



COMPUTER SCIENCE AND ENGINEERING

DIT184 Software Analysis and Design, 7.5 higher education credits

Mjukvaruanalys och konstruktion, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Computer Science and Engineering on 2017-02-13 and was last revised on 2017-06-30 to be valid from 2017-08-20, autumn semester of 2017.

Field of education: Science 100%

Department: Computer Science and Engineering

Position in the educational system

The course is a compulsory course within the Software Engineering and Management Bachelor's Programme. The course is also a single subject course at the University of Gothenburg.

The course can be part of the following programmes: 1) Software Engineering and Management Bachelor's Programme (N1SOF), 2) Computer Science, Bachelor's Programme (N1COS) and 3) Software Engineering and Management, Bachelor's Programme (N1SEM)

Main field of studies

Software Engineering

Specialization

G1F, First Cycle, has less than 60 credits in first-cycle course/s as entry requirements

Entry requirements

To be eligible for this course, students must have successfully completed 7,5 higher education credits in object oriented programming (for example DIT042 Object-Oriented Programming, 7.5 hec).

Learning outcomes

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

Knowledge and understanding

- explain how to represent a software system using UML models,
- explain guidelines and heuristics for performing a domain analysis,

Skills and abilities

- analyze and design software systems using object oriented techniques,
- create an UML model that is an abstract representation of the source code,
- use tools for domain and requirements analysis, modeling, program visualization, and object oriented program design,

Judgement and approach

- analyse how software design principles and patterns impact software quality,
- reflect on - and resolve inconsistencies between various models used as part of a single system's design.

Course content

The purpose of this course is to familiarize students with concepts, methods, and tools for object oriented analysis and design of software systems, with emphasis on methods applied in large product development projects. The course introduces common design principles and patterns that support the development of maintainable, reusable and extensible software. The course gives an introduction to UML.

Analysis- and design models are expressed using UML models such as use case diagrams, class diagram, sequence diagrams, and state diagrams. Furthermore, techniques and guidelines are introduced for analysis of software domain and requirements.

Sub-courses

1. **Written exam** (*Tentamen*), 4.5 higher education credits
Grading scale: Pass with Distinction (VG), Pass (G) and Fail (U)
2. **Assignments** (*Inlämningsuppgifter*), 3 higher education credits
Grading scale: Pass (G) and Fail (U)

Form of teaching

The teaching consists of lectures, group work, exercises, as well as supervision in connection to the exercises.

Language of instruction: English

Assessment

The course is examined by an individual written exam carried out in an examination hall at the end of course and written assignments normally carried out in groups of 2-3 students. The assignments part is examined on the basis of solutions to compulsory problems handed in during the course and on the basis of individual contribution to the group work.

Students are required to complete written self- and peer-assessment forms during the course which will be input to the individual contribution.

Retake examinations of the assignments part consist of written individual assignments.

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 (VG), Pass (G) and Fail (U).

To be awarded Pass (G) for a full course, the students must pass both the exam part and the assignments part with at least grade (G). To be awarded Pass with Distinction (VG) for a full course, the student must, in addition, receive a VG on the written exam part.

Course evaluation

The course is evaluated through a 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 8 weeks prior to the start of the course.