ID1004 Object-oriented Programming 7.5 credits

Objektorienterad programmering

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

Establishment

Course syllabus for ID1004 valid from Spring 2011

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed upper secondary education including documented proficiency in Swedish corresponding to Swedish B and English corresponding to English A. For students who received/will receive their final school grades after 31 December 2009, there is an additional entry requirement for mathematics as follows: documented proficiency in mathematics corresponding to Mathematics A. And the specific requirements of mathematics, physics and chemistry corresponding to Mathematics D, Physics B and Chemistry A.

Language of instruction

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

Intended learning outcomes

After the course, you must be able to:
• in your computing environment, write your own programs, make programs ready to run and
run them
• have an approach of attacking errors that occur during the above process - troubleshooting and correction of both syntactic and logical errors
• able to describe and discuss the problem-solving approach to
you used or would use the to solve a given programming problems
• be able to search and select appropriate software components from a class library
• have a basic understanding of compilers and debuggers
You show that you have achieved these objectives through the oral report on the work process and outcome of your driving when working with and reporting on the various programming tasks.
• self-tackle and solve a given programming task
• verbally describe and apply a problem solving approach and justify their own choices
• use the relevant program structures (methods, classes, etc.) to facilitate the solution of programming problems
• make sure that the solution meets the specified requirements (testing)
• use the basic features of a debugger
• able to use existing software components
• be able to reason about a program's qualitative aspects (eg in terms of time complexity, modularity, etc.)
You show that you have reached those goals by solving, writing, documenting and orally present assignments.
• describe basic computer science concepts and relationships between
these concepts (selection, iteration, data types, variables, etc.)
• describe and discuss basic object oriented concepts (objects, classes, encapsulation, etc.)
• a description of a minor problem to write an algorithm
which solves the problem
• illustrate and explain an algorithm into an algorithm notation (eg
pseudocode)
• be able to reason about a program's qualitative aspects (eg in terms of time complexity, modularity, etc.)
You show that you have achieved these objectives on the exam.

Course contents

* Abstractions (methods and classes)* Data types, variables, type systems* Assignment, expressions* Sequence, selection, iteration* Method calls, parameter passing* The basics of object orientation -- classes, objects, messages, encapsulation* Library components (i.e. GUI components)* Basic event driven programming* Collections* Debugging* Design patterns* Simple program analysis

Course literature

John Lewis & William Loftus: Java Software Solutions (Edition/upplaga: 6), Addison Wesley, 2009

Examination

- INL1 - Assignments, 4.5 credits, grading scale: P, 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.

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

Other requirements for final grade

Pass grade on written exam and problem assignments

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.