



# SE Master Thesis

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# Thesis

## GU

- DIT910
- Syllabus:  
<http://kursplaner.gu.se/pdf/kurs/en/DIT910.pdf>
- Pre-requisites
  - 60 credits (or more) must come from courses on advanced level
  - At least 45 of these 60 credits must come from within the main field of study

## Chalmers

- DAX05
- Syllabus:  
[https://www.student.chalmers.se/sp/course?course\\_id=26067](https://www.student.chalmers.se/sp/course?course_id=26067)
- Pre-requisites
  - 5Y Master of Science: 225 credits
  - 2Y SE Master: 45 credits within the program

# What is expected

- Pull together the **knowledge from your program**
- Including the **methodological** aspects
- Take it a notch further
- Apply it to an (industrially) **relevant** problem
- With **research** interest



# Learning objectives

See syllabus for your program

- CTH “contribute to **research** and **development** work, and be able to relate their work to relevant scientific or technical/industrial/architectonic contexts”
- GU “apply the accumulated knowledge and skills to a problem that is interesting from both a **research** and an **industrial** point of view”

# Process



Getting  
started

Execute the  
project

Examination

# Getting started

## Process





# Selecting the topic

- Normal case: **pair of TWO students**  
*(also from different programs)*
- Individual thesis are possible
- Area of **interest**, e.g., previous knowledge and experience

# Find a topic 1/2

- Check the **SE wiki page**  
<http://wiki.portal.chalmers.se/cse/pmwiki.php/SE/ThesisProjects>
- Thesis proposal from SE faculty  
(Many cases in collaboration with industry)



# Find a topic 2/2

- Most thesis are in collaboration **with a company**
  - Check the websites of Volvo, Volvo Cars, Ericsson...
- Does company have **academic supervisor** at SE ?
  - If supervisor at other program, thesis might not fit you
- If not, look for one!
  - *Organize a meeting company + academic supervisor*



# Academic supervisor

- It's a must to be successful in the next step:

the **proposal writing**

# SE proposal

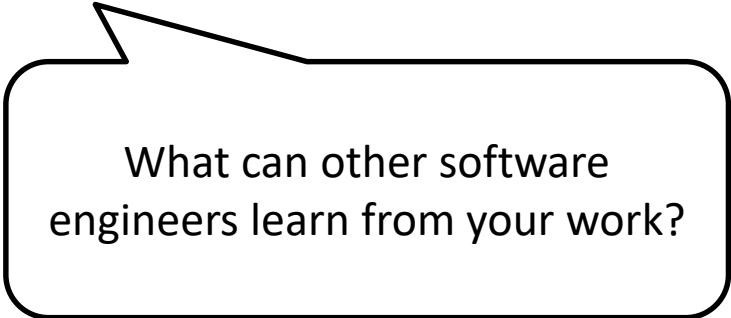
- Proposal structure (see template for more info)
  1. Introduction
  2. Statement of the problem
  3. Purpose of the study
  4. Review of the literature
  5. Research question and/or Hypotheses
  6. Methods and Procedures
  7. Limitations and Delimitations
  8. Significance of the study
  9. References



Also include a mini-plan  
(as steps)

# SE proposal

- It should display you **understand the problem** (context, related work)
- There must be a **research contribution**
  - Formulation of *research questions* is important



What can other software engineers learn from your work?

# Proposal submission

- **What**
  - Thesis proposal in PDF
  - Registration forms (one per student)
- **Where**
  - Canvas
- **When**
  - <https://chalmers.instructure.com/courses/232/pages/dates-and-deadlines>

SP3: Jan 18 (Dec 15)

# Proposal evaluation @SE

- Thesis Examiners Group
  - Chair: Regina Hebig
  - Members: Jennifer Horkoff, Christian Berger, Jan-Phillipp Steghöfer, Michel Chaudron
- Two reviewers + group discussion (< 2 weeks)

# Proposal evaluation @SE

## Outcome

- **Accept**
  - **Examiner** is assigned and they send you an email. You also get a weird email from the system (it looks like a case status report) – don't worry 😊
  - You get **registered** (it takes some time!)
  - You contact your supervisor for detailed plan (but **no** planning report needed)

# Proposal evaluation @SE

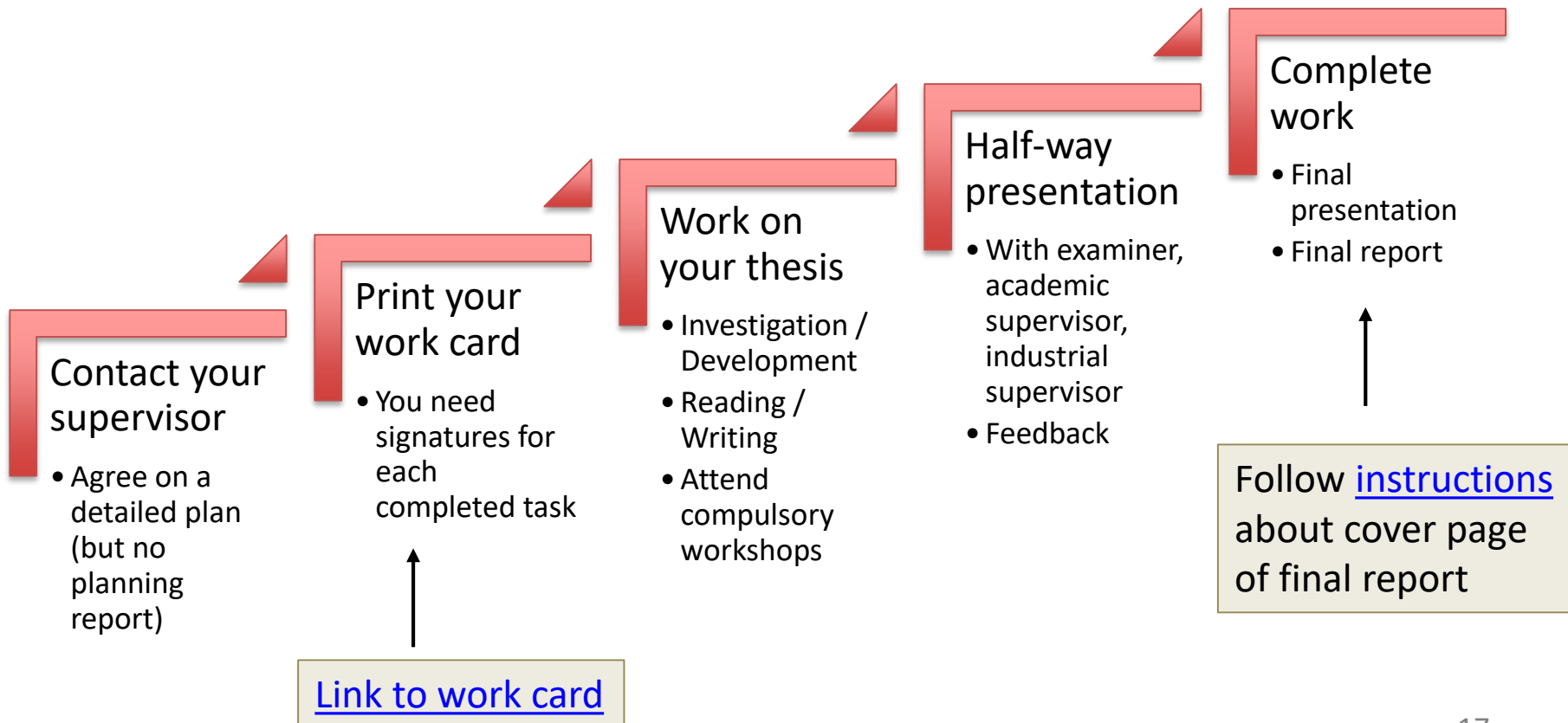
## Outcome

- **Examiner Meeting/ Revision**
  - Tentative examiner is assigned
  - ~~They mail you a list of improvements~~
  - ~~You have 2 weeks to send the improved report back to the examiner~~
  - Final decision is made (accept/reject)
- **Examiner Meeting**
  - Tentative examiner is assigned
  - They meet with you and your supervisor to discuss open questions
  - Final decision is made (accept/reject)
- **Reject**
  - New proposal at next deadline



# Execute the project

## Process



# Mandatory seminars

- Academic writing 1 (fak-språk)  
October 1, 9:00-12:30 or November 13, 13:00-16:30 (sign up!)
- Academic writing 2 (fak-språk)  
TBD
- Industry Collaboration and Career Planning  
TBD
- Research Approach (Richard Torkar)  
October 15, 9:00-11:00

# Half-way presentation

- Send the **draft report to examiner** well in advance (1 week)
- **Prepare slides!**
  - Give a proper presentation (good training)
- Explain the objectives of the thesis (give context)
- Show what you have achieved (in relation to the original plan)
- Present an **updated plan** for the future



# Thesis report

## Language and format

- Thesis report is to be written in **English**
- **Quality of writing** is part of assessment
  - Not just language... but also
  - Start writing on time (no “last minute”)
- Follow the [instructions](#) about cover page

# Thesis report

## Content

- Your thesis report must *answer the research questions* **clearly** and **explicitly**
- RQs in your proposal
  - RQs may change somewhat during the project

# Examination

1. **Supervisor** approves your final report for examination
2. **You** send the final report to **examiner and opponents**
  - Well in advance  
(**minimum 1 week before** the presentation)
3. You book a time slot for presentation **in agreement with examiner** and supervisor
  - <https://masterthesis.cms.chalmers.se/content/book-your-presentation>

# Final presentation

- Arrange **opponents** for own examination
  - The presentation **cannot** take place without opposition
  - You do not have to be opponent for the students opposing you
  - 1:1 & 2:2
  - You do not have to be opponent together with your thesis partner
- Questions from the audience
- Questions from the examiner

# Opposition

- Prepare carefully by
- Reading the whole thesis report
- Identifying potential points of critique
- Prepare questions
- Prepare small opposition report (2 pages) for examiner

## Opposition Report

<<Student 1 (program), Student 2 (program)>>

Thesis: <<Title of the thesis you are opposing>>

Authors of Thesis: <<Names of the students you are opposing>>

### Summary

<<One small paragraph summary of the thesis. What is the topic? What the type of research done? What is the main result?>>

<<One small paragraph on what you liked about the thesis. What was well done in your point of view?>>

### Points of Critique<sup>1</sup>

<<Summarize 2-3 critique points/very critical question with a short explanation (max. 1 paragraph each) why you consider the answer/response to that point/question important for the validity of the presented research.>>

#### Example:

*It is not clear whether interviewees were novices or experienced practitioners. [Student 1] If only novices were interviewed, the evaluation cannot show whether the tool has the potential to be also beneficial for more experienced practitioners. Thus, interviewing only novices impacts the degree to which the results of the study can be generalized.*

### List of Questions<sup>2</sup>

<<A plain list of questions prepared for opposition. During the opposition, each opponent should target to ask at least 5 questions, including at least one question that addresses a serious point of critique. You can of course deviate from the list during the opposition, e.g. in case the presentation answered some of your questions or there are other questions that came up while listening to the presentation.>>

#### Example:

- Question 1: Who were the interviewees: novices or experienced practitioners? [Student 1]

### Other Comments and Feedback

<<Here you can optionally add more detailed comments and feedback.>>

<sup>1</sup> All critique points and questions should be clearly marked with the name of the opponent who came up with them. No critique point and no question can be assigned to two opponents at once.





# Examination

## After final presentation

- Examiner can accept your final report as is
- Require some improvements (**normal!**)
- Fail you

# Evaluation criteria

- **Challenges**
  - Clear formulation of objectives
  - Relevance to master program
- **Context**
  - Mastering the related work
- **Methodology**
  - Scientific principles of the design and evaluation
- **Contribution**
  - Completeness and progress beyond the state of the art
- **Quality of writing**

# Examination

## Summary of required tasks

- Mandatory Seminars (4)
- Approved half-way presentation
- Audience at examinations (2)
- Opponent at examination (1)
- Present and discuss own work
- Satisfactorily perform required revisions (if any)
- Approved final report

Hand a printout of your  
opposition report to the  
Examiner. She/he can ask  
for preview of your  
questions





# Grading

- Chalmers
  - Pass/ fail
  
- GU
  - Pass with distinction/ pass/ fail

# Bookmark these these links

- Master Thesis @CSE
  - <https://masterthesis.cms.chalmers.se/content/start>
  - <https://chalmers.instructure.com/courses/232>
  - <https://chalmers.instructure.com/courses/8240>
- Esp. “Forms and templates”
  - <https://masterthesis.cms.chalmers.se/content/forms-and-templates>



# Differences @SE

- The proposal template is different
- No planning report
- Extra seminar



# Questions?

