

## 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 2024-2025

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

### Lecturers in academic year 2024-2025

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

### Offered in the following programmes in 2024-2025

	crdts	offering
<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

### Study material

Type: Handbook

Name: Principles of databases, 3e edition

Indicative price: € 52

Optional: no

Language : Dutch

Author : Guy De Tré

ISBN : 978-9-04304-157-7

Number of Pages : 580

Available through Student Association : Yes

Usability and Lifetime within the Course Unit : regularly

Usability and Lifetime within the Study Programme : regularly

Usability and Lifetime after the Study Programme : occasionally

Type: Slides

Name: Theory classes

Indicative price: Free or paid by faculty

Optional: no

Language : Dutch

Available on Ufora : Yes

Available in the Library : No

Available through Student Association : No

### 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.