# Assessment template, Degree projects, 2018-01-03

# Master students and Master of Engineering students

# Guidelines for quality criteria for assessment of degree projects

The degree project is assessed with the criteria: **Process, Engineering-related and scientific content,** and **Presentation.** For each criterion there is one or more objectives with the guidelines for quality assessment. The assessment of each objective is either of very high quality (VHQ), good quality (GQ) or insufficient quality (IQ). Observe that a degree project, where one subsidiary objective is considered to be of insufficient quality cannot receive a passing grade.

For more information about the goals, see higher education ordinance:

<http://www.hsv.se/lawsandregulations/thehighereducationordinance/annex2.4.8b3a8c21372be32ace80003246.html>

*Degree of Master of Arts/Science (120 credits)  [Masterexamen]*

*Degree of Master of Science in Engineering [Civilingenjörsexamen]*

For more information about the KTHs criteria, see:

<https://intra.kth.se/polopoly_fs/1.147277!/Menu/general/column-content/attachment/Bedomningsgrunder%20och%20kriterier-eng.pdf>

Assessment of achievement of objectives is carried out by describing how the objectives have been achieved and where, in the degree project report, the different objectives are included. This information will be presented in the table below. The assessment must be made individually. When the degree project report is completed, it must be handed over to the supervisor. The supervisor will check that the assessment template is filled-in, correctly, and present own assessments of the objectives, especially if discrepancies exist between the assessments of the student and the supervisor.

Appendix A contains tables for Active listeners and for presentation seminar and opposition seminar. Appendix B contains support material for assessment of the written material.

Student Name:

Education programme, Year

Supervisor

Examiner

Reviewer

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# Assessment of the achievement of objectives

|  |  |  |  |
| --- | --- | --- | --- |
| **Student’s self-assessment** | **Achievement of objectives** | **Reference** | **Supervisor’s assessment** |
| **Objectives** | *Here the student describes the self-assessment of the objective.*  *Substantiate statements with arguments* | *Refer to the section and the page number in the degree project where the assessment is described* | *Supervisor presents own assessment -*  *especially the differences in student’s assessment must be clear* |
| Process |  |  |  |
| **Objective P1**  ***Demonstrate, with a holistic approach, the ability to critically, independently and creatively identify, formulate, analyse, assess and deal with complex phenomena, issues and situations even with limited information*** |  |  |  |
| **Objective P2**  ***Demonstrate the ability to plan and with adequate methods undertake advanced tasks within predetermined parameters, as well as the ability to evaluate this work*** |  |  |  |
| **Objective P3**  ***Demonstrate the ability to integrate knowledge critically and systematically, as well as the ability to identify the need for additional knowledge*** |  |  |  |
|  |  |  |  |
| Engineering-related | and scientific | content |  |
| **Objective IV1**  ***Demonstrate considerably advanced knowledge within the main field of study/the specialisation for the education, including advanced insight into current research and development work*** |  |  |  |
| **Objective IV2**  ***Demonstrate specialised methodological knowledge within the main field of study/the specialisation for the education*** |  |  |  |
| **Objective IV3**  ***Demonstrate the ability to participate in research and development work and so contribute to the formation of knowledge*** |  |  |  |
| **Objective IV4**  ***Demonstrate ability to create, analyse and critically evaluate various technological/architectural solutions,***  ***(Observe – this only concerns Master of Science in Engineering students)*** |  |  |  |
| **Objective IV5**  ***Demonstrate the ability to, within the framework of the specific degree project, identify the issues that need to be answered in order to observe relevant dimensions of sustainable development*** |  |  |  |
| **Objective IV6**  ***Demonstrate the ability to, within the framework of the degree project, assess and show awareness of ethical aspects on research and development work with respect to methods, working methods and the results of the degree project*** |  |  |  |
| **Objective IV7**  ***Demonstrate the ability to, within the framework of the degree project, identify the role of science and the engineer in the society*** |  |  |  |
|  |  |  |  |
| Presentation |  |  |  |
| **Objective Pres1**  ***Demonstrate the ability to, in English, clearly present and discuss his or her conclusions and the knowledge and arguments on which they are based in speech and writing to different audiences*** |  |  |  |
|  |  |  |  |

# Course objectives according to the course plan, Master of Science in Engineering (Civing)

1. *Demonstrate considerably advanced knowledge within the main field of study/the specialisation for the education, including advanced insight into current research and development work,*
2. *Demonstrate specialised methodological knowledge within the main field of study/the specialisation for the education,*
3. *Demonstrate the ability to participate in research and development work and so contribute to the formation of knowledge,*
4. *Demonstrate, with a holistic approach, the ability to critically, independently and creatively identify, formulate, analyse, assess and deal with complex phenomena, issues and situations even with limited information,*
5. *Demonstrate the ability to plan and with adequate methods undertake advanced tasks within predetermined parameters, as well as the ability to evaluate this work,*
6. *Demonstrate ability to create, analyse and critically evaluate various technological/architectural solutions, (only for master of engineering students – Civ.ing)*
7. *Demonstrate the ability to integrate knowledge critically and systematically, as well as the ability to identify the need for additional knowledge,*
8. *Demonstrate the ability to, in English, clearly present and discuss his or her conclusions and the knowledge and arguments on which they are based in speech and writing to different audiences,*
9. *Demonstrate the ability to, within the framework of the degree project, identify the role of science and the engineer in the society,*
10. *Demonstrate the ability to, within the framework of the specific degree project, identify the issues that need to be answered in order to observe relevant dimensions of sustainable development, and*
11. *Demonstrate the ability to, within the framework of the degree project, assess and show awareness of ethical aspects on research and development work with respect to methods, working methods and the results of the degree project.*

# Course objectives according to the course plan, Master

1. *Demonstrate considerably advanced knowledge within the main field of study/the specialisation for the education, including advanced insight into current research and development work,*
2. *Demonstrate specialised methodological knowledge within the main field of study/the specialisation for the education,*
3. *Demonstrate the ability to participate in research and development work and so contribute to the formation of knowledge,*
4. *Demonstrate, with a holistic approach, the ability to critically, independently and creatively identify, formulate, analyse, assess and deal with complex phenomena, issues and situations even with limited information,*
5. *Demonstrate the ability to plan and with adequate methods undertake advanced tasks within predetermined parameters, as well as the ability to evaluate this work,*
6. *Demonstrate the ability to integrate knowledge critically and systematically, as well as the ability to identify the need for additional knowledge,*
7. *Demonstrate the ability to, in English, clearly present and discuss his or her conclusions and the knowledge and arguments on which they are based in speech and writing to different audiences,*
8. *Demonstrate the ability to, within the framework of the degree project, identify the role of science and the engineer in the society,*
9. *Demonstrate the ability to, within the framework of the specific degree project, identify the issues that need to be answered in order to observe relevant dimensions of sustainable development, and*
10. *Demonstrate the ability to, within the framework of the degree project, assess and show awareness of ethical aspects on research and development work with respect to methods, working methods and the results of the degree project.*

# Assessment for the achievement of objectives

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Examiners assessment** | **Subject-knowledgeable teacher (that reviews the thesis) assessment, evaluation** | **Final assessment of the achievement of objectives** |
|  | *Here the examiner gives assessment of the objectives – especially differences compared to the supervisors assessment should be pinpointed* | *If the reviewer, who is the knowledgeable teacher, has different opinion than examiner, it will be reported here.* |  |
| **Achievement of objectives:** |  |  | **Final assessment for achievement of objectives:** |
| Process (P) |  |  |  |
| **P1** |  |  |  |
| **P2** |  |  |  |
| **P3** |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Engineering) | related and | scientific | content (IV) |
| **IV1** |  |  |  |
| **IV2** |  |  |  |
| **IV3** |  |  |  |
| **IV4** |  |  |  |
| **IV5** |  |  |  |
| **IV6** |  |  |  |
| **IV7** |  |  |  |
| Presentation (Pres) |  |  |  |
| **Pres1** |  |  |  |

**Final Grade:**

# Summary of the achievement of objectives and final grade

*Criteria for grades based on assessment template*

**Summary of assessment template**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Process** | | **Engineering-related and scientific content** | | **Presentation** | |
|  | *Final assessment* |  | *Final assessment* |  | *Final assessment* |
| **P1** |  | **IV1** |  | **Pres1** |  |
| **P2** |  | **IV2** |  |  |  |
| **P3** |  | **IV3** |  |  |  |
|  |  | **IV4** |  |  |  |
|  |  | **IV5** |  |  |  |
|  |  | **IV6** |  |  |  |
|  |  | **IV7** |  |  |  |

**Final Grade:**

# Appendix A. Tables for Active listeners and for presentation seminar and opposition seminar

## Active listeners (actively participating in other students seminars)

|  |  |  |  |
| --- | --- | --- | --- |
| **Seminar** | **Title of the thesis and date of presentation** | **Name of the presenting student** | **Signature of the presenting student’s examiner (must be signed at the seminar)** |
| ***Seminar 1*** |  |  |  |
| ***Seminar 2*** |  |  |  |

## Presentation seminar

|  |  |  |  |
| --- | --- | --- | --- |
| **Presentation**  **Date** | **Name of the student that oppose** | **Name of the opponent’s examiner** | **Signature of the presenting student’s examiner (must be signed at the seminar)** |
|  |  |  |  |

## Opposition seminar

|  |  |  |  |
| --- | --- | --- | --- |
| **Opposition**  **Date** | **Name of the student that presents** | **Name of the examiner for the presenting student** | **Signature of the presenting student’s examiner (must be signed at the seminar)** |
|  |  |  |  |

*OBSERVE! Do not forget to fill in the opposition report and hand it in, not later than the day before presentation day. Hand over the report to the examiner of the student, that is presenting the thesis, and to your own examiner.*

# Appendix B. Support material with assessment criteria that is used when assessing degree projects, Master and Master of Science in Engineering 5th year

The degree project is assessed with the criteria: **Process, Engineering-related and scientific content,** and **Presentation.** This material is a support when assessing very high quality (VHQ), good quality (GQ) or insufficient quality (IQ).

## Process, P1-P3

**P1. Assessment template:** *Demonstrate, with a holistic approach, the ability to critically, independently and creatively identify, formulate, analyse, assess and deal with complex phenomena, issues and situations even with limited information (Corresponds to objective 4 in course plan for Master and Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | The work has a clear and distinct question that can be answered, adequately. There should be a clear link between the question formulation, results and conclusions. Work conclusions are well-founded and accurate. Good ability to independently identify, formulate, analyze, assess and deal with complex phenomena.  *Show good ability to put yourself in another's work and formulate relevant and constructive criticism.* |
| **VHQ** | Additionally, the question (or problem statement) has been sophisticated formulated and the work demonstrates a holistic approach, by having the question formulation (or problem statement) and/or methods extracted from several subjects.  *Very good ability to and, with a holistic view, critically, independently and creatively identify, formulate, analyze, assess and handle complex phenomena and question formulation (or problem statement) even with limited information* |
| **IQ** | The work has an unclear or missing question formulation (or problem statement) or goal formulation. Irrelevant (a) method(s) are used. The work does not report an answer to the question or the result is not related to the case. The conclusions are incorrect. |

**P2. Assessment template:** *Demonstrate the ability to plan and with adequate methods undertake advanced tasks within predetermined parameters, as well as the ability to evaluate this work (Corresponds to objective 5 in course plan for Master and Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | An elaborated and realistic plan for the work has been formulated. The plan’s schedule (time frame with milestones), which has been communicated and agreed upon, has been followed during the implementation of the work. If adjustments have been necessary during the implementation of the work, these have been documented and communicated.  *Independently plan and execute work within agreed time frames, show initiative and be open to supervision and criticism (feedback).* |
| **VHQ** | .  In addition, the student has demonstrated very good planning and compliances of milestones.  *Very good ability to plan and carry out advanced tasks within predetermined parameters. Selecting and applying appropriate methods to evaluate this work* |
| **IQ** | Planning has failed and appropriate methods are missing. The plan and the contents have not followed the announced and established schedule (time frame with milestones). Documentation of the relevant factors for the deviations is not reported. |

**P3. Assessment template:** *Demonstrate the ability to integrate knowledge critically and systematically, as well as the ability to identify the need for additional knowledge (Corresponds to objective 6 in course plan for Master and objective 7 in course plan Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | Obtain relevant knowledge and methods and applied them appropriately.  *Independently identify own needs for new knowledge and acquire those skills.*  *.* |
| **VHQ** | The evaluation is detailed (for example, several alternative methods are used) and the results are analyzed openly and critically. |
| **IQ** | Areas of relevance to the work are not reported or are not used. Selected and acquired knowledge is not reported in a clear way and lacks justification. |

## Engineering-related and scientific content, IV1- IV7

**IV1. Assessment template.** *Demonstrate considerably advanced knowledge within the main field of study/the specialisation for the education, including advanced insight into current research and development work (Corresponds to objective 1 in course plan for Master and Master of Science in Engineering))*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | Demonstrate a significant and deeper insight into current research and development in the main field.  The work utilizes knowledge from advanced studies in the main field. A comprehensive review of existing literature, as well as a reflection on the work linked to the frontiers of knowledge in the main field is present.  This work contributes to a clearly recognized way to new knowledge in the main field. The work demonstrates the ability to make an independent contribution to the field.  A written review of existing literature, as well as a reflection on the work linked to the frontiers of knowledge in the main field is presented. |
| **VHQ** | Additionally, the literature contains a clearer synthesis of past and current research and / or development work that is relevant to the work. |
| **IQ** | Work linked to the main field is weak or missing. Knowledge from advanced studies in the main field is not utilized. Summary and of the literature, as well as reflection on the work linked to the associated area of expertise is lacking. |

**IV2. Assessment template.** *Demonstrate specialised methodological knowledge within the main field of study/the specialisation for the education (Corresponds to objective 2 in course plan for Master and Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | Demonstrate a deeper methodological knowledge in the main field / focus of the education programme. The relevant engineering or scientific theories and methods have been identified. A well-motivated choice of theories and methods has been made. Selected theories and methods have been applied in an innovative and accurate way.  The degree project including written material uses a deep and broad knowledge of methodologies. |
| **VHQ** | In addition, selected theories and methods have been applied and / or combined in a more innovative way. |
| **IQ** | Selected theories and methods for the work, are irrelevant. The student has not demonstrated that the selected theories, methods are mastered |

**IV3. Assessment template.** *Demonstrate the ability to participate in research and development work and so contribute to the formation of knowledge (Corresponds to objective 3 in course plan for Master and Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | *From problem statement and methodology, show very good ability to systematically apply engineering and scientific skills like problem formulation, modeling, analysis, development and evaluation.*  Involved in research and development work and contribute to the development of knowledge by clearly report the contribution to research or development work. |
| **VHQ** | In addition, the work contributes to the significance knowledge (it should, for example, after processing together with the supervisor, be able to be published in a peer-reviewed conference, or to apply it in practical use for engineering). |
| **IQ** | The work is of such character, where it is difficult to be linked to research or development work. |

**IV4. Assessment template.** *Demonstrate ability to create, analyse and critically evaluate various technological/architectural solutions, (only for master of engineering students - Corresponds to objective 6 in course plan for Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | Good ability to create, analyze and critically evaluate different technical / architectural solutions. The work will demonstrate new solutions that are critically and adequately analyzed and evaluated. Moreover, alternative solutions have been developed, analyzed and presented in a relevant and comprehensive manner. |
| **VHQ** | - |
| **IQ** | The work has not been reported clearly. Alternative solutions are lacking. |

**IV5. Assessment template.** *Demonstrate the ability to, within the framework of the specific degree project, identify the issues that need to be answered in order to observe relevant dimensions of sustainable development (Corresponds to objective 9 in course plan for Master and to objective 10 in course plan for Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | Identify the question formulations that must be addressed to be able to consider relevant dimensions of sustainable development.  Report and motivate the work and discuss results from a perspective with a focus on sustainable development. |
| **VHQ** | - |
| **IQ** | Not take this aspect into account, despite the fact that the examiner considered to be of importance for the current thesis. This learning outcome can in some cases be irrelevant. |

**IV6. Assessment template.** *Demonstrate the ability to, within the framework of the degree project, assess and show awareness of ethical aspects on research and development work with respect to methods, working methods and the results of the degree project (Corresponds to objective 10 in course plan for Master and to objective 11 in course plan for Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | *Where it is relevant to the task, show awareness of societal and ethical aspects, including economically, socially and ecologically sustainable development.*  Good ability to assess and demonstrate awareness of ethical aspects of research and development work regarding methods, procedures and results of the thesis.  Reports ethical implications of the performed work. |
| **VHQ** | - |
| **IQ** | Takes no account of the ethical aspects, despite the fact that ethical aspects are considered to be relevant for the work. |

**IV7. Assessment template.** *Demonstrate the ability to, within the framework of the degree project, identify the role of science and the engineer in the society (Corresponds to objective 8 in course plan for Master and to objective 9 in course plan for Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | In an independent way, identify science and engineer's role in society. Implemented the degree project course without extraordinary support or adjustments or otherwise required extra large resources for carrying out the work. |
| **VHQ** | - |
| **IQ** | Cannot by him- or herself prove science and the role of the engineer in society. Requires great need of support during project implementation. These supports have been too broad to ensure that students can work independently after graduation. |

## Presentation

**Pres 1. Assessment template:** *Demonstrate the ability to, in English, clearly present and discuss his or her conclusions and the knowledge and arguments on which they are based in speech and writing to different audiences (Corresponds to objective 7 in course plan for Master and to objective 8 in course plan for Master Master of Science in Engineering)*

### Assessment criteria

|  |  |
| --- | --- |
| **GQ** | **Written report.** Show a *very well written* and well disposed report, with a clear statement of work and results, clear analysis and well substantiated arguments, as well as good language processing, formal and scientific accuracy.  **Oral presentation.** Show ability to orally present with clear reasoning and analysis, and good ability to discuss work.  The written material treats the selected area with a relevant and correct language.  **Opposition**. The Opposition protocol (opposition report) is clearly and fully completed. Respondent's report has been valued critically, with strengths and weaknesses identified. Relevant and constructive suggestions for improvement have been given.  The *written opposition* also has been given such relevant and realistic suggestions for improvement that the report clearly can be improved if they are followed. Estimates of the report is thorough and reviewing work methods, results and evaluation in a way that demonstrates the opponent's own in-depth knowledge in the main field. |
| **VHQ** | - |
| **IQ** | The work lacks essentially adequate language processing, which makes the work difficult to understand, or poorly judged based on the report. |