DD2385 Software Engineering 6.0 credits

Programutvecklingsteknik

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 DD2385 valid from Autumn 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering,Information Technology,Information and Communication Technology

Specific prerequisites

Single course students: 90 university credits including 45 university credits in Mathematics or Information Technology. English B, or equivalent and Swedish B, or equivalent.

Language of instruction

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

Intended learning outcomes

The overall aim of the course is to provide an understanding of advanced methods for software development and basic principles of software engineering, based on the Java programming language.

This understanding means that after the course you should be able to:

- Perform an object-oriented analysis of an informal text-based software requirements document, identifying ambiguities, omissions and inconsistencies; translate such a document into object-oriented requirements using a Noun/Verb/Relational-Phrase methodology, and construct a data dictionary.
- You should be able to translate the information contained in a data dictionary into a UML class diagram which accurately models the same information, including aggregation, inheritance and multiplicity .
- You should be able to draw object diagrams which correctly instantiate a class diagram under different data constraints. You should be able to abstract information from one or more object diagrams to derive a class diagram.
- You should be able to critically analyse a short description of a software engineering project and an IT company's business model, and based on this analysis you should be able to recommend a software lifecycle model that is appropriate to the company and the project .
- You should be able to critically analyse a short description of a software engineering project, and based on this analysis you should be able to recommend a global software architecture and small scale software patterns that are appropriate to the project.
- You should be able to design and understand language independent data models, based on XML, that can be used to define data interchange standards between software systems, databases, files and communication protocols. You should understand the relationship between data models based on UML class diagrams and DTD data models, so that you can convert between the two. This understanding must also extend to UML object diagrams and XML data files, so that again you can convert between the two.
- You should understand a variety of advanced Java programming features, including Swing GUI components, exceptions, network programming and concurrency, and be able to apply these to small practical exercises arising from lab work.

Course contents

Modelling and modularization with or without objects, real examples. Clients and server programs, multi-layered solutions.

Object oriented analysis, modelling using UML. Systematic program development using design patterns. Practical exercises.

Class libraries for graphical interfaces, XML.

Java is used as programming language.

Course literature

To be announced a least 4 weeks before course start at course web page. Previous year: Brande, Software design.

Examination

- LABA - Laboratory Work, 3.0 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.

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: http://www.kth.se/csc/student/hederskodex/1.17237?l=en_UK.

Other requirements for final grade

Examination (TEN1; 3 university credits).
Laboratory assignments (LAB1; 3 university credits).

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.