DD1334 Database Technology 6.0 credits

Databasteknik

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

Establishment

Course syllabus for DD1334 valid from Autumn 2009

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Information Technology, Technology

Specific prerequisites

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.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

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 contents

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.

Course literature

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

Examination

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

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

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.

Other 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.

Ethical approach

- All members of a group are responsible for the group's work.

- In any assessment, every student shall honestly disclose any help received and sources used.

- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.