

SECULO Master's Thesis Info

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Goals of master's thesis

- Apply latest technical and scientific knowledge and methods to a new problem
- Show deep understanding of the technical or scientific topic, including the latest scientific research
- New scientific research results are not required by Aalto, but the difference between advanced engineering and scientific research is often small

About the thesis topic

- The thesis topic does not have to be strictly linked to your studies
- Can be an **engineering problem**
 - However, your exit university may require **scientific research**
 - Supervisor can help you find a research angle. For example, add a thorough background study and scientific evaluation of the output and alternatives
- Topic vs title
- The theses **must be published**
 - How to negotiate with the host company

Finding a project

- Academic or industry project?
 - Depends on your career plans
- This is the easiest time to contact companies and learn about the job market
 - You are only asking for a six-month project
 - For companies, the thesis is the first trial period
- Industry should pay a full salary
 - Note that double funding from EU is not allowed!
 - Norway has different rules

Thesis structure

- Use the Latex template, see previous theses
- 50-70 -page research or technical report
- 5-8 chapters:
 - Abstract (1 page)
 - Introduction, including problem statement
 - 3-5 body chapters, names depend on your project:
 - Background, Experimental setup, Results, Discussion
 - Background, Requirements, Design, Implementation, Evaluation
 - Related work, Research problem, Solution, Evaluation, Discussion
 - Conclusion or Summary
 - References
 - Typically, ~40 references, of which 20+ to high-quality research literature

References

- What to reference:
 - **Pioneering** research papers where the ideas were first proposed; a brief history of the research topic
 - **High-quality** journal and conference publications in the area of the thesis
 - **Up-to-date** information on the specific topic of the thesis
 - **Definitive** standards and specifications
- What not to reference:
 - Wikipedia – instead, see the references at the bottom of the Wikipedia page
 - Blogs and web pages unless that is the only source for the idea

Sources for literature

- Finding research literature:
 - Google Scholar <http://scholar.google.com/>
and other research portals
- Access to PDF documents with Aalto account:
<https://login.libproxy.aalto.fi/>

Supervisors

- One supervisor from each university
 - **Primary supervisor** should be geographically close to you and understand the topic
 - Secondary supervisor is mostly a backup; checks that the thesis meets the requirements of the other university
 - Try to find the primary supervisor from the exit university
- Finding a supervisor from Aalto
 - Any CS or CCIS professor or university lecturer
 - Knowledgeable and interested on the topic
 - Has time to help?
- Finding supervisor at exit university

Advisor (instructor)

- Must have master's degree (in any field)
 - Line manager or project manager
 - At university, doctoral student or postdoc
 - You can have two advisors
- Possible roles:
 - Mentor, will comment on the thesis drafts
 - Management support for the thesis project

Interaction with supervisor

- Primary supervisor's involvement varies a lot: main advisor on the thesis research / mentor helping with the process / just the formal examiner
- Minimum communication:
 1. Agree on the topic
 2. Check the goals and research plan
 3. 1/3 written, can still change direction
 4. SECCLLO half-way checkpoint (by email)
 4. 2/3 written
 5. final draft, **permission to submit**
- **When there are problems, that is the right time to talk to the supervisors**
- **Please do not cancel meetings because you have not made progress**

Evaluation

- Evaluation criteria at Aalto:
 1. Definition of research scope and goals
 2. Command of the topic
 3. Methods
 4. Results and contribution
 5. Presentation and language and structure
 6. Thesis process
- See [grading guidelines online](#)

Possible problem situations

- Cannot find a project
- Company delays the hiring decision
- Delays in onboarding or project start
- Time goes to customer projects, not to the thesis
- Lack of progress in the project
- Writing is difficult
- Project is not scientific enough
- Supervisor is busy or not responding to emails
- It is a team project, not only your own work
- Patents, confidential data, using the company name
- Contract ended and thesis not ready

Some further advice

- If you get stuck with the project or writing
 - Talk with your advisor and supervisor, or find someone else to help. Please do not delay another day
 - There are techniques to help writing
- Start writing early
 - Always write **notes** about the technical things you do
 - Write **summaries** of related work when you read it
 - Draw **figures** of everything; explain them in the text
 - Prepare **tables** and **examples**; explain them
 - Document the project and produce text first, improve the quality later
 - From the beginning, write in **your own words** without looking at a source text at the same time