IV1350 Object Oriented Design 7.5 credits

Objektorienterad design

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for IV1350 valid from Spring 2016

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic knowledge in object-oriented programming, corresponding to the course ID1018 Programming I.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

On completion of the course, you shall be able to, based on a given specification, develop robust, flexible and easily understood code. You shall also be able to critically and systematically evaluate different designs according to criteria such as low coupling, high cohesion and encapsulation. You shall be able to, with good confidence, engage in a discussion about a design's advantages and disadvantages, referring to established terms.

To reach these goals, you shall, after completing course, be able to:

- Carry out object-oriented analysis and be able to engage in a discussion about it.
- Use important principles of object-oriented design, for example low coupling, high cohesion, encapsulation and polymorphism. Engage in a discussion about a design, referring to the above mentioned principles.
- Use best practices of object-oriented programming, for example code conventions, comments and refactorings. Engage in a discussion about a program, referring to the above mentioned principles.
- Use a few well-known design patterns (mainly GoF) and be able to refer to those when discussing a design.
- Express code in UML and be able to translate UML diagrams to code.
- Explain the need of, and the foundation for, object-oriented analysis, design, architecture and programming.
- Create abstractions and models of object-oriented programs. Use these models to predict properties of the programs. On the basis of a model, engage in a discussion about a program's advantages and disadvantages compared to other ways to implement the same functionality.
- Explain how object-oriented architecture and design contribute to sustainable development by making programs adaptable.

Course contents

The main contents of the course

- Object-oriented design and design pattern
- Guidelines for object-oriented programming, for example refactorings
- Object-oriented analysis
- UML (Unified Modeling Language)
- Architecture and architectural patterns
- Documentation of architecture and design

Course literature

Lindbäck: A First Course in Object Oriented Development, http:///leiflind-back.se/iv1350/object-oriented-development.pdf

Examination

- LAB1 - Laboratory Work, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

There are two subcourses, LAB1 and TEN1. Grades A-F are given in both subcourses.

The final grade is calculated according to the formula (4.5*LAB1 + 3*TEN1)/7.5, correctly rounded. For this calculation, grades A-F are converted to 5-0.

Both parts must be passed (grade E) before a final grade is given.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.