Course syllabus

Programmering, grundkurs
Introduction to Programming

EDAA45, 7,5 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.
Compulsory for: C1, D1
Elective for: W4
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 imperative programming, object-orientation and functional programming.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- be able to explain fundamental concepts in imperative programming, object-orientation and functional programming
- be able to explain and give examples of use of simple algorithms
- be able to describe and give examples of use of common data types for collections, such as sequences, sets and maps

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 classes from given requirements
- be able to structure programs, using classes and methods
- be able to use several different tools to write, test and debug programs

Judgement and approach
For a passing grade the student must

- be able to estimate the degree of difficulty of writing different programs
- be able to judge difficulties and advantages with mutable versus immutable data

Contents

Basic programming constructs and construction of simple algorithms. Usage of common data types for collections: sequences, sets, maps. Basic object-orientation: object, class, encapsulation, inheritance, polymorphism, immutable objects, mutable state. Basic functional programming: functions as values, anonymous functions, pattern matching, usage of higher-order functions. Scala is used as the main programming language.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: For a passing grade completed compulsory laboratory work, approved oral presentation of project and theory questions are required. For higher grades a written exam is also required.

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: 0121. **Name:** Project and Theory.
Credits: 3. **Grading scale:** TH. **Assessment:** For a passing grade (3), completed compulsory laboratory work is required, as well as an approved oral presentation of projects and theory questions. For higher grades, a written exam is also required. To be allowed to write the exam (for grades 4 or 5), all criteria for passing must be met.
Code: 0221. **Name:** Laboratory Work .
Credits: 4,5. **Grading scale:** UG. **Assessment:** The compulsory laboratory work must be completed to qualify for a passing grade. **Contents:** Laboratory work.

Admission

The number of participants is limited to: No
Selection: Students for whom the course is compulsory is guaranteed places. Others have a limited number of places (10). Selection to these places are made on basis of most credits taken within the program.
The course overlaps following course/s: EDA010, EDA011, EDA015, EDA017, EDA390, EDA500, EDA501, EDA616, EDA618, EDAA10, EDAA20, EDA016, EDAA50, EDAA55, EDAA65

Reading list

Contact and other information

Course coordinator: Prof. Björn Regnell, bjorn.regnell@cs.lth.se
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Course homepage: http://cs.lth.se/edaa45