

# Syllabus

for course at first level

**Program System Construction Using C++**  
**Programsystemkonstruktion med C++**

**7.5 Higher Education  
Credits**  
**7.5 ECTS credits**

<b>Course code:</b>	DA3019
<b>Valid from:</b>	Spring 2018
<b>Date of approval:</b>	2017-03-13
<b>Department</b>	Department of Mathematics (incl. Math. Statistics)
<b>Main field:</b>	Computer Science
<b>Specialisation:</b>	G1F - First cycle, has less than 60 credits in first-cycle course/s as entry requirements

## Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University, March 13, 2017.

## Prerequisites and special admittance requirements

For course admission knowledge equivalent to Object Oriented Programming, FL, 7.5 HECs (DA3002) is required.

## Course structure

Examination code	Name	Higher Education Credits
LABO	Practical Exercises	6
THEO	Theory	1.5

## Course content

a. The course covers: Development of C++ from C and Simula to ISO standard. All parts of C++ according to the ISO standard, including classes, simple and multiple inheritance, superpositioning, generic functions and classes, exceptions, constant declarations, streams, name spaces, type equivalence and type compatibility, the pre-processor.

Program construction using C++: good programming style, object oriented development in C++, rules of thumb and hints for design and implementation of programs in C++, support for modularization and memory handling, making the code effective, common errors and traps, Unicode and localisation, use of the standard library, tools for testing and debugging, static and dynamic linking and name mangling, portability.

b. The course includes the following elements:

- Theory, 1.5 HECs
- Practical Exercises, 6 HECs

## Learning outcomes

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

- program using dynamic memory allocation,
- apply the standard library,
- write correct C++ syntax,
- write test code,

- relate to advanced C++ literature,
- do generic programming using type parameterisation,
- apply, in C++, your previous knowledge of object oriented programming,
- model an extensive object oriented project,
- present and motivate an object oriented model.

### **Education**

The education consists of lectures, exercises, and practical exercises.

### **Forms of examination**

a. Examination for the course is in the following manner: measurement of knowledge takes place through written examen, and written and oral presentation of practical exercises.

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

Grading of the element THEO is carried out according to a 2-point scale:

G = Pass  
 U = 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.

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 System Construction Using C++ (DA3007), or the equivalents.

### **Misc**

The course is an individual course.

### **Required reading**

Course literature is decided by the departmental board and published on the department's web site at least 2 months prior to course start.