Relational Databases (E761028)

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 2021-2022

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

Lecturers in academic year 2021-2022

De Tré, Guy	TWO7	lecturer-in-charge

Offered in the following programmes in 2021-2022	crdts	offering
Bachelor of Science in Engineering Technology(main subject Information Engineering Technology)	6	A
Linking Course Master of Science in Information Engineering Technology	6	A
Preparatory Course Master of Science in Information Engineering Technology	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 seminar, Online 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)
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.

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