

# Course Specifications

Valid as from the academic year 2020-2021

## Databases (E018110)

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	online seminar	30.0 h
			online lecture	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 Engineering (main subject Computer Science Engineering)</a>	6	A
<a href="#">Bachelor of Science in Mathematics</a>	6	A
<a href="#">Bachelor of Science in Computer Science Engineering</a>	6	A
<a href="#">Preparatory Course Master of Science in Bioinformatics (main subject Engineering)</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

Being familiar with data structures and having basic programming skills

### 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

Online lecture, online 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 (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 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 obtained from 70% SQL database querying and 30% database design project.

## Facilities for Working Students

This course has an online exercise system for SQL.