Graded Degree Projects at the School of ICT

(MsC of Engineering [civilingenjörsexamen] and master degree)

Johan Montelius, Christian Schulte, Anders Västberg

April 27, 2011

This document describes the guidelines how graded degree projects for a *MsC of Engineering* (civilingenjörsexamen) as well as a *master degree* are to be carried out at the school of Information and Communication Technology, KTH. Note that this document summarizes the conduct of degree projects and refers to the respective legally binding aspects.

Given that the process of the degree project defines one third of its grade, it is important to understand that following the process aids students to pursue and complete their degree project in a well-planned and timely manner.

1   Degree project goals

The general goals for a degree project for a student can be summarized as follows. Students should:

- be able to apply relevant knowledge and skills within a technical area to a given problem.

- within given constraints, even with limited information, be able to independently analyze and discuss complex problems and handle large problems on an advanced level in a technical area.

- reflect on, evaluate, and critically review their own and others' scientific results.

- be able to document and present their own work, for a given audience, following strict requirements on structure, format, and language.

- be able to identify the need for further knowledge and continuously develop their own knowledge.

Note that the exact goals are slightly different for a degree project for a MsC of Engineering (civilingenjörsexamen) and for a master degree. The relevant rules are:

- Goals for a civilingenjörsexamen: Swedish.

- Goals for a master degree: English, Swedish.

2 Degree project grading

The guidelines are recommendations to support all stake-holders in a degree project (student, supervisor, examiner, and administrator) according to the three criteria by which a degree project is to be judged and graded:

process planning and conducting work according to an agreed time-line; taking initiative; identifying and acquiring additional required knowledge; openness for guidance and criticism; analyzing other's work and phrasing questions and criticism (this aspect is know as "opposition": each student must oppose a degree project of some other student).

engineering-related and scientific content applying engineering-related and scientific skills; modeling, analyzing, developing, and evaluating; correct choice of methods based on problem formulation; consciousness of aspects relating to society and ethics (if applicable).

presentation written report where project and results shall be presented and analyzed; language, formal aspects, meticulousness; oral presentation with discussion, argumentation, and analysis.

The degree project is graded with grades A to E. For each criterion a number of points between 0 and 3 is awarded, where the distribution of points for each criterion is as follows:

process plan and carry out the project 1/9; acquire knowledge 1/9; opposition 1/9.

engineering-related and scientific content 1/3.

presentation written presentation 2/9; oral presentation: 1/9.

In order to pass the degree project, all criteria must be met with at least one point. The sum of points for all three criteria define the degree project's grade as follows:

A: 8–9 points; B: 7 points; C: 6 points; D: 5 points; E: 3–4 points.

For more information of how a degree project is graded, please consult:

- Reasons and criteria for grading of degree projects: Swedish.

- Evaluation criteria for degree projects: Swedish and English.

3 Prerequisites

In order to be eligible for a degree project, the student must fulfill the following prerequisites:

- MsC of Engineering (Civilingenjör): at least 210hp of studies for a 270hp program and 240hp of studies for a 300hp program.

- Master: at least 60hp of studies.

These requirements are checked by the administration before the student is registered for the course.
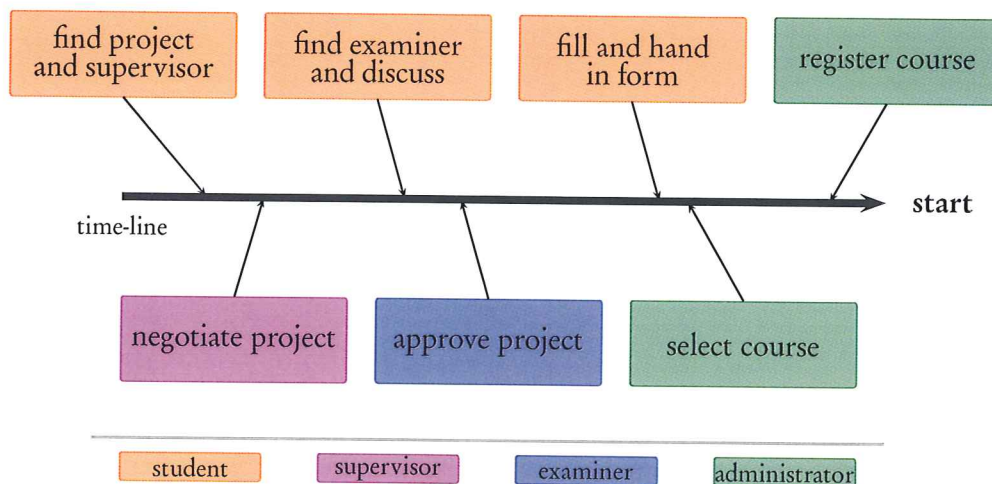
Figure 1: Start-up phase for degree project.

4 Process structure

The guidelines for conducting a degree project are first and foremost designed to help the student to successfully start, conduct, and complete their degree project in a timely manner.

4.1 Start-up phase

Before actually starting a degree project, several aspects concerning the degree project need to be clarified. The start-up phase of a degree project is sketched in Figure 1, where the different colors refer to the different parties involved in getting a degree project started. Note that all the activities sketched there but the approval of the degree project have to be undertaken by the student.

Finding a project refers to the fact that a student needs to find an already defined project. Typically, a project is defined by the supervisor of the degree project. The supervisor's role is to negotiate the exact details of the project with the student and later be the contact for student as far as the technical content of the degree project is concerned. In principle, it is also possible for a student to define their own project, however this requires that the project is defined in close collaboration with the potential examiner.

When approving the degree project, the student (possibly with help from the supervisor) and examiner need to agree on the minimal required outcomes of the degree project. The minimal required outcome is the minimal level for passing the "engineering-related and scientific content" part as described in Section 2. In case the degree project has a supervisor, it is recommended to prepare the approval by compiling a potential list of deliverables and/or outcomes of the thesis project together with the information which of the deliverables and/or outcomes are essential for the degree project.

After the examiner approves the project, the student and examiner fill in the form for the degree project. After the form has been filled in, it must be signed by the student, the
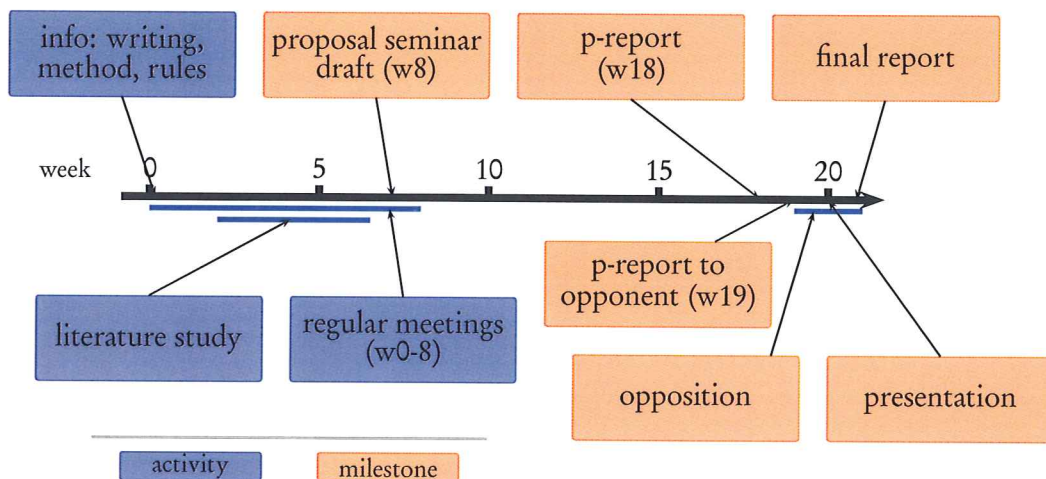
Figure 2: Work phase of degree project.

supervisor (if applicable), and the examiner. A copy of the filled-in and signed form then is handed over to the student councillor who will select and register the course.

Only after the student has been registered, the thesis degree project starts.

Degree projects at a different university. Degree projects can also be carried out at a different university than KTH. There are two different ways how to do that: the degree project is examined at KTH or at the host university.

If the degree project is examined at KTH, then the model for carrying out the degree project is exactly like carrying it out at a company: the examiner is at KTH and the supervisor(s) are at the host university.

If the degree project is examined at the host university (it does not matter whether the host university is a Swedish or foreign university), then the degree project will not be registered at KTH but at the host university. After the degree project has been successfully completed, the degree project will be accredited here at KTH. However, before the degree project is started at the host university, the student must have a learning agreement with the prospective host university about the details of the degree project. The learning agreement must then be approved by the student's program responsible teacher and a form must be filled with the local administration here at the ICT school that contains information about the degree project to be conducted at the host university.

4.2 Work phase

Figure 2 summarizes the activities and milestones for carrying out a degree project stretched over a time period of 20 weeks.

Activities. The activities during the degree project refer to those activities that involve both the student and the examiner of the degree project. The mandatory activities are planned

mostly at the beginning of the degree project to support the further progress of the degree project.

The activities are as follows:

information: writing, method, rules. This activity is concerned with the necessary information how to write a thesis report, how to choose the method for conducting the degree project, and the rules that govern the conduct of the degree project. The information is made available by the examiner to the student, possibly in the form of a seminar shared between several students.

literature study. The literature study is an essential aspect of any degree project and the required identification and acquisition of knowledge is an important aspect for the grade that concerns the process. The literature study will be assisted by both examiner and supervisor. Typically, the literature study will take around four to six weeks (but might be continued later).

The outcome of the literature study is the acquisition of the necessary knowledge for the degree project together with a written draft section of related work/background material of the written report.

regular meetings. It is recommended to have regular meetings between examiner, supervisor, and student in the first eight weeks of the degree project. The purpose of these meetings is to discuss the progress of the literature study and possibly refining the plan for the remainder of the degree project.

Written report. The written report is the most important outcome of a degree project. Not only does the report define one third of the entire grade of a degree project but it also serves as working document for judging the progress.

The approach to writing consists in continuously developing, refining, and extending the written report. It is important to continuously work on the written report. Any intermediate result of the degree project should be put in the draft report so that no insight during the degree project is lost.

The milestones are as follows:

proposal seminar and draft report. At the end of week eight, a first draft report is to be delivered to the examiner. The draft serves as the basis for a proposal seminar by the student. The draft should include the result of the literature study. The draft should include an outline of the entire written report. This milestone is absolutely essential as it provides an important check that the degree project makes sufficient progress and heads into the right direction.

preliminary report (p-report). The preliminary report is meant to be the complete written report before comments from the examiner and opponent have been incorporated. The preliminary report is to be submitted to the examiner at the end of week 18. The examiner will read and comment on the preliminary report within one week.

preliminary report to opponent. Provided that no major revisions of the written report are required, the preliminary report then is given to the opponent. If possible, the comments from the examiner should already be addressed in the report given to the opponent.

final report. The final report is due at the very latest one week after the degree project has finished (that is, week 21). The report must address the revisions required by the examiner and the opponent. It is recommended that the student writes a short summary of how the requests from examiner and opponent have been addressed.

The written report is a public document and will be published in the KTH Publication Database DiVa. That means that the report cannot include any confidential material.[1]

Opposition. Every student must be opponent to the degree project of some other student. The purpose of opposition is two-fold. Firstly, the critical comments from the opponent should improve the written report. Secondly, the opponent must demonstrate that she is a able to reflect on, evaluate, and critically review the work of others (see Section 1).

The opponent must write an opposition report that evaluates and critically reviews the preliminary report together with requests for improvement (language, structure, content, and so on). The opposition report must be submitted to the examiner of the opposed degree project (for information) as well as to the examiner of the opponent's degree project (for grading).

Oral presentation. The result of the degree work must be publicly presented. It is important that the student contacts the examiner sufficiently early so that the time for the presentation can be agreed between student, examiner, and opponent. The examiner must publicly announce the date and place together with a short abstract well in advance.

The opponent must attend the oral presentation and the opponent's degree form will be signed by the examiner of the opposed degree project.

Note that also the oral presentation can only contain public information, similar to the written report (see above).

4.3   Closing phase

After the final version of the written report has been submitted to the examiner, the examiner grades the entire degree project according to the grading criteria in Section 2.

The examiner writes a grading report that lists the number of points awarded for each of the three grading aspects together with a short motivation for each of the grading aspects, and a motivation for the grade awarded to the entire degree project.

Finally, the thesis is printed, an electronic version in PDF-format is submitted, the grade of the degree project is reported (preferably through Daisy), and the grade is entered in the

---

[1]If you pursue your degree project at a company that suggests to have confidential material in the report, it is of course possible to produce two documents, if needed: one for the company including confidential material; another for KTH excluding the confidential material. Note that for all purposes relevant to KTH (for example, grading and archiving) only the document without the confidential information will be considered.

student's form. The form together with the grading report is then submitted to the administration.

5 Deviation

Ideally, the guidelines should be followed closely and the dates for the milestones should be attained. However, if there is a need to deviate from the original plan, then the student must request approval from the examiner (and supervisor, if applicable) *well before* on how to modify the original plan. Any unplanned and non-negotiated deviation reduces the process' grade.

6 Termination

If a degree project has not been finished within one year, the degree project is terminated and awarded the grade F for a failed degree project.

An exception to this rule can only be granted by the responsible for basic education of the ICT school.