



## COURSE SYLLABUS

### Masterarbete i Programvaruteknik Master's Thesis (120 credits) in Software Engineering 30 credits (30 högskolepoäng)

**Course code:** PA2534

**Main field of study:** Software Engineering

**Disciplinary domain:** Technology

**Education level:** Second cycle

**Specialization:** A2E - Second cycle, contains degree project for Master of Arts/Master of Science (120 credits)

**Subject area:** Computer Technology

**Language of instruction:** English

**Applies from:** 2019-01-21

**Approved:** 2018-11-05

#### 1. Decision

This course is established by Department of Software Engineering 2014-06-30. The course syllabus is approved by Head of Department of Software Engineering 2018-11-05 and applies from 2019-01-21.

#### 2. Entry requirements

Admission to the course requires a minimum of 90 higher education credits in Software Engineering, including at least 30 credits at the advanced level.

In addition, students must have successfully completed a course in Research Methods in Software Engineering and/or Computer Science for 7.5 credits.

#### 3. Objective and content

##### 3.1 Objective

The aim of the course is that students will practice their ability to define, plan, implement and present independent scientific research work. Students are expected to apply the knowledge acquired during their education and independently immerse themselves in one or more specific sub-areas within the main subject area software engineering. The goal of the student is to, orally and in writing, report the results of his or her research and to critically examine and oppose on another thesis.

The presentations shall comply with the requirements and criteria for academic writing.

##### 3.2 Content

The course comprises four components:

1. Prestudy and planning
2. Implementation
  - a. Research work
  - b. Supervision and progress tracking
  - c. Written reporting
3. Oral presentation and defense
4. Opposition
  - a. Oral opposition
  - b. Written opposition

Prestudy and planning include developing a project plan that includes a timetable for the project. In the research phase (implementation) the project is executed and documented in an academic report according to the timetable. This also includes regular progress tracking of the work. At the oral presentation, the student will defend his or her thesis. Each student must also act as opponent on another thesis.

#### 4. Learning outcomes

The following learning outcomes are examined in the course:

#### 5. Learning activities

The student works individually and independently, and is responsible for completing a thesis with sufficiently high quality within the given timeframe and with given supervision resources. Exceptions to individual work must be approved by the examiner.

Each student is supervised by an academic supervisor at the university. In addition to the academic supervisor, a student might have an external supervisor from industry or another university.

The course starts with introductory seminars. The remaining time consists of independent work in the form of planning, executing, monitoring, and reporting a thesis and an opposition against another thesis. During the work, the student should maintain an e-portfolio in the course's learning platform where he or she regularly informs about the status and progress of his or her degree project.

The final, revised academic report is graded by the examiner after oral presentation and defense. The examiner grades the academic report based on his or her own assessment and consideration of independent peer reviews. Also the project plan is graded by the examiner supported by independent peer reviews.

The presentation and defense can only be carried out when (i) there is an approved project plan and (ii) the academic report is sufficient in its current form for presentation and defense. This assessment does not mean that the report will be approved, since grading is done by the examiner after presentation and defense of the academic report.

The project plan, oral presentation and defense, oral and written opposition, and the academic report shall follow the instructions and templates included in the Instructions for Degree Projects provided by the Faculty of Computing.

The course is a campus course. The student is expected to be available for supervision. It is the student's responsibility to conserve supervision resources. The student is not entitled to supervision time outside term time.

A student who does not complete his or her thesis within the term it was commenced, can get continued supervision for a limited time only and no more than six months after the course ends. The examiner has the right to end supervision when all supervision time is exhausted. However, a student is always entitled to submit his or her independent work for grading at subsequent examination times. A student who re-registers for the course is not entitled to renewed supervision time.

## 6. Assessment and grading

Modes of examinations of the course

| Code | Module                    | Credits    | Grade |
|------|---------------------------|------------|-------|
| I410 | Project plan              | 2 credits  | GU    |
| I420 | Presentation/Defense      | 1 credits  | GU    |
| I430 | Thesis opposition         | 1 credits  | GU    |
| I440 | Thesis and realisation[1] | 26 credits | AF    |

[1] Determines the final grade for the course, which will only be issued when all components have been approved.

The course will be graded A Excellent, B Very good, C Good, D Satisfactory, E Sufficient, FX Fail, supplementation required, F Fail.

Grading is performed by the examiner after considering independent peer reviews.

A student, who at the end of the course has not submitted a project plan is given the grade U on component Project plan (I410), since the student did not demonstrate adequate ability to perform tasks within specified timeframes.

A student, who has not submitted an academic report of sufficient quality to be presented and defended within 12 (16) months from the start of the course, can at most receive grade B (C), since the student did not demonstrate adequate ability to perform tasks within specified timeframes.

The oral presentation and defense of the thesis and oral opposition shall take place on campus.

The number of times that a student may be examined to get a passing grade on each of the examination components of the course is limited to three.

The course information for each course revision should include the assessment criteria and make explicit in which modes of examination that the learning outcomes are assessed.

## **7. Course evaluation**

The course evaluation should be carried out in line with BTH:s course evaluation template and process.

## **8. Restrictions regarding degree**

The course can form part of a degree but not together with another course the content of which completely or partly corresponds with the contents of this course.

## **9. Course literature and other materials of instruction**

Master's Thesis (120 credits) in Software Engineering

Textbooks

Instructions for Degree Projects (provided by university department).

Other textbooks are chosen individually by the student in consultation with the supervisor.

Reference literature

1. Thesis Projects: A Guide for Students in Computer Science and Information Systems; 2nd Edition

Authors: Mikael Berndtsson et al.

Publisher: Springer

Year: 2007, Pages: 162

ISBN-13: 978-1848000087

2. Experimentation in Software Engineering – An Introduction; 2nd Edition

Authors: C. Wohlin, P. Runeson, M. Höst, M.C.

Ohlsson, B. Regnell, A. Wesslén

Publisher: Springer Verlag

Year: 2012, Pages: 250

ISBN-13: 978-3642290435

## **10. Additional information**

Replaces PA2403, PA2503 and PA2511.

Översättning/Translation