

## Databases (C003771)

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** 180 h      **Contact hrs** 60.0 h

### Course offerings and teaching methods in academic year 2020-2021

A (semester 1)	Dutch	Gent	lecture	30.0 h
			seminar	30.0 h

### Lecturers in academic year 2020-2021

De Tré, Guy	TW07	lecturer-in-charge
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### Offered in the following programmes in 2020-2021

	crdts	offering
<a href="#">Bachelor of Science in Geography and Geomatics</a>	6	A
<a href="#">Bachelor of Science in Computer Science</a>	6	A
<a href="#">Master of Science in Teaching in Science and Technology (main subject Geography)</a>	6	A
<a href="#">Master of Science in Bioinformatics (main subject Systems Biology)</a>	6	A
<a href="#">Master of Science in Geography</a>	6	A
<a href="#">Master of Science in Geology</a>	6	A
<a href="#">Linking Course Master of Science in Geography and Geomatics</a>	6	A
<a href="#">Preparatory Course Master of Science in Geography and Geomatics</a>	6	A

### Teaching languages

Dutch

### Keywords

Database systems, data modelling, database design.

### Position of the course

The objective of this course is twofold. On the one hand, this course is meant to be a classic basic course studying the fundamental theory about data bases. On the other hand it focuses on the practical use of data bases, privileging the relational model.

### Contents

- Introduction: Databases and database systems, Data models and database models
- Conceptual database design: The (extended) 'entity relationship' model
- Relational databases: The relational database model, Logical database design, Physical database design and SQL
- Object technology in databases: ODMG 3.0 and SQL:2011
- Accessibility for applications: APIs
- NoSQL database systems
- Working with database systems: Security, Failure and recovery, Concurrency control

### Initial competences

None

### Final competences

- 1 Being familiar with the basic concepts of database systems and databases.
- 2 Designing, setting up and maintaining databases.
- 3 Manipulating and querying databases.
- 4 Understanding how object technology and API's can be used.
- 5 Understanding how database systems work.

**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

**Extra information on the teaching methods**

Because of COVID19, changed working methods can be rolled out if this proves necessary.

Online supervised exercises: SQL, EER-modelling and database design.

**Learning materials and price**

- Handbook: G. De Tré, Principes van databanken, Pearson Education Benelux, Amsterdam, 2017 (ISBN:978-90-430-3580-4); indicative price: 50 EURO (in Dutch). Additional course material is available on Ufora.

**References**

- R. Elmasri, S.B. Navathe, Fundamentals of Database Systems, Seventh Edition, Pearson Addison-Wesley, Boston USA, 2016 (ISBN: 9780133971330)

**Course content-related study coaching**

All exercise courses are supported by assistants.

**Evaluation methods**

end-of-term evaluation and continuous assessment

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

Written examination, open book examination

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

Written examination, open book examination

**Examination methods in case of permanent evaluation**

Assignment, skills test

**Possibilities of retake in case of permanent evaluation**

examination during the second examination period is possible

**Extra information on the examination methods**

Periodic evaluation:

- Open questions on theory
- Exercises

Non-periodic evaluation:

- SQL database querying
- Database design project

**Calculation of the examination mark**

First and second exam period:

- Periodic evaluation: 65%; Non-periodic evaluation: 35%
- Special condition: If the score of the periodic and/or non-periodic evaluation is lower than 10/20, then the end score will be the lowest score of both. For a score of 10/20 or more on the periodic and/or non-periodic evaluation there is a points transfer to the second exam period.
- The score of the non-periodic evaluation is the weighted average of 70% SQL database querying and 30% database design project.

**Facilities for Working Students**

This course has an online exercise system for SQL.