

Syllabus

for course at advanced level

Parallel Computations for Large-Scale Problems
Parallella datorberäkningar för storskaliga problem

**7.5 Higher Education
Credits**
7.5 ECTS credits

Course code:	BE7012
Valid from:	Spring 2014
Date of approval:	2006-10-13
Changed:	2013-10-07
Department	Department of Mathematics (incl. Math. Statistics)
Main field:	Scientific Computing
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University, October 13, 2008, revised October 7, 2013.

Prerequisites and special admittance requirements

For course admission knowledge equivalent to the following is required: Numerical Methods, FL, 7.5 HECs (BE3003) and English B, *or*: Numerical Methods for Physicists I, FL, 7.5 HECs (BE3002), Programming and Computer Science for Physicists, SL, 7.5 HECs (DA7011), and English B.

Course structure

Examination code	Name	Higher Education Credits
LABB	Practical Exercises	3
PROJ	Project	1.5
THEY	Theory	3

Course content

- a. The course covers basic and advanced ideas and methods on how to use many processors efficiently to solve large-scale problems.
- b. The course includes the following items:
- Theory, 3.8 HECs
 - Practical Exercises, 3.7 HECs

Learning outcomes

It is expected that the student after taking the course will be able to:

- develop, select, and adapt algorithms and data structures for numerical and non-numerical problems

Education

The education consists of lectures, and practical exercises.

Participation in practical exercises and submitted work is compulsory. The examiner may rule that a student is not obliged to participate in certain compulsory education, if there are special grounds for this, after consultation with the relevant teacher.

The course is given in English.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge of the item Practical Exercises takes place through a written project report, and of the item Theory through a written examination.

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent

B = Very Good

C = Good

D = Satisfactory

E = Sufficient

Fx = Fail

F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course, together with pass of the item Theory, and participation in all other compulsory education.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the departmental board. The course has at least two examinations for each academic year in the years in which instruction is provided. Intervening years include at least one examination.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination session.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board. The provision also applies in the case of revisions to the course plan.

Limitations

The course may not be included in a degree together with the course Program Construction for Scientific Computing, Advanced Course (BT3160), or Parallel Computations for Large-Scale Problems, SL (BE7003), or the equivalents.

Misc

The course is given as an individual course.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.