GHENT UNIVERSITY

Course Specifications

From the academic year 2021-2022 up to and including the academic year

Databases (E018110)

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

Credits 6.0 **Study time 180 h** **Contact hrs** 60.0h

Course offerings and teaching methods in academic year 2022-2023

A (semester 1)	Dutch	Gent	lecture	30.0h
			seminar	30.0h

Lecturers in academic year 2022-2023

De Tré, Guy	TW07	lecturer-in-charge

Offered in the following programmes in 2022-2023	**crdts**	**offering**
Bachelor of Science in Engineering(main subject Computer Science Engineering)	6	A
Bachelor of Science in Mathematics	6	A
Master of Science in Teaching in Science and Technology(main subject Mathematics)	6	A
Preparatory Course Master of Science in Bioinformatics(main subject Engineering)	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 seminar, Online lecture, Seminar, Lecture

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.

Assessment moments

end-of-term and continuous assessment

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

Written examination, Open book examination

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

Written examination, Open book examination

Examination methods in case of permanent assessment

Skills test, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Periodic evaluation:
- Open questions on theory
- Excercises

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%.
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.
The score of the non-periodic evaluation is the weighted average obtained from 60% SQL database querying and 40% database design project.

Facilities for Working Students

This course has an online excercise system for SQL.