



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Programmeringsteknik Programming, First Course

EDAA55, 9 credits, G1 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED C/D

Date of Decision: 2023-04-18

General Information

Main field: Technology.

Language of instruction: The course will be given in Swedish

Aim

The students shall learn to write small and medium-sized computer programs and attain basic knowledge of object-oriented programming and the programming language Java.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to explain fundamental concepts in object-oriented and imperative programming
- be able to explain and give examples of use of fundamental algorithms, for example for searching and sorting
- be able to describe and give examples of use of fundamental data structures such as arrays, matrices and lists
- show an understanding of the computer's usefulness as a computational tool

Competences and skills

For a passing grade the student must

- be able to develop and implement algorithms to solve simple problems
- be able to implement Java classes, starting from given specifications
- be able to structure programs, both using subroutines and using classes and methods
- be able to use tools to write, test and debug programs

- be able to use Matlab or numpy (Python) for basic simulations and engineering calculations

Judgement and approach

For a passing grade the student must

- be able to estimate the degree of difficulty of writing different programs

Contents

Programs as models of real systems. Objects and operations, classes and methods. Basic Java programming, fundamental algorithms. Data structures: arrays, the class ArrayList. Inheritance, polymorphism. String classes. Object-oriented program development. Introduction to computational programming.

Examination details

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

Assessment: For final grades, approved laboratory work in computational programming, approved compulsory course items and an approved written exam are required. In order to participate in the exam, the compulsory course items must be completed. The final grade for the course 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: 0122. **Name:** Computational Programming.

Credits: 1,5. **Grading scale:** UG. **Assessment:** Approved laboratory work in computational programming.

Contents: Computer labs in computational programming.

Code: 0222. **Name:** Examination.

Credits: 3. **Grading scale:** TH. **Assessment:** Approved examination. **Contents:** Written examination.

Code: 0322. **Name:** Compulsory Course Items.

Credits: 4,5. **Grading scale:** UG. **Assessment:** Approved programming assignments. **Contents:** Programming assignments.

Admission

The number of participants is limited to: No

The course overlaps following course/s: EDAA45, EDAA50, EDAA65, EDA010, EDA011, EDA015, EDA016, EDA390, EDA500, EDA501, EDA616, EDA618, EDAA10, EDAA20, EDA017

Reading list

- Allen B. Downey & Chris Mayfield: Think Java, How to Think Like a Computer Scientist. O'Reilly, 2019, ISBN: 9781492072508. Second edition.

Contact and other information

Course coordinator: Sandra Nilsson, sandra.nilsson@cs.lth.se

Course coordinator: Patrik Persson, patrik.persson@cs.lth.se

Course homepage: <http://cs.lth.se/edaa55>

Further information: This course may not be included in a degree together with EDAA50. In the module Computational programming either Matlab or numpy (Python) is used, depending on which engineering program the course is given for.