UNIVERSITY OF GOTHENBURG

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DIT832 Research Methods in Software Engineering, 7.5 credits

Forskningsmetodik för Software Engineering, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Computer Science and Engineering on 2022-11-23 to be valid from 2024-01-15, spring semester of 2024.

Field of education: Science 100%
Department: Department of Computer Science and Engineering

Position in the educational system

The course is compulsory within the N1SOF Software Engineering and Management Bachelor's Programme.

The course can be part of the following programme: 1) Software Engineering and Management Bachelor's Programme (N1SOF)

Main field of studies	*Specialization*
Software Engineering	G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements

Entry requirements

To be eligible for this course, students must have successfully completed 110 higher education credits (hec) in Software Engineering (or other fields giving these skills), including DIT022 Mathematical Foundations for Software Engineering, 7.5 hec, or equivalent.

Learning outcomes

On successful completion of the course the student will be able to:

Knowledge and understanding

- create their owen scientific reports within software engineering following the IMRAD structure.

Competence and skills

- formulate research questions
- choose strategies and methods in accordance with research questions, and motivate and explain these choices
- conduct literature reviews
- plan surveys using questionnaire, collect survey data, and analyze survey data
- use statistical data analysis techniques to evaluate empirical data

Judgement and approach

- reflect on and evaluate phenomena and their relationships as dependent and independent variables
- reflect and critique on empircal research study design

Course content

The course prepares students for conducting their bachelor thesis project and for professions in the fields of software engineering and software management. It balances both theoretical and practical considerations of research. The course has the following sub themes: Strategies and methods for software engineering studies with design science, case study research, surveys, experiments, statistical analysis, systematic literature reviews, and systematic mapping studies. These items together constitute the course. Students will apply a subset of the themes in their final report to gain practical experience in designing research. The knowledge obtained is generally useful, and applicable in most professions that require an academic degree.

Sub-courses

1. **Project** *(Projekt),* 7.5 credits
   Grading scale: Pass with distinction (5), Pass with credit (4), Pass (3) and Fail (U)

Form of teaching

The teaching consists of lectures and seminars.

Language of instruction: English

Assessment

The course is examined by a compulsory written report based upon the topics covered in the course. Depending on their nature, reports are either individual, or carried out in groups.

If a student, who has failed the same examined component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

In cases where a course has been discontinued or has undergone major changes, the student shall normally be guaranteed at least three examination occasions (including the ordinary examination) during a period of at least one year from the last time the course was given.

Grades

The grading scale comprises: Pass with distinction (5), Pass with credit (4), Pass (3) and Fail (U).
For a grade of 3, the compulsory written report should demonstrate basic achievement of specified learning goals and report specifications.

For a grade of 4, the compulsory written report demonstrates achievement of learning goals with a reasonable quality and some reflection, sufficiently meeting specifications.

For a grade of 5, the compulsory written report should demonstrate achievement of learning goals with noteworthy quality and critical reflections beyond specifications.

Course evaluation

The course is evaluated through meeting after the course between teachers and student representatives. Further, an anonymous questionnaire is used to ensure written information. The outcome of the evaluations serves to improve the course by indicating which parts could be added, improved, changed or removed.

Additional information

Course literature to be announced the latest 8 weeks prior to the start of the course.

The course replaces the course DIT831, 7.5 credits. The course cannot be included in a degree which contains DIT831. Neither can the course be included in a degree which is based on another degree in which the course DIT831 is included.