Course syllabus

Databasteknik
Database Technology

EDAF75, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED C/D
Date of Decision: 2023-04-18

General Information

Main field: Technology.
Compulsory for: C3
Elective for: BME4, D4-pv, D4-se, E4-pv, E4-ae, F4, F4-pv, I4-pvs, L4-gi, Pi4-pv
Language of instruction: The course will be given in Swedish

Aim

The course gives basic theoretical and practical knowledge about database systems and their organisation. The emphasis is on relational databases.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- be able to describe information systems with E/R models and UML notation, and translate such models into relational form
- be able to normalise database schemas
- be able to use the query language SQL to create and update a database, and to retrieve information from the database
- know about alternative ways to organise data in databases and about the design of database management systems

Competences and skills
For a passing grade the student must

- be able to use tools to implement a database
- be able to develop application programming interfaces to databases

Contents

- Introduction to database systems. Basics of the relational model, the query language SQL. Methods for data modelling and database design, E/R diagrams and UML diagrams. Theory for the relational model: functional dependencies, normalisation, relational algebra. Stored procedures, triggers. Program and web interfaces to databases.
- Other data models: NoSQL-databases, semistructured data (JSON).
- Security and integrity in databases, concurrency, transactions. Implementation of database management systems and query languages.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Written examination. Compulsory course items: computer laboratory exercises, project. The final grade of the course is based on the result of the written examination.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0117. **Name:** Laboratory Work and Assignment.
Credits: 3. **Grading scale:** UG. **Assessment:** To qualify for a passing grade the laboratory exercises and the assignment must be completed.
Code: 0217. **Name:** Written Examination.
Credits: 4,5. **Grading scale:** TH. **Assessment:** Written examination. The final grade of the course is based on the examination.

Admission

Admission requirements:

- EDA011 Programming, First Course or EDA016 Programming, First Course or EDA017 Programming, First Course or EDAA10 Computer Programming in Java or EDAA20 Programming and Databases or EDAA45 Introduction to Programming or EDAA50 Programming, First Course or EDAA55 Programming, First Course or EDAA65 Programming, First Course

Assumed prior knowledge: EDAA01 Programming - Second Course.
The number of participants is limited to: No
The course overlaps following course/s: EDA215, EDA636, EDAF20, EDA216

Reading list

Contact and other information

Course coordinator: Christian Söderberg, christian.soderberg@cs.lth.se
Course administrator: Ulrika Templing, ulrika.templing@cs.lth.se
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