Introduction

Jürgen Börstler, Niklas Lavesson, and Veronica Sundstedt

2014

Courses

- PA2511 – Master Thesis in Software Engineering
- PA2510 – Master Thesis in Software Engineering
  - Jürgen Börstler (jub@bth.se), Examiner/course responsible
- DV2538 – Master Thesis in Computer Science
- DV2531 – Master Thesis in Computer Science
  - Niklas Lavesson (nla@bth.se), Examiner/course responsible
- DV2524 – Degree project in Computer Science for Engineers
- DV1478 – Bachelor Thesis in Computer Science
  - Veronica Sundstedt (vsu@bth.se), Examiner/course responsible

Learning Outcomes

- See Its Learning for the learning outcomes of your course (under Information -> Syllabus)

Thesis Project

- 30 ECTS => 20 weeks of work
- 15 ECTS => 10 weeks of work
- Start Jan => finish Jun with Sep/Oct as backup

Independent Work

- See specific details on your course plan

Collaboration with External Partners

- You need a formal supervisor at BTH
- You need an external contact person
- The external partner needs to be aware that the main goal is your thesis and its scientific evaluation
  - I.e. do not be a code monkey

Contents

1. Prestudy and planning (Project Plan)
2. Execution (Academic Report)
   - Research and development
   - Supervision
   - Written presentation
3. Oral presentation and defense
4. Opposition
   - Written opposition
   - Oral opposition

Grading

- G-U (Project Plan, Presentation, Opposition)
- A-F (Thesis)
- Ux, Fx
- Number of attempts

Templates

- Project plan
- Thesis (Word/LaTeX)?
- Opposition report

Project Plan Template

- Introduction - context, problem, related work, relevance, identification of gap
- Aim - the overall goal of the project
- Objectives - how the aim will be achieved
- Research questions
- Method
- Expected outcomes
- Time and activity plan
- Risk management
- References

Key Areas to Address

- Introduce subject area (1 paragraph)
- Current research (2-4 paragraphs)
- Identify a gap (1 paragraph)
- Describe how work will fill gap (rest)
- Formlia (who? when? how? etc)

Thesis Template

- Please see the instructions for the latest information…

Recommended Reading

- Course syllabus
- Supervisor recommendations
- Recommended links

Evaluation

- Project Plan
  - Supervisor (also evaluates the process)
  - Examiner
  - Faculty reviewers

Opposition

- Each student must also be opponent once:
  - Always an individual task
  - Get thesis **one** week before its presentation
  - Read thesis and criticize
  - Answer questions for opposition
  - Write opponent report
  - Finalize opponent report and submit

Presentation

- Must present thesis physically at BTH
- One hour (for 30 ects)
  - Presentation (20min)
  - Opposition
    - Student opposition (10min)
    - Examiner opposition
  - Questions from the audience
  - Feedback meeting

Assessment for Project Plans

Criterion	Aspect
Process	Power of initiative and creativity
	Critical thinking and attitude
	Openness to critique and supervision
Contents	Problem identification and formulation
	Evaluation
	Method selection and application
	Planning
Presentation	Disposition
	Adherence to formal rules and templates
	Description of work
	Analysis and argumentation
	Language

Assessment for Thesis

Criterion	Aspect
Process	Independence, initiative and creativity
	Critical thinking and attitude
	Planning and execution
	Openness to critique and supervision
Contents	Problem identification and formulation
	Evaluation
	Method selection and application
Contribution	Contribution to research area (Master only)
	Contribution to development (MSE only)
	Synthesis
Presentation	Disposition
	Adherence to formal rules and templates
	Description of work
	Analysis and argumentation
	Language
Overall impression*	General impression of the thesis

Evaluation of Oral Presentation and Defenses

- Presentation
  - Oral description of problem and method
  - Oral description of analysis and contribution
  - Overall communication skills
  - Argumentation- and discussion abilities

Evaluation of Written Opposition

- Contents
  - Description of critical review
  - Description of necessary revisions and recommended revisions
- Presentation
  - Analysis and argumentation
  - Language

Supervision Guidelines

- You contact your supervisor
- They have limited time for supervision
  - Approx. one hour supervision / week (30 ECTS)
  - Right to supervision for six months (some one LP)
- Use your time well and be prepared
  - If a supervisor needs to spend a lot of time reading, it means less meeting times for you
- Take feedback into account!

After the Presentation

1. Create an entry in ArkivEx
   - http://www.bth.se/fou/cuppsats.nsf/
2. Submit your final thesis in Its Learning

These two are needed to obtain your grade!

Next Steps

- Identify your interest area
- Try and find a suitable supervisor
  - A supervisor has a limited number of students
  - Popular areas disappear quickly
- Draft and refine your project plan
- Submit proposal for evaluation

Finding a Topic?

- List of projects/topics on staff homepages
- Web search relevant companies
- Past projects/papers (check future work)
- Read recent papers in your area
- Think / brainstorm
- Talk with colleagues or companies
- NOT: Contact other universities

What is good research?

- Open minded
- Critical analysis
- Generalisations
- Considers alternatives
- Motivates choices
- Supported by evidence and/or clear thread of reasoning
- Has impact (someone would care)

Road to Success

- Student DOES :
  - Send proposal / work on time
  - Write continuously
  - Write text that is readable
  - Keep in contact with advisor
  - Update thesis/work based on feedback

Tips

- Weekly status emails
- When in doubt or stuck, ask
- Write early, write often, write all the time
- Write a log
- Write with the reader in mind
- Logical structure and clear line-of-thought
- Consider alternatives and motivate choices
- Avoid plagiarism

Feedback from Colleague 1

- Critical analysis of the state-of-the-art not just listing previous work
- Convincing research contribution over the state-of-the-art
- Formal evaluation of contribution compared to state-of-the-art
- Strict, crisp academic writing without general and vague statements
- To the point justification of scientific arguments

Feedback from Colleague 2

- A good student ;) (can code well, can write well!)
- Time (not too many side-projects or other work)
- A good topic, and a supervisor who knows exactly what he wants the student to do
- Alternatively, a very good student who can find solutions himself for a more open topic
- Ideally, the research topic should be paper-worthy for a smaller conference

Feedback from Colleague 3

- Start writing straight away
- Look into statistical analysis, the scientific method, and how to conduct sound experiments, and write them up
- Don't use Word. It's worth your time to learn LaTeX.
- Choose a supervisor who is motivated to help you, and has the time.

Feedback from Colleague 4

- A good match with the supervisors interest/research topic
- Reading and evaluating similar thesis (at least one thesis with a similar topic and one having the same or similar methodology)
- Focusing on the goal and methodology and providing a very clear explanation about the process that will be followed
- A strong statistics support
- Use of word editors wisely (styles etc) in order to save time. Instead of spending time on dummy editing and corrections, spending this time on the research (or at least for a better sleep :)
- Start to write the thesis as early as possible (No need to wait for collection or analysis of the data).

Feedback from Colleague 5

- Good rationale for the study
- Potential to produce publication
- Filling up a significant gap in the literature
- Sound methodology
- Good command of language

Feedback from Colleague 6

- A good idea
- Well structured and presented
- Clear contributions, aims and objectives
- Good use of diagrams
- Key insights presented rather than just the content (i.e. evidence of analytical thinking and explanations for why the results are what they are)

Feedback from Colleague 7

- Novelty
- Insight into the work done e.g. a good explanation of why the experimental results were as they were
- Awareness of the wider of context e.g. what other areas are relevant
- Clarity
- Lack of rambling

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