GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

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 2025-2026

A (semester 1)	Dutch	Gent	seminar
			lecture

Lecturers in academic year 2025-2026

Coolsaet, Kris	WE02	lecturer-in-charge
Brinkmann, Gunnar	WE02	co-lecturer

Offered in the following programmes in 2025-2026	**crdts**	**offering**
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 The student 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.