Database Design
Databasdesign
7.5 credits
7.5 högskolepoäng

Ladok Code: C3KDD1
Version: 1.0
Established by: Utskottet för utbildningar inom bibliotek, information och IT 2019-03-12
Valid from: Autumn 2019

Education Cycle: First cycle
Main Field of Study (Progressive Specialisation): Information Architecture (G1N)
Disciplinary Domain: Natural sciences
Prerequisites: General entry requirements
Subject Area: Informatics/Computer and Systems Sciences
Grading Scale: Seven-degree grading scale (A-F)

Content
The starting-point for this course is conceptual modelling of objects and phenomena and an investigation of how this modelling can be implemented in different types of databases. The emphasis is on relational databases (SQL), but the course begins with the treatment of documents and graph databases (so-called NoSQL databases), in order to illuminate the differences between database types. The course centers on the question of how best to represent reality in a database, using the three examinations as a way of investigating three different answers to this question. The last examination explores this question more deeply, treating normalization and use of these designed databases.

Learning Outcomes
After passing the course the student should be able to, concerning,

Knowledge and understanding
1.1 Demonstrate an understanding of the differences between relational databases, document databases, and graph databases
1.2 Demonstrate and understanding of how to match database types with different applications
1.3 Demonstrate an understanding of SQL and the construction of well-structured SQL commands

Competence and skills
2.1 Be able to construct a conceptual database given a description of objects and phenomena
2.2 Identify appropriate database types for different web applications
2.3 Create the base design for relational databases, document databases, and graph databases
2.4 Apply well-structured SQL for material deposits, updates, and database expansions

Judgement and approach
3.1 Evaluate different database models in relation to different end goals

Forms of Teaching
Course instruction is in the form of lectures, exercises, and assignments.

The language of instruction is English.

Forms of Examination
The course is graded through the following examinations:

- Written assignment 1: Design of a document database
Learning outcomes: 1.1, 1.2, 2.1, 2.2, 2.3, 3.1
Written assignment 2: Design of a graph database
Learning outcomes: 1.1, 1.2, 2.1, 2.2, 2.3, 3.1
Credits: 2
Grading scale: Fail (U) or Pass (G)

Written assignment 3: Design, normalization, and use of a relational database
Learning outcomes: 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1
Credits: 3.5
Grading scale: Seven-degree grading scale (A-F)

For the grade E on the entire course, at least the grade Pass (G) or E is required on all the written assignments. A higher grade on the entire course is thereafter determined by the grade on Written assignment 3: Design, normalization, and use of a relational database.

When the course plan is changed, students who wish to finish the course must do so according to the new plan’s content and assignment requirements. If the course no longer is offered on a regular basis, students who wish to complete the course must take all or part of another, equivalent course.

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

Literature and Other Teaching Methods


Student Influence and Evaluation
The course is evaluated in accordance with current guidelines for course evaluations at the University of Borås in which students’ views are to be gathered. The course evaluation report is published and returned to participating and prospective students in accordance with the above-mentioned guidelines, and will be taken into consideration in the future development of courses and education programmes. Course coordinators are responsible for ensuring that the evaluations are conducted as described above.

Miscellaneous
The course is part of the degree programme Web Content Manager and Designer, 180 credits, and Web Content Manager and Designer, distance education, 180 credits, as well as being offered as a freestanding course.