UNIVERSITETS- OG HØGSKOLERÅDET
The Norwegian Association of Higher Education Institutions

Descriptions of Grades and Assessment Criteria for Bachelor's Theses in Engineering

Descriptions of Grades and Assessment Criteria for Bachelor's Theses in Engineering is prepared by the National Council for Technological Education (NRT). The descriptions are completed according to the Norwegian National Qualifications Framework for higher education and the National Curriculum Regulations for Engineering Education laid down by the Ministry of Education and Research on 3 February 2011. The descriptions are used for all bachelor's theses in engineering in accordance with this curriculum, starting spring 2014. The term work refers to the written thesis and any products, if relevant, as well as the oral presentation, if relevant.

Grade / level	Description
A Excellent	**1. Excellent work which is clearly outstanding and is characterized by:** 2. The candidate has extremely good insight into engineering and demonstrates engineering expertise at an outstanding level. 3. The candidate is able to select and apply relevant scientific theories and methods at an outstanding level. 4. The candidate is able to produce an outstandingly relevant and clear approach to the issue addressed and has planned and executed an extremely high quality piece of engineering work. 5. This is an advanced and/or innovative contribution. The analysis and discussion have an outstandingly good scientific foundation and justification and are very relevant to the issue that is addressed. The candidate demonstrates extremely good critical reflection and distinguishes clearly between his/her contribution and the contributions from others. 6. The form, dissemination, structure and language are at an extremely high level.
B Very good	**1. Very good work that is characterized by:** 2. The candidate has very good insight into engineering and demonstrates a very good level of engineering expertise. 3. The candidate is able to select and apply relevant scientific theories and methods at a very good level. 4. The candidate is able to produce a very relevant and clear approach to the issue addressed and has planned and executed a high quality piece of engineering work. 5. This is a very good and/or innovative contribution. The analysis and discussion have a very good scientific foundation and justification and are clearly relevant to the issue that is addressed. The candidate demonstrates very good critical reflection and distinguishes clearly between his/her contribution and the contributions from others. 6. The form, dissemination, structure and language are at a very high level.
C Good	**1. Good work that is characterized by:** 2. The candidate has good insight into engineering and demonstrates a good level of engineering expertise. 3. The candidate is able to select and apply relevant scientific theories and methods at a good level. 4. The candidate is able to produce a relevant and generally clear approach to the issue addressed and has planned and executed a good quality piece of engineering work. 5. This is a good contribution with some creative elements. The analysis and discussion have a good scientific foundation and are relevant to the issue that is addressed. The candidate demonstrates good critical reflection and generally distinguishes between his/her contribution and the contributions from others. 6. The form, dissemination, structure and language are at a good level.

D Satisfactory	**1. Clearly acceptable work that is characterized by:** 2. The candidate has satisfactory insight into engineering and demonstrates a satisfactory level of engineering expertise. 3. The candidate is generally able to apply relevant scientific theories and methods. 4. The candidate is able to produce a fairly relevant and clear approach to the issue addressed. However, the objectives could have been defined more clearly. The planning and execution result in a piece of engineering work at a satisfactory level. 5. This is a satisfactory contribution. The analysis and discussion have a good scientific foundation and are relevant to the issue addressed but there is potential for improvement. The candidate demonstrates critical reflection and has some problems distinguishing between his/her contribution and the contributions from others. 6. The form, dissemination, structure and language are at an acceptable level.
E Sufficient	**1. Work that is acceptable as it satisfies the minimum criteria and is characterized by:** 2. The candidate has sufficient insight into engineering and demonstrates a sufficient level of engineering expertise. 3. The candidate is only just about able to apply relevant scientific theories and methods. 4. The candidate has an adequate approach to the issue addressed. The objectives are described, but are unclear. The planning and execution result in a piece of engineering work at an acceptable level. However the candidate shows limited scientific progress and requires close supervision. 5. This is a limited and fragmentary contribution. The analysis and discussion have adequate scientific foundation but should have more closely tied to the issue addressed. The candidate demonstrates a sufficient level of critical reflection but has problems distinguishing between his/her contribution and the contributions from others. 6. The presentation is generally acceptable but has clear deficiencies in terms of form, dissemination, structure and language.
F Fail	1. **Work that does not meet the minimum criteria and is characterized by:** 2. The candidate does not have the necessary insight into engineering and has an inadequate level of engineering expertise. 3. The candidate lacks the competence to apply relevant scientific theories and methods. 4. The candidate does not have the ability to adequately address the issue. The objectives are neither clearly defined nor described. The planning and execution of the work is not acceptable. 5. This is a very limited and fragmentary contribution. The analysis and discussion have an inadequate scientific foundation and are loosely tied to the issue addressed. The candidate demonstrates an insufficient ability for critical reflection and fails to distinguish between his/her contribution and the contributions from others. 6. The presentation has significant deficiencies in terms of form, structure and language.

Detailed description of the above assessment criteria for bachelor's theses in engineering:

The term work refers to the written thesis and any products, if relevant, as well as the oral presentation, if relevant.

1. **General impression**

   Overall impression: Overall impression of the work.

   Independent work: To what extent has the candidate generated important elements/issues/ideas in the work himself or herself? Is the candidate able to work independently to find and use relevant literature and methods, and complete an independent research or development project with supervision? Is there personal initiative? What kind of help and supervision has the candidate received in the various phases in the work? Has the candidate demonstrated the ability to take advantage of the scientific expertise available in the department and apply it in his or her own work?

   Level: Assessment of each criterion is done in accordance with the bachelor's degree in engineering.

   Time: An assumption in the assessment is that the work was delivered within the nominal timeframe.

2. **Insight into engineering**

   Is the candidate's grounding in engineering adequately described? Is the work placed in a comprehensive system perspective and demonstrates for example life cycle, environmental, health, societal, economic and ethical perspectives? To what degree can the candidate update his/her knowledge in the area through information searches, as well as contact with the scientific expertise and practical work experience?

3. **Theoretical insight**

   To what degree does the work document a good theoretical overview, specialization within an area of engineering theory as well as knowledge about relevant research and development, methods and approaches?

4. **Execution**

   Description of objectives: To what degree is the issue addressed? Is the background and objectives expressed in a clear and understandable manner?

   Level of skill: To what degree does the work document the ability to plan and execute a piece of engineering work (projects, assignments, experiments)? To what degree is there documentation of the ability to collect, to assess, to use and to refer to information and scientific material with relevance to the issue addressed?

5. **Results**

   Results: To what degree does the work build on earlier experimental or development work? Does the work demonstrate quality and creativity, and does it contribute to innovation or realization of products, systems or solutions that are sustainable and useful for society?

   Analysis and discussion: To what degree is the analysis and discussion scientifically grounded and clearly related to the issue addressed? To what degree is the evaluation of the results based on a methodical approach?

   Reflection: To what degree is there a reasonable assessment of the significance of the results? Is the candidate critical to various information sources? Are sources of uncertainty such as methodical error, measurement error and such like assessed and discussed? Are relevant ethical issues connected to science, the profession, societal aspects and research analysed?

   Own contribution/achievements: To what degree has the candidate been able to distinguish between his/her contribution and the contributions from others (source identification and clear referencing)? To what degree does the conclusion present how far the objectives were reached? Is there a reasonable and substantiated recommendation for further work, dissemination, implementation or application of the results?

6. **Presentation**

   Structure: Is there a logical and structural form in the written work? Is the work generally well-arranged? Is there a uniform style for the references, figures and tables?

   Form and communication: To what degree is the issue and the results communicated with the required academic and linguistic precision? To what degree is the thesis readable with suitable linguistic quality? What is the quality of the figures and tables? What is the quality of the product, if applicable? What is the quality of the oral presentation, if applicable?

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Grading Form for Bachelor's Theses in Engineering

The weighting of each criterion in the assessment can be decided in dialogue with candidate(s) and possibly external examiner(s) prior to starting work on the bachelor's thesis.

Assessment of	**Weighting percentage**	**Weighting for specific work** *(possible examples of theses with practical focus)*	**Sub-criteria**	**Comments**	**Assessment**	**Total points / grade**
1. General impression	10-15	10	Overall impression Independent work Level Time			
2. Insight into engineering	15-25	25	Apart from the stated assessment criteria, sub-criteria can be added for an individual thesis			
3. Theoretical insight	15-25	15	Apart from the stated assessment criteria, sub-criteria can be added for an individual thesis			
4. Execution	15-25	20	Description of objectives Level of skill			
5. Results	15-25	20	Results Analysis and discussion Reflection Own contribution/ achievements			
6. Presentation	10-15	10	Structure Form and communication Work effort			
Final Grade						

The connection between the sum of points and the grade (this uses the same scale as recommended for the assessment of master's theses in MNT subjects):

A: 90-100 points
B: 80-89 points
C: 60-79 points
D: 50-59 points
E: 40-49 points
F: 0-39 points