



# DD1334 Database Technology 6.0 credits

## Databasteknik

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Course syllabus for DD1334 valid from Autumn 09

This is a translation of the Swedish, legally binding, course syllabus.

**Grading scale:** A, B, C, D, E, FX, F

**Education cycle:** First cycle

**Main field of study:** Information Technology, Technology

### Intended learning outcomes

The students will, upon completion of the course, be able to model and implement a database. Further on they will have written a simple application program operating a database.

This implies that the students should:

- understand the functions and architecture of a database system,
- be able to discuss advantages and disadvantages with different database models,
- be able to model and structure data according to actual constraints and be able to discuss advantages and disadvantages with different implementations of a database and its constraints,
- understand how to choose index structures and decide which index structures are usable in different situations,
- be able to use a query language to formulate queries and also to describe the mathematical foundations for data manipulation languages,
- understand and be able to explain the implications of different constraints on the database,
- fully understand the mechanisms for optimization of queries,
- fully understand the principles of concurrency and recovery handling,
- fully understand the solutions to security problems,
- be able to write embedded SQL in a 3rd generations programming language.

### Course main content

Definition of the relation model. Information structuring according to the “Entity Relationship”-model.

Functional dependencies and what they mean for good database design. Normalization. Query languages and the mathematics behind them. Methods for storage and retrieval. Transaction handling. Assertion of security and integrity. Fourth generation development tools for design of database systems. Overview of different models for data representation. Laboratory assignments using experimental and commercial systems.

### Language of instruction

Language of instruction is specified in the course offering information in the course and programme directory.

### Eligibility

For single course students: completed upper secondary education including documented proficiency in Swedish corresponding to Swedish B, English corresponding to English A. Furthermore: 7,5 hp in mathematics and 6 hp in computer science or programming technics.

## Literature

H. Garcia-Molina, J. Ullman and J. Widom, Database Systems: The Complete Book, Pearson Prentice Hall, 2009.

## Examination

- LAB1 - Laboratory Work, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: [http://www.kth.se/csc/student/hederskodex/1.17237?l=en\\_UK](http://www.kth.se/csc/student/hederskodex/1.17237?l=en_UK).

## Requirements for final grade

The students participating in the course are expected to take part in all activities on the course with a particular emphasis on the exercises and laboratories.

In addition the course focuses on training:

acquiring knowledge.

training oral and written presentation.

Examination by one examination (TEN1; 3 university credits), laboratory assignments (LAB1; 3 university credits), seminar and training tasks.