

## Database Design (E018610)

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

**Credits 4.0**                      **Study time 120 h**

**Course offerings and teaching methods in academic year 2023-2024**

A (semester 1)	Dutch	Gent	lecture	20.0h
			seminar	20.0h

**Lecturers in academic year 2023-2024**

De Tré, Guy	TW07	lecturer-in-charge
Bronselaer, Antoon	TW07	co-lecturer

**Offered in the following programmes in 2023-2024**

	<b>crdts</b>	<b>offering</b>
<a href="#">Bridging Programme Master of Science in Bioinformatics(main subject Engineering)</a>	4	A
<a href="#">Master of Science in Bioinformatics(main subject Engineering)</a>	4	A
<a href="#">Master of Science in Computer Science</a>	4	A
<a href="#">Master of Science in Computer Science Engineering</a>	4	A
<a href="#">Master of Science in Computer Science Engineering</a>	4	A

**Teaching languages**

Dutch

**Keywords**

Conceptual design, logical design, physical design, normalization, data warehouse design

**Position of the course**

This course is a specialization course that teaches how to design databases, with a main focus on relational databases. In addition, attention is paid to the design of data warehouses.

**Contents**

- Conceptual database design: EER modeling
- Logical database design: EER-relational mapping and normalization
- Physical database design: Creating a database in a database management system, primary file organization and secondary file organization
- Data warehouses and OLAP

**Initial competences**

Be familiar with relational databases.

**Final competences**

- 1 Be able to build an EER diagram and convert it to a relational database schema.
- 2 Be able to normalize a relational basic relation.
- 3 Be able to implement a database schema in a relational database management system.
- 4 Have insight into common techniques for primary and secondary file organization.
- 5 Understand the essence of a data warehouse and be able to design a data warehouse.

**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

**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.

## Assessment moments

end-of-term and continuous assessment

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

Written assessment

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

Written assessment

## Examination methods in case of permanent assessment

Assignment

## Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

## Extra information on the examination methods

- Periodic evaluation:
  - Open questions on theory
  - Exercises
- Permanent evaluation:
  - Design exercise with report/design to be submitted mid-semester

## Calculation of the examination mark

First and second exam period:

Periodic evaluation: 75%; permanent evaluation: 25%.

The end score is the weighted mean of the periodic and non-periodic evaluation. Students can only pass this course if they obtain a minimum score of 10/20 for both parts of the evaluation. If students obtain less than 10/20 for at least one of the parts, the following rules apply:

- If one obtains an 8/20 or 9/20 for at least one part of the evaluation, one cannot pass the whole of the course. If the final score would nevertheless be a mark of 10 or more out of 20, this will be reduced to the highest unsuccessful mark, namely 9/20.
- If one obtains less than 8/20 for at least one part of the evaluation, one cannot pass the whole of the course. If the final score would nevertheless be a figure of 8 or more out of 20, this will be reduced to the highest non-deliberable mark, namely 7/20.
- For a score of 10/20 or more on one of the parts, there is a mark transfer to the second exam period.

## Facilities for Working Students

The permanent evaluation can be made at home and is an individual activity.