DIT620  Databases, 7,5 högskolepoäng
Databases, 7.5 credits
Grundnivå / First Cycle

Fastställande

Utbildningsområde: Naturvetenskapligt 100 %
Ansvarig institution: Data- och informationsteknik

Inplacering
The course is a part of the Computer Science Bachelor's programme and an elective course at the University of Gothenburg. The course is also offered as an elective course in the Computer Science Master's programme and in the Software Engineering Master's programme

Kursen kan ingå i följande program: 1) Systembiologi, masterprogram (N2SYB), 2) Datavetenskapligt program (N1COS), 3) Computer Science, Master's Programme (N2COS), 4) Matematikprogrammet (N1MAT) och 5) Applied Data Science masterprogram (N2ADS)

**Huvudområde**           **Fördjupning**
Software Engineering       G1F, Grundnivå, har mindre än 60 hp kurs/er på grundnivå som förkunskapskrav
Datavetenskap              G1F, Grundnivå, har mindre än 60 hp kurs/er på grundnivå som förkunskapskrav

**Förkunskapskrav**
The entry requirements for the course is:

- basic knowledge in programming i.e. at least one of the courses DIT440, DIT011, DIT950, DIT948 or equivalent.
- basic knowledge in discrete mathematics such as MMGD10 or equivalent.

English A level or English proficiency equivalent to IELTS 5.5 no part under 5.0 or TOEFL 530 p, TWE score 4.0 is also required.

Lärandemål
After completion of the course the student is expected to be able to:

Knowledge and understanding
• argue about different data models, in particular the relational and semi-structured models, regarding their strengths and weaknesses for modelling purposes;
• read and write relational algebra expressions;
• discuss the effects of transactions, user authorisation and indexes

Skills and abilities
• query a database for relevant data using SQL;
• change the contents of a database using SQL;
• connect to and use a database from external applications

Judgement and approach
• design a database that correctly models a domain and its constraints as a relational schema;
• give a database schema with related constraints, implement the database in a relational database management system (DBMS)

Innehåll
The course covers the basic principles of database systems as seen by users, application programmers and database administrators. A laboratory assignment develops these topics as a running example throughout the course. These include programming in SQL, as seen by a user querying or modifying an existing database, by a database designer, and by an application programmer invoking SQL from a host language.

Course contents include:
• Entity-Relationship modeling
• Functional Dependencies and Normalisation
• Database querying and manipulation through SQL
• Interfacing to a database from a host language (Java/JDBC)
• The semi-structured model, XML

The course is thus a typical first course in database systems, and occupies a traditional place in the curriculum.
Former för undervisning

*Undervisningsspråk:* engelska

Former för bedömning

Written individual exam (fail/pass/pass with distinction) given in an examination hall and a programming assignment (pass/fail) divided into 4 subtasks. The programming assignment is normally carried out in pairs.

A student who has failed a same examination twice has the right to request of the department a change of examiner. The request is to be in writing and submitted as soon as possible. The department is to grant such a request without undue delay.

In cases where a course has been discontinued or major changes have been made a student should be guaranteed at least three examination occasions (including the ordinary examination occasion) during a time of at least one year from the last time the course was given.

Betyg

På kursen ges något av betygen Väl godkänd (VG), Godkänd (G) och Underkänd (U). The course is graded with the following marks: Fail (U), Pass (G), Pass with Distinction (VG).

In order to be awarded a Pass (G) for a full course, a passing mark must be obtained in the written exam and the laboratory assignment must be approved. To be awarded Pass with Distinction (VG) for the full course, a VG grade must be obtained in the written exam and the laboratory assignment must be approved.

Regarding the application of ECTS scales, please see Vice-Chancellors decision 2007-05-28,
dnr G 81976/07.

Kursvärdering

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The course is evaluated through meetings both during and after the course between teachers and student representatives. Further, an anonymous questionnaire can be used to ensure written information. The outcome of the evaluations serves to improve the course by indicating which parts could be added, improved, changed or removed.

Övrigt
It is recommended, however not required, to read DIT960 Datastrukturer or equivalent before hand.

The syllabus correspond to the syllabus of the Database course at Chalmers.