FDD3370 Scientific Software Development Toolbox 5.0 credits

Mjukvaruutvecklingsverktyg för tekniska beräkningar

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

Establishment

Course syllabus for FDD3370 valid from Autumn 2014

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

Language of instruction

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

Intended learning outcomes

The aim of the course is to demonstrate to the students the best available tools and methods in modern development of scientific programs and train them in their usage. Main focus is on professional tools for developing and maintaining scientific software in an efficient way. Since most scientific programs are developed in collaborative project, we will discuss tools

and work flows that facilitate this process. In addition to this, the tools are invaluable for individual developers.

Course contents

- Collaborative web-based development with GitHub, Gitlab and Redmine

- To work with ipython

- Tests: Unit tests, regression tests, test driven development

- Continuous integration

- To express dependencies with spouse

- To build portable software with CMake

- Toolbox for adoption of a profile and code optimisation

- To handle complexity with functional programming

- Toolbox for debugging

- Modular programming and development with mixed programming languages

- Documentation of source

- Packaging, distribution and release of software

- Survival guide to work with older code

Distributed version management with Git

Course literature

Information can be found on the course website 4 weeks before the start of the course.

Examination

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

Attendance at lectures, laboratory sessions and project report.

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.