

- Institutionen för matematik och statistik
- Department of Mathematics and Statistics

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##### **Sähkö- ja energiatekniikka**

- Institutionen för elektro- och energiteknik
- Department of Electrical Engineering and Energy Technology

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##### **Tieto- ja tietoliikennetekniikka**

- Institutionen för datavetenskap
- Department of Computer Science

##### **Tuotantotalous**

- Institutionen för produktion
- Department of Production

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##### **Study subjects:**

**automaatiotekniikka**

automationsteknik

automation technology

**energiatekniikka**

energiteknik

energy technology

**fysiikka**

fysik

physics

**matematiikka**

matematik

mathematics

**materiaalitekniikka**

materialteknik

materials science

**sähkötekniikka**

elektroteknik

electrical engineering

**talousmatematiikka**

ekonomisk matematik

business mathematics

**tietoliikennetekniikka**

telekommunikationsteknik

telecommunications engineering

**tietotekniikka**

datavetenskap

computer science

**tilastotiede**

statistik

statistics

**tuotantotalous**

produktionsekonomi

industrial management

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**Study programmes and orientations:****Teknisen viestinnän koulutusohjelma****Utbildningsprogram för teknisk kommunikation****Technical Communication Programme**

**Tietotekniikan koulutusohjelma**

- **ohjelmistotekniikka**
- **tietoliikennetekniikka**

Utbildningsprogrammet för datateknik

- programmeringsteknik
- telekommunikationsteknik

Degree Programme in Information Technology

- Software Engineering
- Telecommunications Engineering

**Sähkö- ja energiatekniikan koulutusohjelma**

- **automaatiotekniikka**
- **sähkötekniikka**

Utbildningsprogrammet för elektro- och energiteknik

- automationsteknik
- elektroteknik

Degree Programme in Electrical and Energy Engineering

- Automation
- Electrical Engineering

APPENDIX 2. Title page of a Master's Thesis

(partly shortened in the example)

**UNIVERSITY OF VAASA**  
**FACULTY OF TECHNOLOGY**  
**SUBJECT (E.G. COMPUTER SCIENCE)**

Author's name

**TOPIC OF THE THESIS**

**Subtitle**

Master's Thesis in  
e.g. Computer Science

(Degree Programme)

**VAASA 20XX**

## APPENDIX 3. Abstract page of a Master's Thesis

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**UNIVERSITY OF VAASA****Faculty of Technology****Author:**

First name Last name

**Topic of the Master's Thesis:**

Name of the thesis (subtitle)

**Instructor:**

First name Last name

**Degree:**Master of Science in Economics and  
Business Administration**Major subject:**

(e.g. Computer Science)

**Degree Programme:**(only if Degree Programme in Multimedia  
systems and Technical Communication)**Year of Entering the University:**

20xx

**Year of Completing the Master's Thesis:**

20xx

**Pages:** xxx

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**ABSTRACT:**

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**KEYWORDS**

## APPENDIX 4. Assessment criteria for master's theses and licentiate theses

Grade	General	Theoretical knowledge, literature and sources	Research problem	Research method and empirical part	Text, structure, language and layout	Thesis process
5	Original; shows independent thinking; results are interesting and make a contribution to knowledge of the subject with which it deals	Strong theoretical knowledge; excellent use of source materials; criticism of source materials is well-grounded	Interesting and well-defined research problem; challenging questions; mature research strategy and approach	Methodologically justified; empirically thorough and systematic	Textually fluent and stylistically excellent; technical documentation is excellent; clear and logical structure; layout is flawless	Excellent thesis process; the student is motivated; agreements were kept; the student took responsibility and shows outstanding ability for independent research
4	Original; shows familiarity with and understanding of the subject. Results are interesting.	Strong theoretical knowledge; very good use of source materials; demonstrates the student's familiarity with the subject	Clear and well-grounded research problem; questions are well-formulated; good research strategy and approach	Methodologically correct; empirically correct	Textually fluent; language and layout are flawless; very good technical documentation; clear and logical structure	Excellent thesis process; the student is motivated; agreements were kept; the student took responsibility and shows good ability for independent research
3	No significant flaws in dealing with the subject; study produces clear results	Good theoretical knowledge; no significant flaws in use of source materials	Good research problem; clearly formulated questions; fairly successful solution to research problem	No significant mistakes; empirical part prepared rather well	Textually good; good technical documentation; no serious weaknesses; very few mistakes; layout fairly flawless	Good thesis process; the student is mostly motivated; agreements were mostly kept
2	Inconsistencies or clear mistakes; results are difficult to interpret	Satisfactory theoretical knowledge; use of source materials is rather limited; flaws in criticism of source materials	Not clearly formulated or bears some inconsistencies; goal not quite achieved	Clear methodological and empirical flaws	Textually rather clumsy; incomplete technical documentation; grammatical errors; some weaknesses in structure; layout problems	Flawed thesis process; the student needed extra guidance; occasional lack of motivation and responsibility
1	Confusing and difficult to follow; several inconsistencies and mistakes; results are questionable	Sufficient familiarity with the subject; theoretical knowledge is limited; number of source materials is limited (often mainly Finnish sources)	Wrongly or confusingly formulated; academic approach is lacking; goals not achieved	Methodologically weak; serious empirical flaws	Textually clumsy; technical documentation is weak and unpolished; grammatical errors; flawed structure; weak layout	The student's motivation is rather weak; the student needed extra guidance; lack of responsibility; the process was prolonged