

# Course Specifications

Valid in the academic year 2024-2025

# 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				crdts	offering
Bachelor of Scie			6	А	
Master of Science in Teaching in Science and Technology(main subject Mathematics)				6	А
Master of Science in Mathematics				6	А

# 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

## 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.