



Thesis Projects @ IT department

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http://www.it.uu.se/student/thesis_project/master



1



Thesis Projects @ IT department

Agenda:

- What is a thesis project (goals and requirements)
- Finding a thesis project
- The specification
- The application and formal start
- Roles
- Assessment
 - Writing a report
 - Presentation and opposition
- Questions



2



Thesis projects

Thesis projects can be done at

- a company or public body
- UU (IT-department or nearby)
- another university, possibly abroad

This organisation

- "Owns" the problem that you are to study (solve), you will do "work" for them (their "payment" for supervision)
- Provides the workplace and supervision (rarely salary)
- Don't formulate a project at your own if you don't have an supervisor, impossible to get an "unpaid" supervisor


3



Thesis project course

- During the thesis project, you are a student
 - Other roles replace the teacher role:
 - Reviewer
 - Examiner
 - Supervisor
 - Coordinator
- The thesis project is a **course**
 - Course goals that are assessed by the university
 - The report must meet academic requirements
 - The project must make this possible


4



Thesis project goals

Student goals


- Study a problem in depth
- Gain experience, learn
- Produce an approved report
- Pass the course within a reasonable time
- Produce a result that can be used in a job application
- Get a degree!



Employer goals

- ~~Get the problem solved~~
- **Get an insight in the problem**
- ~~Get a working system~~
- **Make a prototype, separate technical documentation**
- Finish the job within a reasonable time
- ~~Hire the student, asap~~
- **Hire the student, but not before the report is approved**

5




Thesis project goals (university)

Course goals are assessed. See studentportal for your thesis course, e.g., 1DT540 (Computer science 30hp):

- ✓ Show a deep knowledge within the chosen field of computer science
- ✓ Search and in a critical way interpret and compile relevant scientific literature
- ✓ In a creative way delimit a scientific problem, plan a scientific study, choose appropriate methods, carry out the study, interpret and evaluate the results and, if applicable, generate a verifiable hypotheses to explain the observations all within given time frames
- ✓ Present the results in correct language for different target groups both in scientific and in popular form
- ✓ Give constructive criticism on texts within the study field

*It may be original scientific work – but that is **not required**, can include some *investigation* of known methods for a problem.*

6



Thesis project goals (university)

IT-Engineering Program (1DT960):

- ✓ Identify and formulate technical problems
- ✓ Demonstrate advanced knowledge in a specific sub-area within the field of the program
- ✓ Search, compile and use relevant literature
- ✓ Independently plan and carry out an assignment within given time frames by employing scientific and engineering approaches and methodologies
- ✓ Present and discuss the results in a clear and correct language both orally and in writing to different target groups
- ✓ Provide constructive criticism on other's report

The task should be relevant to the engineering programme that the student is to graduate from. The assignment should be chosen so that knowledge from earlier courses is applied in addition to its broadening and deepening by acquiring new knowledge necessary to carry out the work.

7



Government goals (the "law")

The Swedish Higher Education Ordinance*

Swedish Council for Higher Education assess the University

Knowledge and understanding

For a Degree of Master (120 credits) the student shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

* <http://www.uhr.se/sv/Information-in-English/Laws-and-regulations/The-Higher-Education-Ordinance/Annex-2/>

8



☐ **Competence and skills**

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work
- demonstrate the ability in speech and writing both nationally and internationally to clearly report and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

9



☐ **Judgement and approach**

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

10



How to find a thesis project (exjobb)

- WWW – Search the web
 - IT department
 - companies
 - ...
- Contacts
 - Teachers
 - Guest lecturers
 - UTNARM –virtual job fair November 5:th, see www.utnarm.se (Webinars, chat, contact talks with companies and organisations)
- An advertisement is just that: It may say "exjobb", but
 - is it one?
 - is it a good one?
 - is it a good one for you?
 - is it confidential work?
- The advertisement is
 - not the specification
 - but it's a starting point
- Contact the company and formulate a specification

11



The specification

See http://www.it.uu.se/student/thesis_project/master/specification

- Title (not too long – preliminary)
- Background: company, context, motivation
- Problem, and its issues (related work, references) related to which **scientific area**?
- Method(s): how to solve it - prototypes, interviews, ...
- Delimitations – what you don't do
- **Time plan** (realistic; other courses, vacation?)
- **List of relevant courses** (that you took)

12



Formal start

Hand in application, email to exjobb@it.uu.se with your name in the subject-row, including:

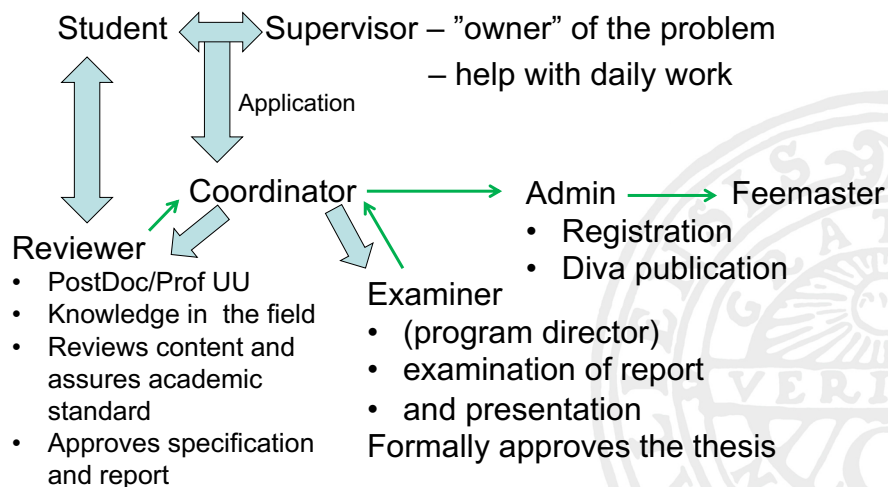
- **Application** form (signed by student and supervisor)
- **Specification**. If the specification is not adequate we will reject the application. It is your job to write a good specification (see above).
- **Transcript** of records (from Studentportalen/Ladok), be sure that you meet the entry requirements (e.g. 240hp for IT-program).
- **Certificate** of attendance (from this meeting) – **name & email in chat**

Next step is that we will appoint a reviewer for you. You are allowed to suggest a reviewer and ask the professor but consult exjobb@it.uu.se in the process. This is a slow process and you need to allocate time for this, please hand in the application good before Christmas for start in period 3! A sharp deadline may appear as we are changing procedures.

13



Roles and start process



14



During the work

- Stay in contact with your reviewer to get feedback
 - About once per month or so (send progress reports)
 - Mid course meeting (meet person to person)
 - If problems (delays) occur
- Write continuously on your report
 - Get feedback from reviewer (see above)
- Ensure academic standard on your thesis
 - Not always what an external company requests, get feedback from your reviewer (see above)
- Finish it! **Writing problems? Use the Language Workshop**
www.sprakverkstaden.uu.se

15



What is in a report?

- Motivation
- Background and description of the problem
(formulate the research questions you want to answer)
- Methods and techniques used
- Relevant (related) theory, research and development
- Description of your own work
- Results, Evaluation, Analysis, Verification, Demonstration
- Conclusions including future work

Write for a student at the same level of studies as yourself before beginning the thesis (other student will do opposition)

16



Assessment of the report

- Disposition and quality of expression
- Knowledge of prior work and development
- Technical content and complexity
- Elements of own work
 - elements of creativity (literally: what did you create?)
- Demonstrated depth of understanding
- Evidence of critical evaluation
- Guidelines for future work
- Conclusions, including objective reflections

http://www.it.uu.se/student/thesis_project/master/bedomning-eng.pdf

17



Assessment – apart from report

http://www.it.uu.se/student/thesis_project/presentation-opposition

Final presentation (prel report >80%, approval of reviewer)

- ✓ Delivery (eye contact, variation in voice, clear slides)
- ✓ Content (subject and purpose, knowledge, questions)
- ✓ Enthusiasm (show interest, audience understanding)

Opposition (anytime, but preferable same day)

- ✓ Understanding and critical assessment of other work
- ✓ Discussion and questions at a relevant level
- ✓ Constructive feedback

(Slot 45min: Pres ≈30min, Opp ≈10min, Other ≈5 min)

18



Last words

Remember: The thesis shows your capabilities, it is often your ticket to Ph.D. studies or an employment. Choose an interesting thesis and do a good work! Don't focus on other studies. Remember time frames! (Maximum time 1 year, then reviewer can resign)

Questions?

Contact: exjobb@it.uu.se
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