

Algorithms and Datastructures 3 (C003782)

Course size *(nominal values; actual values may depend on programme)*

Credits 6.0

Study time 180 h

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)

Dutch

Gent

seminar

lecture

Lecturers in academic year 2024-2025

Brinkmann, Gunnar

WE02

lecturer-in-charge

Offered in the following programmes in 2024-2025

[Bachelor of Science in Computer Science](#)

6

A

[Master of Science in Teaching in Science and Technology\(main subject Mathematics\)](#)

6

A

[Master of Science in Mathematics](#)

6

A

Teaching languages

Dutch

Keywords

Algorithm, data structure, efficiency

Position of the course

Get acquainted with some advanced aspects of algorithms and data structures.

Contents

Data structures for file organisation (e.g. B-trees, extensible hashing)
Algorithms and data structures for exact and approximate string matching, suffix trees and Ukkonen's algorithm, Compression algorithms, Bloom-filters and possibly other datastructures and algorithms

Initial competences

Being able to apply the contents of "Algorithms and Data structures 1" and "Algorithms and Data structures 2".

Final competences

- 1 The student knows and understands more advanced algorithms and data structures.
- 2 He/she can apply the new knowledge to practical problems and use it also in a research environment.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture

Study material

Type: Handouts

Name: Lecture notes'

Indicative price: Free or paid by faculty

Optional: no

Additional information: available online, website

References

- D. Gusfield, "Algorithms on Strings, Trees and Sequences", Cambridge University Press, 1997.
- B. Wilkinson en M. Allen, "Parallel Programming", Prentice Hall, 1999.
- H. Garcia-Molina, J.D. Ullman, J. Widom, "Database System Implementation", Prentice Hall 2000

Course content-related study coaching

- Student coaching in the classroom exercise sessions and lab sessions on PC.
- Use of an electronic teaching environment.

Assessment moments

- end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

- Written assessment with open-ended questions

Examination methods in case of periodic assessment during the second examination period

- Written assessment with open-ended questions

Examination methods in case of permanent assessment

- Oral assessment, Assignment

Possibilities of retake in case of permanent assessment

- examination during the second examination period is not possible

Extra information on the examination methods

- Non-periodical evaluation: graded programming project with oral defence.
- The use of generative AI is allowed, but in the oral defense it is evaluated whether all parts are well understood. If not, the project is evaluated as 0 points.

Calculation of the examination mark

- Non-periodical evaluation (20%) + periodical evaluation evaluation (80%).
- The score for the non-periodical evaluation is integrally transferred to the second examination period.