

Supervising SE Research (PhD Seminar Course)

Examiner & course responsible: Robert Feldt

Faculty involved: Philipp Leitner, Richard Torkar, Hans-Martin Heyn, Gregory Gay, Birgit Penzenstadler

Course dates: September 2024 to summer 2025

Basic premise: Supervising research in thesis projects (all levels) is a great format/“vehicle” to reflect on how to supervise research (in general)

Goals:

- “Learn” to supervise research, mainly bachelor and master theses
- Connect thesis projects more closely to your research
- Raise quality of thesis reports and the % of them that get published
- Discuss and reflect on how to best support thesis projects
- Learn how to assess the quality of research based on the existing guidelines (e.g., empirical guidelines)
- Learn how to relate research projects to existing state-of-the-art in the relevant sub-areas of software engineering

Format:

The course is given as **a set of seminars** that supports PhD students in supervising research conducted in thesis projects. Seminars are synced to the yearly supervision cycle and the topics per seminar are tailored to the typical needs of that “phase” of the thesis process. To pass the course one needs to:

- Create at least 2 bachelor and 2 master thesis topics connected to one’s own research/PhD project
- Supervise at least 1 bachelor or 1 master theses, but preferably more
- Document the experiences in a form of a research/supervision log
- Make a reflective presentation which details and discusses:
 - Supervision ideas and structure used in your supervised projects
 - Positive and negative experiences during supervision
 - Challenges in supervision (and mitigation strategies/ solutions)
 - Similarities / dissimilarities to your own PhD project and its supervision

Kick-off seminar: September 18th 10:00-12:00, sign up for course by emailing Robert no later than September 12th at 12:00.

Group assignment: Throughout the course the participants should jointly create a clear process description of the current GU/Chalmers SE theses process, with short descriptions, as well as rubrics for guidance and assessment.

Individual assignment: Continuously write a supervision log to document your own experiences, reflections, and plans in relation to the course seminars and your own supervision of theses. Make a summary presentation to the class, in the final seminar.

Seminar Schedule:

1. Kickoff, Philosophy of Supervision, Topic/Project Selection & Definition, Process+Rules+Admin, (September 18th 10:00-12:00), teacher Robert & Greg & Phillip
Pre-reading: [Grohnert2024], [Feldt2010]
2. Scoping thesis projects, Types of Theses (industry vs academia, bachelor vs masters etc) and Research Methods (October 9th 10:00-12:00), teacher Greg & Robert
Pre-reading: [Jaakkola2022], [Stol2018]
3. Experiences and Case Studies, Assessment and Giving Feedback (Nov 20th 10:00-12:00), teacher Hans-Martin & Robert
Pre-reading: [Ralph2020]
4. Time Planning and Week-to-Week Supervision, Motivation and Crisis Management (January 15th 10:00-12:00), teacher Birgit & Robert
Pre-reading: [SUHigherEd2024]
5. Coaching Session 1 (March 5th 10:30-12:00), teacher TBD
6. Coaching Session 2 (April 2nd 10:30-12:00), teacher TBD
7. PhD Student experiences/presentations (June 13th or August 22nd 10:30-12:00), teacher Phillip & Birgit

Reading list

[Grohnert2024] Grohnert, T., Gromotka, L., Gast, I., Delnoij, L., & Beusaert, S. (2023). Effective master's thesis supervision—A summative framework for research and practice. *Educational Research Review*, 100589.

[Feldt2010] R. Feldt "The BTH Master thesis process and evaluation rubrics", 2010

[Jaakkola2022] Jaakkola, Hannu, et al. "Practices for Supervising Master's Theses in Company Context: An Anti-Pattern Approach." 2022 45th Jubilee International Convention on Information, Communication and Electronic Technology (MIPRO). IEEE, 2022.

[Stol2018] Stol, Klaas-Jan, and Brian Fitzgerald. "The ABC of software engineering research." *ACM Transactions on Software Engineering and Methodology (TOSEM)* 27.3 (2018): 1-51.

[Ralph2020] Ralph et al, "Empirical Standards for Software Engineering Research", 2020

[SUHigherEd2024] Stockholm University Center for Higher Education Questionnaire's and Documents for Student-Supervisor Alignment, downloaded online August 2024.