

## Relational Databases (E761028)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

**Course size** *(nominal values; actual values may depend on programme)*  
**Credits** 6.0      **Study time** 180 h      **Contact hrs** 60.0 h

### Course offerings and teaching methods in academic year 2020-2021

A (semester 1)	Dutch	Gent	online lecture	24.0 h
			online seminar	36.0 h

### Lecturers in academic year 2020-2021

De Tré, Guy	TW07	lecturer-in-charge
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### Offered in the following programmes in 2020-2021

	crdts	offering
<a href="#">Bachelor of Science in Engineering Technology (main subject Information Engineering Technology)</a>	6	A
<a href="#">Linking Course Master of Science in Information Engineering Technology</a>	6	A
<a href="#">Preparatory Course Master of Science in Information Engineering Technology</a>	6	A

### Teaching languages

Dutch

### Keywords

SQL, database systems, data modelling, database design

### Position of the course

This course is intended as a classic basic course in which on the one hand the fundamentals of relational databases are studied and on the other hand considerable attention is paid to the practical use of relational databases, with main emphasis on SQL, EER modeling and database design.

### Contents

- Introduction: Databases and database systems
- 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: SQL:2011
- NoSQL database systems
- Working with database systems: Security, Failure and recovery, Concurrency control

### Initial competences

Strict prerequisites: none

Advisory initial competences:

Knowing the basic concepts of information technology, as taught in the part basic knowledge of "Informatica I".

Having some programming experience and knowledge of data structures, as e.g. learned in "Object Oriented Programming".

It is recommended to simultaneously follow the course "Data structures".

### Final competences

- 1 Being familiar with the basic concepts of database systems and databases.
- 2 Designing, setting up and maintaining relational databases.
- 3 Manipulating and querying relational databases: applying standard SQL techniques faultlessly.
- 4 Understanding how object technology can be used in relational databases.

- 5 Understanding how relational database systems work.
- 6 Having insight into NoSQL systems.

### **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 lecture, online seminar

### **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)

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.

An appointment with the lecturer or assistants can always be made.

### **Evaluation methods**

end-of-term evaluation and continuous assessment

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

Written examination, open book examination

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

Written examination, open book examination

### **Examination methods in case of permanent evaluation**

Assignment, skills test

### **Possibilities of retake in case of permanent evaluation**

examination during the second examination period is possible

### **Extra information on the examination methods**

Periodic evaluation:

- Open questions on theory
- Exercises

Non-periodic evaluation:

- SQL database querying
- Database design project

### **Calculation of the examination mark**

First and second exam period:

Periodic evaluation: 60%; non-periodic evaluation: 40%.

Special condition: If the score of the periodic and/or non-periodic evaluation is lower than 10/20, then the end score will be the lowest score of both. For a score of 10/20 or more on the periodic or non-periodic evaluation there is a points transfer to the second exam period.

The score of the non-periodic evaluation is the weighted average obtained from 70% SQL database querying and 30% database design project.

### **Facilities for Working Students**

This course has an online exercise system for SQL.