

Algorithmic Graph Theory (C000145)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size (nominal values; actual values may depend on programme)
Credits 6.0 Study time 165 h Contact hrs 45.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	Gent	lecture	30.0 h
			seminar: coached	15.0 h
			exercises	

Lecturers in academic year 2020-2021

Brinkmann, Gunnar WE02 lecturer-in-charge

Offered in the following programmes in 2020-2021

	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

Lecture, seminar: coached exercises

Learning materials and price

Dutch lecture notes are available online.
Cost: 0 EUR

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

Evaluation methods

end-of-term evaluation and continuous assessment

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

Oral examination

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

Oral examination

Examination methods in case of permanent evaluation

Participation, report

Possibilities of retake in case of permanent evaluation

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

- Permanent evaluation: mark 0 or 1
- Periodic evaluation: mark between 0 and 20
- The final mark is the product of these two.