



# DD2385 Programutvecklingsteknik 6,0 hp

Software Engineering

När kurs inte längre ges har student möjlighet att examineras under ytterligare två läsår.

## Fastställande

Kursplan för DD2385 gäller från och med HT09

## Betygsskala

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

## Utbildningsnivå

Avancerad nivå

## Huvudområden

Datalogi och datateknik, Informations- och kommunikationsteknik, Informationsteknik

## Särskild behörighet

För fristående kursstuderande krävs 90 högskolepoäng varav 45 högskolepoäng inom matematik eller informationsteknik. Dessutom krävs engelska B eller motsvarande och svenska B eller motsvarande.

## Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

# Lärandemål

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.

# Kursinnehåll

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.

# Kurslitteratur

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

## Examination

- LABA - Laborationsuppgifter, 3,0 hp, betygsskala: A, B, C, D, E, FX, F
- TEN1 - Skriftlig tentamen, 3,0 hp, betygsskala: A, B, C, D, E, FX, F

Examinator beslutar, baserat på rekommendation från KTH:s handläggare av stöd till studenter med funktionsnedsättning, om eventuell anpassad examination för studenter med dokumenterad, varaktig funktionsnedsättning.

Examinator får medge annan examinationsform vid omexamination av enstaka studenter.

I denna kurs tillämpas skolans hederskodex, se: <http://www.kth.se/csc/student/hederskodex>.

## Övriga krav för slutbetyg

Examination (TEN1; 3 university credits).

Laboratory assignments (LAB1; 3 university credits).

## Etiskt förhållningssätt

- Vid grupparbete har alla i gruppen ansvar för gruppens arbete.
- Vid examination ska varje student ärligt redovisa hjälp som erhållits och källor som använts.
- Vid muntlig examination ska varje student kunna redogöra för hela uppgiften och hela lösningen.