ID1019 Programming II 7.5 credits

Programmering II

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

Establishment

Course syllabus for ID1019 valid from Autumn 2013

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Programmering I

Algoritmer och datastrukturer

Language of instruction

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

Intended learning outcomes

The student should after completed the course be able to:

Functional programming:

- Understand and be able to use the following contructions in a functional programming language: recursion, pattern matching, functions as first class objects, closures, higher order functions and in-mutable dats structures.
- Implement selected algorithms in a functional programming language.

Concurrent programming:

- Explain the need for concurrent programming.
- Be able to evaluate the advantages and disadvantages and be able to use mechanisms to implement concurrent systems, for example shared memory and message passing.
- Design, implement, test and debug a concurrent program by using adequate methods to handle critical sections and event synchronization.

Course contents

The course covers the programming techniques used in functional programming as well as how programs can be divided into several executing thread and how these are coordinated. Example on programming technologies are recursive definitions, in-mutable data structures, higher order functions and closures. Coordination of multiple threads is shown by shared mutable data structures and by message passing between processes. The course will use one programming language as its main language but will also show on similarities and diferences with other functional languages.

Course literature

Erlang Programming - A Concurrent Approach to Software Development, Francesco Cesarini, Simon Thompson, O'Reilly Media 2009

Examination

- UPG1 - Problem Assignments, 3.0 credits, grading scale: P, F
- TEN1 - Written Exam, 4.5 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.

The course will have the following outline:

1. Lectures: aprx 16 that will cover the theoretical aspects .
2. Exercises: aprx 6, where the students are divided in groups of aprx 20 students. Students will be able to work on their assignments and get help from teaching assistants.
3. Seminars: The assignments are examined at a seminar where the students can comare and discuss their solution guided by a teacher. The seminares are given in groups of 20 students. The assignments should be handed in in writing before the seminar.

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.