

## Criteria for project and Master thesis reports

The main guidelines for the different grades given at NTNU is found at <http://www.ntnu.no/studier/eksamen/karakterskala>. To help in the process of deciding a grade, we have at IDI developed some more detailed criteria that you should take into account when deciding on a grade. Please also use these criteria when writing the grounds for the grading.

- **Scientific and technological challenge and results**
  - **Challenge:** Is the task an application of known methods on a standard class of problems, or are any of these new? Have similar tasks been dealt with before? What are the requirements for abstraction and innovation? A simple task shall never be given a top grading.
  - **Substance of the results:** Does the work contain concrete results where all the necessary details have been worked out (for instance in terms of detailed designs / running prototypes, simulations, formal definitions and calculations, or carefully constructed empirical studies)? Is the amount of work behind the report sufficient (relative to the number of authors)? It should be taken into account that working towards concrete results may require time to get equipment, software, etc. configured and up and running, and that, e.g., formalization or empirical data analysis may be time consuming relative to the number of pages in the report.
  - **Broadness:** What are the requirements for maturity and overview of the field? How broad are the issues addressed and what is the scientific / technical / disciplinary span of the assignment?
- **Significance and originality**
  - **Novelty:** Does the work give new facts, ideas or insights? Are there innovative elements?
  - **Relation to the state-of-the-art:** Has the candidate shown sufficient insight into and overview over the problem domain? Does the manuscript include representative references to other work within the domain? Is the candidate able to put his/her own work into a wider context and the work of others? The references and bibliography are important in this context.
  - **Utility:** Is the work practically or theoretically useful? Although care should be taken to assess the utility with respect to the potential of the assignment, not the assignment itself, the candidate has a co-responsibility for the formulation of the assignment, and her/his ability to pose adequate research questions and formulate a technical approach should be taken into account.
  - **Autonomy:** What has the candidate achieved by him/herself from the given task/problem? Has s/he demonstrated sufficient ability to work independently? Are there original ideas in the work stemming from the student? Note that interaction with a supervisor is a natural part research activities and does not per se count negative with respect to autonomy. To get a proper evaluation, the sensor must be informed about how the problem formulation has evolved through the work and the support given to the student.

- **Methodological quality**

- **Method:** Is any method used in the work and (if relevant) is there an explicit and well argued choice of method? Are suitable formalisms chosen and used? If the research has any ethical implications (e.g., experiments involving human subjects, handling of sensitive information), have these been properly addressed?
- **Methodological reliability:** Are the methods used and the investigations done sufficient to support the conclusions? Is there a satisfactory discussion of any threats to validity?
- **Logical consistency:** Are there contradictions in the report? Do the observations support the conclusions? Are there alternative interpretations of the observations? Is the basis for the conclusions (e.g. the observations) complete?
- **Procedural quality:** Is the working procedure well-documented and is any quality assurance with respect to the work/results carried out? If the task is an empirical study, the procedure should be documented in enough detail that the study would be repeatable by other researchers. If the task includes the development of an IT artefact (e.g., hardware or software), the quality of the artefact (wide sense; documentation included) should be taken into account.

- **Presentation**

- **Structure:** Is the report written in a manner that makes it easy for the reader to get an overview over starting point/objectives, what is done and the conclusions/results, and to maintain this overview throughout the reading. Does the report contain the necessary elements as abstract/summary, table of contents, introduction, etc. in an appropriate form
- **Clarity:** Is it easy/possible/difficult/impossible to follow and understand what is written? Are proper references given, and is the reference list complete and according to bibliographical standards?
- **Information density:** Is the relation between content and volume satisfactory? How long is it between the "golden nuggets"? Is information about details unnecessary for progression of the reading put into appendixes?
- **Style:** Does the candidate make a distinction between essentials and details? Does the report motivate the reader to keep on reading, or is it boring? Is there an overview chapter/section (cf. structure) which makes the work more available? Is the language used in a grammatically correct manner and with a good flow.
- **Illustrations and tables:** Are illustrations and tables clear, reasonably self-explanatory and informative? Is there unnecessary duplication between text and illustrations/tables. Could some of the text be better conveyed in the form of illustrations or tables?

## **The final evaluation**

All experience shows that the final evaluation is best based on an overall judgment of the quality of the work. We recommend that equal weight is put on the four main groups of criteria:

- Significance and originality (0-25 points)
- Scientific and technological challenge and results (0-25 points)
- Methodological quality (0-25 points)
- Presentation (0-25 points)

Based on aggregated points the final grade is decided as follows:

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

Revised May 26, 2009 (RM)