DD2456 Advanced Object-oriented Systems 7.5 credits

Avancerade objektorienterade system

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

Establishment

Course syllabus for DD2456 valid from Spring 2010

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

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

Language of instruction

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

Intended learning outcomes

Under the heading of practice we will study some advanced OO programming concepts which are featured in object based languages (such as Self), class based languages (such as Ruby), aspect-oriented languages (such as AspectJ) and requirements/design languages (live sequence charts).
We will also focus on the mathematical theory of OO type systems, including static and dynamic type checking, type safety and models of OO languages such as Abadi/Cardelli object calculus.
The course is examined by means of a mini-project and a take home exam.

Course contents

- A review of object-oriented themes, terminology, the computational model.
- OO language features exemplified in commercial and experimental languages such as Java, Self, Ruby, AspectJ etc.
- Operational semantics of sequential class-based OO languages.
- Hoare's logic and JML approach to OO static analysis and verification.
- Abadi/Cardelli object calculus to model object-based languages and types.
- Static type checking methods for object-based languages.
- Live sequence charts for OO use-case requirements capture and validation.
- Students can choose a practical mini-project related to any one of the above themes.

Course literature

To be announced on the course web page at least 4 weeks before the course start.

Examination

- HEM1 - Exercises, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 6.0 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.

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

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

HEM1 - practical project work, 1,5 hp, grade scale: P, F
TEN1 - Take home exam, 6,0 hp, grade scale: A, B, C, D, E, FX, F

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.