Technology
Arts Sciences
TH Köln

Course
INF2 - Computer Science 2

Version: 5 | Last Change: 29.09.2019 16:57 | Draft: 0 | Status: vom verantwortlichen Dozent freigegeben

⌃ General information

Long name	Computer Science 2
Approving CModule	INF2_BaMT
Responsible	Prof. Dr.-Ing. Arnulph Fuhrmann Professor Fakultät IME
Level	Bachelor
Semester in the year	summer semester
Duration	Semester
Hours in self-study	90
ECTS	6
Professors	Prof. Dr.-Ing. Arnulph Fuhrmann Professor Fakultät IME
Requirements	Computer Science 1
Language	German
Separate final exam	Yes

Final exam

Details

Students must demonstrate the following competences in a written examination:

- Development of short programmes to solve problems described in colloquial language (K.4, K.9)

- Development of short programs to solve abstractly described problems (K.2)

- Application of programming language and more abstract constructs to solve application problems (K.8)

- Reading, understanding and, if necessary, correction of given program fragments (K.4, K.10)

- Evaluation of statements with regard to their correctness (K.11)

Minimum standard

At least 50% of the total number of points.

Exam Type

Students must demonstrate the following competences in a written examination:

- Development of short programmes to solve problems described in colloquial language (K.4, K.9)

- Development of short programs to solve abstractly described problems (K.2)

- Application of programming language and more abstract constructs to solve application problems (K.8)

- Reading, understanding and, if necessary, correction of given program fragments (K.4, K.10)

- Evaluation of statements with regard to their correctness (K.11)

∧ Lecture / Exercises

Learning goals

Knowledge

Advanced methods of object orientation

polymorphism

Abstract Classes

interfaces

modelling

Generic Programming

Dynamic data structures

concatenated lists

stacks

cues

hash tables

trees

algorithms

intricacy

O notation

expenditure of time

storage effort

performance measurement

General strategies for designing algorithms

brute force

greedy

divide-and-conquer

backtracking

sorting methods

Selection Sort

Insertion Sort

Merge Sort

search procedure

Linear search

Binary Search

Skills

Creating object-oriented programs in Java

Designing object-oriented models for a given problem

Using class diagrams

Convert to software

dynamic data structures

Using dynamic data structures in Java

Designing dynamic data structures

Implement dynamic data structures in Java

Determining the complexity of algorithms

Solving a problem using suitable algorithms

Selecting algorithms

Designing algorithms

Implementing Algorithms in Java

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	3
Exercises (whole course)	0
Exercises (shared course)	2
Tutorial (voluntary)	2

Separate exam

Exam Type

solving exercises within limited functional / methodical scope

Details

Independent solving of self-learning tasks on the topics of the lecture in the form of the development of more complex programs to solve problems described in colloquial or abstract language (K.4, K.5, K.9, K.2).

Minimum standard

More than 80% of all exercises submitted. A task is deemed to have been completed if it has been solved predominantly and independently.