Algorithms and data structures (SE-007)
(ALGORITMID JA ANDMESTRUKTUURID)

SUBJECT DESCRIPTION

Credits (ECTS)	5.00 ECTS
Assessment	pass/fail

Aim of the subject and short description

Data types. The concept of algorithm complexity. Complexity classes, big O notation, complexity analysis. Analysis of algorithms. Recursive algorithms. Data structures: lists, binary trees, heaps, stacks; examples of their usage. Search and sorting algorithms, evaluation of operations count. Typical tasks related to graphs and algorithms. NP-complete problems. Generalized programming and generalized algorithms.

Learning outcomes:

Student:

1. Knows concepts related to analysis, evaluation and complexity of algorithms
2. Describes linear and non-linear data structures and algorithms applied thereto
3. Can analyse algorithms and evaluate their efficiency
4. Can choose an appropriate data structure and algorithm for simple and typical problems depending on specific issue to be solved
5. Solves tasks by using learned algorithms and with help of programming language supporting imperative usage of references