

Guideline (checklist) for the final MEng (EEM) exam (master thesis and oral)

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I. Credit points and calculation of final grade

The final exam (thesis and oral) contributes 30 credit points to the overall course of study. The final mark of the thesis and the oral exam is calculated in a relation of 80:20

The final mark of the course is calculated as follows:

$$\begin{aligned} &\text{Average grade of prequalification work (60 CP)} \quad \times 2/3 \\ &+ \text{Grade of Final exam (30 CP)} \quad \times 1/3 \\ &= \text{Final Mark} \end{aligned}$$

II. Master thesis

1. Purpose of the thesis and supervision

The thesis constitutes part of the examination, which concludes the scientific task. It is designed to prove the candidate's ability to work independently and scientifically on a given problem within a specified period of time and to present the results accordingly.

Be aware that your thesis is not just the descriptive report of your research term (consultancy report), but a scientific piece of work, showing not only good craftsmanship but your capability to reflect in a wider and deeper context on what you have done during your research about terms and concepts, methodology and survey, results and their interpretation.

The thesis is assessed by the advising tutor as examiner (first supervisor), while another university lecturer assesses the final work as second examiner.

The first supervisor is the main contact person and academic guide during the writing of the thesis. It is strongly recommended to contact the supervisor at least at the beginning and then every three to four weeks times during the elaboration of the thesis. The student is requested to send parts of the manuscript in advance, whenever he/she asks for a meeting. The supervisor will not proofread and correct the thesis before submission! He/she will give a general feedback and discuss general problems, obvious mistakes and misunderstandings as well as possible improvement with the candidate. It is the responsibility of the candidate to improve the

thesis accordingly. The thesis will be checked for plagiarism and might be rejected, if formal aspects do not meet required standards.

2. Using the research design

You can use your research design as a checklist to make sure that you cover the relevant aspects in your thesis. However, it has to be supplemented with all new aspects which came up during your research term. The following points do not mean that you have to mention all and everything in your thesis, but as you are always in a decision making process you should show what, why and how you are going about the various issues.

Research idea – topic: how did it come up, what is the underlying problem, why was the topic chosen?

Overall goal/purpose of research: e.g. what is the justification, relevance, significance, scope, scientific/practical benefit?

Objectives of research and their transfer into research question: e.g. is there a clear objective and research question? Are there clear, logic and measurable sub objectives and sub questions derived? Are there clear answers to these questions in your thesis, showing that you achieved your objectives?

Remember: objectives are described as measurable results/outputs, outcomes or impacts.

Concepts/definitions, assumptions/hypothesis, variables, classifications, and categories of analysis/comparison: are the various terms and concepts of your topic defined in order to make clear what your understanding of them is? Are your underlying assumptions shown and reflected? Are the variables defined and classification systems and categories derived?

Theoretical framework and scientific approach: e.g. do you indicate the scientific level, scope, framework and approach? e.g. basic- applied research, positivist-interpretative-critical, participative-empowering, explorative, experimental, comparative, deductive-inductive...

Is the type of study clearly described and reasons given? e.g. case study, comparative study, representative study, cross sector, longitudinal study, appraisal/feasibility study, evaluation...). Remember: you have taken a decision on your scientific approach – reflect why you approached your topic the way you did? – refer to relevant literature!

Methodology: e.g. which main methodological approach did you use and why? E.g. qualitative-quantitative, triangulation... How did you do the secondary/primary analysis? How did you select your sources, samples? How did you take care about reliability and validity? How did you collect/process/analyse/interpret/present your data? How did you draft/test/revise your instruments/research tools?

Operationalization of research question: how did you transfer them into observable, measurable phenomena? (See also instruments)

Significance and limitations: What are the boundaries of your research? What can your research results be used for? What would have been good to be included but could not be covered due to the limited time and resources, unavailability of information or other major constraints? In how far might your study be biased e.g. by guiding interests, intercultural barriers, language etc.

3. Research instruments and conducting a survey

When you describe your **primary analysis** do not just show the final instruments and results, but reflect briefly on why and how you drafted, tested and reviewed the instruments, how you collected, processed and analysed the data, and what are your own interpretations, conclusions and recommendations of the findings.

As you decided on **instruments** such as questionnaires, interview guidelines, observation

checklists, technical measurements, experimental design, literature review etc., you should also reflect on your decision why and how you measured, observed, explained your research questions with them.

As you identified **participants** of your survey, like experts, residents, community and organisational representatives, business/service providers, etc. you should also reflect why and how you selected and interrogated them.

Reflect on **location and size of population/research sample**: e.g. total, representative sample, random sample etc.

Describe and reflect your decision about the **procedures of collecting data**: e.g. face to face interview, deliver-pick up, Focus Group Discussion, post, e-mail, telephone interview, personal measurements (why, how did you do it in this and not in another way).

If you used **interviews** explain why and what **type of questions** and **questionnaires** you chose: closed (yes, no), open, multiple choice, bipolar opposites, 3-5 options (Likert scale), ranking option, filtering (if yes/no...), don't know option

If you used **personal characteristics** (e.g. sex, age, education, income, household size etc.) as **variables** in your questionnaire, you should decide whether you correlate these with the findings of your survey and show it in your evaluation/interpretation. If not explain why.

If you asked for **knowledge, attitudes, beliefs, opinions, behaviour, expectations** etc., please indicate these various aspects clearly in your thesis and do not just mix them up.

Your **secondary analysis** should not just list books, journals, internet pages etc. you studied, but reflect, why you selected these and not others and show the questions under which you read this literature. If you decide to summarize secondary sources or to write a chapter on your literature analysis (literature review) only those sources should be considered which are of central importance for your thesis. General textbooks (such as books on economic and technical basics, dictionaries etc.) are usually not part of the literature analysis. Do not quote only literature supporting your views, but show that you also know about other/contradicting positions.

4. Assessment criteria for the master thesis

Your final work is assessed according to the following criteria and requirements:

4.1 Formal aspects (details for standards see chapter 5 and 6)

Lay out, technical, aesthetic, formal requirements

Structure according to list of contents, **numbering** of chapters/sub-chapters, **paging** and internal references,

Abbreviations and units (in alphabetic order), graphs, tables, pictures clearly numbered

Reference system and **footnotes**: Consistency, logic, proper indication and quotation

Bibliography complete, correct

4.2 Research design and methodology

Research question: clear, detailed, answered/falsified/verified, clarified in the context, relevance, significance, scope

Methodology: complete (described and reflected), detailed, clear, operationalised, reliable, valid, reflection on impact of limitations

4.3 Contents of the work

Language: Clear, precise, concise, understandable, correct orthography, adequate, stylistic level/niveau/skills, narrative/reporting/explanatory, descriptive/analysing/reflective

Structure: understandable, logical, complete, target oriented, coherent,

Volume: according to requirement, relation of different chapters, balanced

Contents: scope, level, correct, coherent, convincing, comprehensive, complete, consecutive

summarizing, descriptive, analytical, reflective, reasoning, interpretative, comparing, contextualising

External sources and own field research: Scope of secondary and primary analysis, data collection, statistical analysis,

Individual contribution: Secondary analysis compared to primary analysis, reflection, interpretation, recommendations, correlations of variables (e.g. sex, age, education, income etc.) relationships/comparison, calculations, statistical analysis

Results and conclusions: outputs, impact, recommendations compared to objectives and research questions, clarity, focus, scope, reliability, validity, scientific/practical relevance/contribution, hypothesis verified/falsified, consequences reflected, transfer, context comparison.

5. Technical Standards

5.1 Lay out and formal aspects

Language: English

Cover Page: see 6.1

Type size: 11 or 12 pt.

Type colour: black

Spacing: 1.5

Margins: 2.5 cm left, right, top, bottom

No. of words per page: 400-500 words per page

No. of words and pages: ca. ± 80 pages, 25-30 000 words

Decimal separator: use one single type of decimal separator in your entire report

Binding: no specific requirement as long as bound

Pagination: Ensure to paginate your report.

- Use roman numerals on all pages preceding the first page of chapter one.
- Arabic numerals start at chapter one.

Citation style: Author-date referencing e.g. Harvard referencing style

5.2 Structure of contents:

1. Table of contents (according to structure and page numbers)
 2. Preliminary lists
 - 2.1 Abbreviations (in alphabetical order)
 - 2.2 Tables
 - 2.3 Figures with graphs and photos
 - 2.4 Units (in alphabetical order)
 - 2.5 Currencies and exchange rates
 3. Acknowledgement (where appropriate)
 4. Executive summary in English only
 5. Chapter 1
 6. Chapter 2
 7. Chapter 3
 8. Sources/References/Bibliography (in alphabetical order)
 9. Appendices
 10. Declaration
- } Select from your materials only those, relevant for the understanding of your topic, usually approached from a wider context to focusing on details, and widening the view again towards comparing and interpreting results, showing lessons learned, conclusions, perspectives etc.

When writing the thesis your working structure might be much more detailed. However, when you do the final editing you should check whether it makes sense to put parts together in order not to come up with too detailed levels of sub-chapters as this might hamper the understanding of the thesis when reading it.

6. Explanatory Notes on formal aspects

6.1 Abbreviations and acronyms:

- Names of organizations and common acronyms of concepts, key words must be given in full when first introduced, followed by the abbreviated form in capitals e.g. *International Monetary Fund (IMF)*, *Sustainable Development Goals (SDG)*, *Operation and Maintenance (O&M)*.

- For further mentioning within the text, the abbreviated form can be used if it comes up quite often.
- If the abbreviation/acronym is used only rarely, or is not very common, it is helpful for the reader, if it is written in full wording at least in each new chapter when it is used.
- Self-invented abbreviations are only allowed in very rare exceptions.

6.2 Units

Technical units can always be given in abbreviated form and should be included in the Units section.

6.3 Currencies and exchange rates:

- Harmonize the currency that you will use in your thesis.
- Mention the exchange rate(s) used in your thesis at the beginning.

6.4 Executive summary

- This is a highly condensed version of your thesis. It is usually 2-3 pages long. It should be a stand-alone, independent section apart from your thesis such that, any person that reads only the executive summary can walk away with a solid understanding of your research.
- It should summarize:
 - The overall purpose of your thesis,
 - The research question (s)
 - The methods, methodology used,
 - The major findings,
 - Your interpretations
 - The recommendations and conclusions.
- It may include explanation about the structure of the thesis.

6.5 Figures, Tables, Graphs, Photos:

- The format and colour chosen for graphic components have to be consistent throughout the thesis.
- The table/graph/photo/map should be as close as possible to where it is mentioned in the text. Remember to show the units used in your graphical components.
- These are to be numbered
e.g. "Table 1, Table 2..."

Consecutive numbering within a chapter:

e.g. "Table 2.1, Table 2.2..." (i.e. the first and second tables within a chapter)

- Sources have to be shown for each table/graph/photo. If the source is the writer him/herself, use Source: author
- Maps should include at the least, a legend, a title, a scale in metric units, a north arrow and data sources used. Ensure a good resolution to show the map data in question.
- The list of figures, tables should include its number (e.g. Figure 2.1), its title and its page number.

6.6 Formulae:

Formulae will be numbered in sequence for each chapter, units are enclosed [...].

Example of the first formula in the first chapter:

$$P = m \cdot g \cdot h \quad [W] \quad (1.1)$$

- The SI system is valid; older units are not permitted to be used! Exceptions have to be discussed with supervisors (e.g. if SI-units are not at all used in your country)

6.7 Reference to Sources:

The purpose of giving reference to sources is on the one side the accurate corroboration of secondary and primary information used in the scientific work. On the other side it shows how wide and deep in scope and scientific reflection the researcher worked.

All sources used to complete the thesis must be given. Secondary sources are entered at the point in the text where the information is used or the citation made. In addition, all references are to be listed alphabetically in the bibliography. Only those sources are listed which have been quoted in the text. Additional literature (used during the research but not quoted in the text) can be listed separately.

Secondary sources are e.g. books (monographs, compilations, dictionaries etc.), articles from scientific magazines, newspapers etc., brochures, statistics, reports, legal texts, declarations, correspondence and other materials supplied by firms, organizations or governments (published/unpublished), website pages from the Internet, radio/TV broadcasts. If unpublished secondary sources (master theses, studies, unpublished research papers) have been used, a copy of the relevant parts can be demanded by the supervisor for submission, but do not have to be handed in with the thesis.

Primary sources: observation and discussion checklists/guidelines, questionnaires, protocols (recorded/written) from expert interviews, photos, drawings, tables and charts etc. Evidence of some primary sources is to be given in the annex (e.g. questionnaires, checklists). Filled in questionnaires can be demanded by the supervisor for submission, but do not have to be handed in with the thesis.

Detection of **plagiarism** leads to the rejection of the thesis.

6.8 Bibliographical references

Reference to printed sources contains: author (family name and given name), year of publication, title of the publication, place of publication, **and** the page(s) of reference. The exact page of the reference is always required when specific information - textual citations but also for summaries of information - is derived from a source.

- **References incorporated within the text** are as follows: Author (surname), year, page
Example: (Johnson 1998, p. 45)
Detailed information of this source must then be given in the bibliography (see under Bibliography)
- **Footnotes** are used only for explanatory notes and references which are not further discussed in the text, or when the text gets difficult to read due to too many references.
Example:
.....Text text text text text text text text.....⁴⁾

⁴ Johnson, Carla (1998): *Renewable Energy Systems*, London, p. 65, Dengbol-Martinussen, John (2005): *AID*, New York, p. 17ff. support the position I elaborated.

Reference to long internet quotations can also be given in footnotes, if incorporation in the text would disturb the reader. Example:

⁵ <http://www.rec.org/REC/Programs/EnvironmentalAssessment/SEAActivities.html>, printed on 23.01.2003

- **Tables, photos and graphics** are always accompanied with reference to source.
Example for numbers from a source and own calculation:
Table 4.3: Dept. of Statistics (1996), p.18, and own calculation
Detailed information of this source must then be given in the bibliography!
- **Sources cited not containing page reference** are only permitted when a source is generally being referred to:
Example: The concept of 'Intermediate technology' was developed by E.F. Schumacher (Schumacher 1973)
Detailed information of this source must then be given in the bibliography!
- **Shorter word-by-word citations** can be "...directly integrated within the text" (Boie/Klein 2006, p.: 5), while citations of several lines in length should be independently quoted using indentation and single-spacing.
Example:

Appears at the end of the document just before the declaration page.

When there is more than one appendix, assign each appendix a number or a letter heading (e.g., "APPENDIX 1" or "APPENDIX A") and a descriptive title.

6.13 Declaration

This declaration must be written and signed on the last page of your thesis:

Declaration/Affidavit

I hereby expressly declare that I have prepared this work on my own using no sources, aids or resources other than those cited in it. In particular, I expressly affirm that I have not used any services or received support of any kind, paid or unpaid, from ghost-writer agencies, comparable service providers, or other third parties. All text passages cited or borrowed (either verbatim or in spirit) from printed, electronic or other sources have been duly acknowledged by me.

I am aware that violations of this policy may result in a grade of "Insufficient/Fail" (5.0) with respect to my submitted work, and in more serious cases could lead to further measures by Europa-Universität Flensburg including my possible ex-matriculation from the university.

I am aware of and agree to the fact that this text can be digitally stored and checked or scanned using anti-plagiarism software.

Place, date:

Signature

6.14 Cover Page of MEng thesis

..... **Title**

.....**including sub-title**.....

submitted by

Name and Surname

Matriculation No.

Illustration, photo (optional)

Thesis submitted as a partial fulfilment of the requirements for the degree

of

“Master of Engineering (MEng) in Energy and Environmental Management “

Supervisors:

1.

2.

**Energy and Environmental Management
Interdisciplinary Institute of
Environmental, Social, and Human Sciences
Europa-Universität Flensburg
Germany**

6.15 Supplementary documents submitted with the thesis

When submitting supplementary documentation with your thesis such as Excel files, Homer reports, include,

- A summary page that contains the compilation of all your results and
- A comment/guiding page that explains what the different aspects of the file to make it easier for the examiner to understand it.

6.16 Handing in your thesis

No. of copies to be handed in:

- 3 printed copies having your name.
- 2 electronic copies saved in a USB stick provided, each containing the thesis in WORD and PDF format), with 1 copy being anonymized.
- Anonymized electronic version can also be sent to <mailto:sesam@uni-flensburg.de>
- **Binding:** no specific requirement as long as bound

III. Oral Examination

1. Purpose and scope

The 60 minute oral examination consists of a public lecture (30 min.), open to members of the university, in English about the findings of the written thesis and a discussion (30 min) with the examining board. During this discussion, topics other than those in the thesis may be raised. During his/her oral, the candidate must be able to prove his/her understanding of the topic in the thesis and to answer specialized questions. In addition a general basic knowledge must be shown.

2. Assessment of oral examination (thesis presentation and discussion)

Contents

- Clear overview of contents (beginning) and focused summary (end)
- Research question and methodology are clearly and adequately understood/explained
- Understanding of topic, contents is correct, complete and reflected
- Student presents in an understandable way
- Student reacts adequately on audience (questions, opinions)

Structure, methods and media

- Structure of presentation is clear and easy to understand
- Presentation is terse (not too brief, not too excessive), lively and motivating
- Layout of slides, transparencies, flipcharts have good quality
- Student uses different media adequately and well organised

Discussion

- Student shows general basic knowledge
- Student answers specialized questions, shows ability of own reflection and transfer