Programming C++

Programme course

6 credits

Programmera C++

TDDE18

Valid from: 2017 Spring semester

Determined by
Board of Studies for Computer Science
and Media Technology

Date determined
2017-01-25

Main field of study
Computer Science and Engineering, Computer Science

Course level
First cycle

Advancement level
G2X

Course offered for
- Computer Science, Master's Programme
- Industrial Engineering and Management, M Sc in Engineering
- Industrial Engineering and Management - International, M Sc in Engineering
- Information Technology, M Sc in Engineering

Specific information
Can not be included in the degree together with TDDD33.

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Programming experience in at least one imperative language such as Java, Ada or C. Ability to find, read and understand relevant programming documentation such as books, tutorials and reference manuals. Knowledge of common programming control statements, operators and types. Know several of the general concepts of references, pointers, exceptions, classes, functions, dynamic memory, namespace, templates, enumerations and inheritance. Understanding of the program execution environment and insight in one programming paradigm.

Intended learning outcomes

In the course the student will work to gain programming skill in C++. It is not an introduction to programming, but may be used as such if the student is prepared to spend extra time learning the foundations of programming. The course focuses on experimental work aimed to discover and learn concepts and limitations of the C++ programming language, as well as common programming practices. After the course the student will be able to:

- Explain and compare C++ language features and be able to apply them to relevant problems
- Use the programming environment and tools provided by a standard Linux/UNIX system.
- Explain the function of existing C++ implementations and examples.
- Write readable, well structured solutions to small programming problems.

Course content

- Programming: Creating algorithms and problem solving.
- Syntax: C++ language features including control statements, operators and types, references, pointers, exceptions, classes, functions, dynamic memory, templates, inheritance, polymorphism and the standard template library.
- Tools: Programming environment, including the compiler g++, the build tool make, and the text editor Emacs.

Teaching and working methods

The course consists of:

- An introduction to the department's computer system and tools (Linux)
- A set of lectures introducing each of the areas of C++ language that we cover. Participating in lectures, lessons and labs is essential to gain all course content.
- A set of computer laborations performed in pairs.
- Self studies in order to prepare and complete each laboration on time.
- A final individual computer exam with problems covering the topics discussed at lectures, lessons and labs.

The course runs over the entire autumn semester.

Examination

UPG1	Programming assignments	4 credits	U, G
DAT1	Computer examination	2 credits	U, 3, 4, 5

Grades
Four-grade scale, LiU, U, 3, 4, 5

Other information

Supplementary courses
Advanced Programming in C++

Department
Institutionen för datavetenskap

Director of Studies or equivalent
Ahmed Rezine

Examiner
Klas Arvidsson

Education components
Preliminary scheduled hours: 110 h
Recommended self-study hours: 50 h

Course literature

Additional literature

Other
C++ Primer (5th edition or later) by Lippman, Lajoie and Moo, or other relevant book covering C++2011 standard. See course homepage for further material and recommendations.

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.