



Course syllabus

C++ - programming

C++ Programming

EDAF50, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED C/D

Date of Decision: 2023-04-18

General Information

Elective for: BME4, C4-pv, D4-pv, E4, F4, M4, N4, Pi4

Language of instruction: The course will be given in Swedish

Aim

The course gives detailed knowledge about C++, which is an important programming language with many application areas. Special emphasis is placed on the language constructs that make C++ a more advanced, and also more complex, language than Java.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- know about and be able to describe the differences between C++ and Java
- have detailed knowledge about the C++ language and standard library
- be able to explain fundamental concepts in object-oriented programming in C++
- understand and be able to explain the different kinds of function parameter passing
- know and be able to reason about how objects are allocated and represented in memory
- be able to interpret, analyse and explain given C++ code.

Competences and skills

For a passing grade the student must

- be able to develop a functioning C++ program from given specifications

- be able to systematically debug C++ code
- be able to use tools to develop C++ programs in a Unix environment.

Judgement and approach

For a passing grade the student must

- be capable of choosing a suitable language construct to solve a given problem
- be able to reason about how the choice of language construct affects the readability, robustness, and efficiency of a program

Contents

- History and overview of C++
- Types and variables
- Functions
- Operators and expressions
- Flow control
- Arrays, strings and pointers
- Memory and resource management
- I/O and streams
- Classes and encapsulation, member functions and free functions
- Inheritance
- Overloading, polymorphism, and generic programming
- Source code management
- The standard library

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written examination. Compulsory course items: Computer laboratory exercises, project. The final grade is based on the result of the written examination.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0117. **Name:** Laboratory Work and Assignment.

Credits: 3. **Grading scale:** UG. **Assessment:** To qualify for a passing grade the laboratory work and the assignment must be completed.

Code: 0217. **Name:** Written Examination.

Credits: 4,5. **Grading scale:** TH. **Assessment:** Written examination. The final grade of the course is based on the result of the written examination.

Admission

Admission requirements:

- EDAA01 Programming - Second Course or EDAA30 Programming in Java - Second Course

The number of participants is limited to: No

The course overlaps following course/s: EDA031, EDA331, EDA623, EDAF30

Reading list

- Lippman, S B, Lajoie, J, Moo, B: C++ Primer, Fifth Edition. Addison-Wesley, 2012, ISBN: 0-321-71411-3.

Contact and other information

Course coordinator: Sven Robertz, sven.robertz@cs.lth.se

Course homepage: <http://cs.lth.se/edaf50>