Department of Mathematics (incl. Math. Statistics)

Stockholm University

Syllabus

for course at advanced level

Parallel Computations for Large-Scale Problems	**7.5 Higher Education**
Parallella datorberäkningar för storskaliga problem	**Credits**
	7.5 ECTS credits

Course code:	BE7012
Valid from:	Autumn 2007
Date of approval:	2006-10-13
Department	Department of Mathematics (incl. Math. Statistics)
Subject	Mathematics
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, MM DD, 2008.

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
THEO	Theory	3.8
LABO	Practical Exercises	3.7

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 elements:
• 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, submitted work, and practical exercises.

Participation in practical exercises and submitted work is compulsory. An 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.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge takes place through written and/or oral 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 element Practical Exercises, and participation in all other compulsory education.

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term "examination" here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

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.

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.