

## **Database Technology**

Databasteknik

6 credits

Programme course

732A57

Valid from: 2025 Autumn semester

<b>Determined by</b>	<b>Main field of study</b>	
The Quality Board at the Faculty of Arts and Sciences	Computer Science	
<b>Date determined</b>	<b>Course level</b>	<b>Progressive specialisation</b>
2016-09-30	Second cycle	A1F
<b>Revised by</b>	<b>Disciplinary domain</b>	
Chairman of the Course and Programme Syllabus Board at the Faculty of Arts and Sciences	Technology	
<b>Revision date</b>	<b>Subject group</b>	
2022-06-15; 2024-09-30	Informatics/Computer and Systems Sciences	
<b>Offered first time</b>	<b>Offered for the last time</b>	
Autumn semester 2016		
<b>Department</b>	<b>Replaced by</b>	
Institutionen för datavetenskap		

## Course offered for

- Master's Programme in Statistics and Machine Learning

## Entry requirements

- 180 ECTS credits passed including 90 ECTS credits in one of the following subjects:
  - statistics
  - mathematics
  - applied mathematics
  - computer science
  - engineering
- Completed courses in
  - calculus
  - linear algebra
  - statistics
  - programming
- English corresponding to the level of English in Swedish upper secondary education (Engelska 6)  
Exemption from Swedish
- At least 24 ECTS credits passed in the main field of Statistics at second cycle and at least 5 ECTS credits passed in the main field of Computer Science at second cycle

## Intended learning outcomes

After the completion of the course you should on an advanced level be able to:

- explain and use the most important terminology within databases and database technology in a correct way
- design a data model using EER diagrams.
- design, implement and use a relational database.
- explain the theory behind the relational model and how this affects good design of databases.

## Course content

The aim of this course is to give a thorough introduction to:

- the theoretical and practical issues underlying the design and implementation of modern database systems
- principles for general database management systems: DBMS,
- methods for database design and use.
- datamodelling with EER, Relational databases, Datastructures for databases, SQL, Relational algebra, query optimization, transactions, serialisation, concurrency.

## Teaching and working methods

The course consists of lectures and laboratory work. Lectures are devoted to theory and techniques. Database design and implementation techniques are practised in the laboratory work. Homework and independent study are a necessary complement to the course. Language of instruction: English.

## Examination

Written examination. Laboratory work.  
Detailed information about the examination can be found in the course's study guide.

If special circumstances prevail, and if it is possible with consideration of the nature of the compulsory component, the examiner may decide to replace the compulsory component with another equivalent component.

If the LiU coordinator for students with disabilities has granted a student the right to an adapted examination for a written examination in an examination hall, the student has the right to it.

If the coordinator has recommended for the student an adapted examination or alternative form of examination, the examiner may grant this if the examiner assesses that it is possible, based on consideration of the course objectives.

An examiner may also decide that an adapted examination or alternative form of examination if the examiner assessed that special circumstances prevail, and the examiner assesses that it is possible while maintaining the objectives of the course.

Students failing an exam covering either the entire course or part of the course twice are entitled to have a new examiner appointed for the reexamination.

Students who have passed an examination may not retake it in order to improve their grades.

## Grades

ECTS, EC

## Other information

Planning and implementation of a course must take its starting point in the wording of the syllabus. The course evaluation included in each course must therefore take up the question how well the course agrees with the syllabus.

The course is conducted in such a way that there are equal opportunities with regard to sex, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation and age.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.

### **About teaching and examination language**

The teaching language is presented in the Overview tab for each course. The examination language relates to the teaching language as follows:

- If teaching language is “Swedish”, the course as a whole could be given in Swedish, or partly, or as a whole, in English. Examination language is Swedish, but parts of the examination can be in English.
- If teaching language is “English”, the course as a whole is taught in English. Examination language is English.
- If teaching language is “Swedish/English”, the course as a whole will be taught in English if students without prior knowledge of the Swedish language participate. Examination language is Swedish or English depending on teaching language.