GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Algorithmic Graph Theory (C000145)

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

Credits 6.0 **Study time 165 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 2)	Dutch	Gent	lecture
			seminar

Lecturers in academic year 2024-2025

Brinkmann, Gunnar	WE02	lecturer-in-charge

Offered in the following programmes in 2024-2025	**crdts**	**offering**
Master of Science in Teaching in Science and Technology(main subject Mathematics)	6	A
Master of Science in Computer Science	6	A
Master of Science in Mathematics	6	A

Teaching languages

Dutch

Keywords

Graph, algorithm, network, geography, chemistry

Position of the course

To learn about graphtheoretical concepts on the basis of graphtheoretical algorithms
A course on Discrete Mathematics is a necessary prerequisite and a basic course on Datastructures and Algorithms is at least helpful.

Contents

The contents of the course may be changed due to actual developments or requirements of the participating students. Possible topics are

1 algorithms for various graphtheoretical invariants
2 algorithms for networks
3 algorithms for isomorphism detection
4 applications in chemistry

Initial competences

- Required knowledge:
- Basic knowledge in Discrete Mathematics and preferably also Datastructures and Algorithms

Final competences

1 To know the discussed graphtheoretical algorithms.
2 To be able to apply the discussed graphtheoretical algorithms.
3 To understand the discussed graphtheoretical concepts.

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: Syllabus

Name: Lecture Notes
Indicative price: Free or paid by faculty
Optional: no
Language : Dutch
Number of Pages : 145
Available on Ufora : Yes
Online Available : Yes
Available in the Library : No
Available through Student Association : No

References

- R. Diestel: *Graph Theory*, Springer Graduate Texts in mathematics, 2005, 431 pp, ISBN 3-540-26183-4
- D.B. West: *Introduction to graph theory*, Prentice Hall, 2001, 588 pp, ISBN 0-13-014400-2
- W. Kocay, D.L. Kreher: *Graphs, Algorithms and Optimization*, Chapman & Hall, 2004, 504 pp, ISBN 1584883960

Course content-related study coaching

Individually -- students can always contact the lecturer

Assessment moments

end-of-term and continuous assessment

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

Oral assessment

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

Oral assessment

Examination methods in case of permanent assessment

Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Extra information on the examination methods

The permanent evaluation is based on a presentation by the student and his active participation during the
lectures.

Calculation of the examination mark

The final score is the score obtained on the periodic evaluation. However, this can be adjusted downwards if there is not enough active participation during the lessons.