

**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 2017-2018**

A (semester 1)	seminar: coached exercises	12.5 h
	lecture	30.0 h
	seminar: practical PC room classes	17.5 h

**Lecturers in academic year 2017-2018**

De Tré, Guy      TW07      lecturer-in-charge

**Offered in the following programmes in 2017-2018**

	crdts	offering
<a href="#">Bachelor of Science in Computer Science</a>	6	A
<a href="#">Master of Science in Bioinformatics (main subject Systems Biology)</a>	6	A
<a href="#">Master of Science in Geography</a>	6	A
<a href="#">Linking Course Master of Science in Geomatics and Surveying</a>	6	A
<a href="#">Preparatory Course Master of Science in Geomatics and Surveying</a>	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 SQL3
- Accessibility for applications: APIs
- 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**

Lecture, seminar: coached exercises, seminar: practical PC room classes

### **Extra information on the teaching methods**

Exercises in PC classes: SQL and setting up of databases. It is possible to make the SQL exercises online. Supervised exercises in classroom: EER-modelling and normalisation.

### **Learning materials and price**

Handbook: G. De Tré, Principes van databanken, Pearson Education Benelux, Amsterdam, 2013 (ISBN:978-90-430-1302-4); indicative price: 50 EURO (Dutch)  
Additional course material is available on Minerva

### **References**

R. Elmasri, S.B. Navathe, Fundamentals of Database Systems, Sixth Edition, Pearson Addison-Wesley, Boston USA, 2011 (ISBN: 9780136086208)

### **Course content-related study coaching**

All exercise courses are supported by assistants.

### **Evaluation methods**

end-of-term evaluation

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

Written examination

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

Written examination

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

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

not applicable

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

During examination period:

- Theory part: written closed-book exam
- Exercise part: written open-book exam

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

Evaluation during exam period.

First and second exam period: Exercises: 60%; theory: 40%

Special condition: If the score of the theory part and/or exercise part is lower than 7/20, then the end score will be the lowest score of both parts.

### **Facilities for Working Students**

This course has an online exercise system for SQL.