GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Databases (C003771)

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

Credits 6.0 **Study time 180 h**

Course offerings and teaching methods in academic year 2026-2027

A (semester 1)	Dutch	Gent	lecture
			seminar

Lecturers in academic year 2026-2027

De Tré, Guy	TW07	lecturer-in-charge

Offered in the following programmes in 2026-2027	**crdts**	**offering**
Bachelor of Science in Engineering Technology(main subject Information Engineering Technology)	6	A
Bachelor of Science in Computer Science	6	A
Bachelor of Science in Geography and Geomatics	6	A
Bachelor of Science in Mathematics	6	A
Master of Science in Teaching in Science and Technology(main subject Mathematics)	6	A
Master of Science in Bioinformatics(main subject Systems Biology)	6	A
Master of Science in Geology	6	A
Linking Course Master of Science in Geography and Geomatics	6	A
Linking Course Master of Science in Information Engineering Technology	6	A
Preparatory Course Master of Science in Geography and Geomatics	6	A
Preparatory Course Master of Science in Information Engineering Technology	6	A

Teaching languages

Dutch

Keywords

Database systems, data modelling, database design, SQL.

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 'entity relationship' model
- Relational databases: The relational database model, Logical database design, Physical database design and SQL
- Object technology in databases: 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

Seminar, Lecture

Extra information on the teaching methods

Supervised exercises: SQL, ER modelling, database design and functionality of a dbms. The teacher and assistants are by appointment available for additional explanation or individual support.

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 : intensive
Usability and Lifetime within the Study Programme : regularly
Usability and Lifetime after the Study Programme : occasionally

References

- R. Elmasri, S.B. Navathe, Fundamentals of Database Systems, Seventh Edition, Pearson Addison-Wesley, Boston USA, 2016 (ISBN: 9780133971330)
- J. Celko, SQL for Smarties, Morgan Kaufmann, 2014 (ISBN: 978-0128007617)
- S. Faroult, P. Robson, The Art of SQL, O'Reilly, 2006 (ISBN: 978-059600894-9)
- A. Molinaro, SQL Cookbook, O'Reilly, 2009 (ISBN 978-059600976-2)

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

Skills test

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Periodic evaluation:
- Theory (closed book)
- Excercises (open book)

Non-periodic evaluation:
- SQL database querying (1st examination period: 2 tests in PC class: 2nd exam period: 1 test in PC class)

Calculation of the examination mark

First and second exam period:
Periodic evaluation: 75%; non-periodic evaluation: 25%.

The end score is the weighted mean of the periodic and non-periodic evaluation.

Facilities for Working Students

This course uses the online practice platform Dodona for the SQL exercises.