GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

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 2025-2026

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

Lecturers in academic year 2025-2026

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

Offered in the following programmes in 2025-2026	crdts	offering
Bridging Programme Master of Science in Bioinformatics(main subject Engineering)	4	A
Master of Science in Bioinformatics(main subject Engineering)	4	A
Master of Science in Computer Science	4	A
Master of Science in Computer Science Engineering	4	A
Master of Science in Computer Science Engineering	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 open-book

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

Written assessment open-book

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:
  - 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.