



IV2013 Relational Database Design 7.5 credits

Relationsdatabasdesign

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

Establishment

Course syllabus for IV2013 valid from Autumn 2008

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

A basic course in relational database design (or corresponding knowledge)

Language of instruction

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

Intended learning outcomes

The course is an advanced course in logical and physical design of relational databases including the representation of multimedia in relational databases. Given a number of user demands a normalised relational schema is developed. The schema is then translated into a physical database schema optimized with respect to a set of transactions. IBM DB2 version 8.2 is used to exemplify implementing and optimizing a relational database.

Course contents

Database modelling - best practices, analysis patterns and data-abstractions, schema integration. Design aspects on transformation of a conceptual model into a logical relational database schema. Analytical database design. Database architecture for multimedia data and their realization in DB2 via text, image, audio and video extenders. Optimization of SQL-transactions. Parallelism. Balancing of application demands. Application of views. Guidelines for choice of index and physical allocation. File organisations and access methods. Segmentation, replication and partitioning.

Disposition

Lectures, seminars and computer-aided assignments.

Course literature

- Collection of excerpts from the following books: Flemming von Halle: Handbook of relational database design, Gulutzan: SQL- Performance Tuning, Fowler: Analysis patterns, Odell: Object Oriented methods: A foundation, Rick van der Lans: Introduction to SQL, Lynne Dunckley: Multimedia Databases: An Object-Relational Approach R. Elmasri and S.B. Navathe: Fundamentals of Database Systems, T. Connolly and C. Begg: Database Systems: A Practical Approach to Design, Implementation, and Management

- Article collection

- Manuals and other material

Reference literature:

One complete, basic database course-book is assumed from an earlier basic course in relational database design. We suggest:

- T. Connolly and C. Begg, Database Systems: A Practical Approach to Design, Implementation, and Management, Addison-Wesley

or

- R. Elmasri and S.B. Navathe, Fundamentals of Database Systems, Word Student Series, Addison-Wesley

Examination

- SEM1 - Seminar, 1.5 credits, grading scale: P, F
- INL1 - Assignment, 1.5 credits, grading scale: P, F
- INL2 - Assignment, 1.5 credits, grading scale: P, F

- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, 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.

The course examination is divided into four parts:

Seminars (1,5hp) grading scale P/F.

Assignment I (1,5 hp) grading scale P/F.

Assignment II (1,5 hp) grading scale P/F.

Written exam (3hp), grading scale A, B, C, D, E, Fx, F.

Other requirements for final grade

To pass the course, the student needs to pass on all four examination parts. Course grade is based on the grade on the written exam.

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.