Linnæus University

Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

1IK405 Webbutveckling med databas, 15 högskolepoäng
1IK405 Database Engineering, 15 credits

Main field of study
Computer Science, Informatics

Subject Group
Informatics/Computer and Systems Sciences

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved 2009-06-23
Revised 2010-08-20 by School of Computer Science, Physics and Mathematics.
Revision made for English translation of the syllabus and course evaluation.
The course syllabus is valid from spring semester 2011

Prerequisites
30 credits in Informatics

Objectives

The student is expected to gain basic knowledge of database engineering, data modeling and development and implementation of user interfaces.

After taking this course the student will be able to:

- apply data modeling practically and theoretically when developing data bases
- construct databases according to the norms that are put forward in data modeling
- explain the components that are part of a database manager
- use SQL language and explain its construction and use when working with databases
- use software for database management
- develop small database applications with a user interface for handling data
- analyze and evaluate digital and physical user interfaces
- have detailed knowledge of how to develop interfaces that puts users and data and not the system used in focus

- discuss advanced user interface development
- have knowledge of methods for interface evaluation.

Content

The course covers how to develop a database application from an organizational perspective to a final product which can be used to support the organization. During the course data modeling is handled which is the key to creating good databases. In the database module construction of databases and the standardized language SQL is handled. The theoretical and practical part concerning user interface design will handle evaluation of digital and physical user interfaces. Several methods for analyzing and evaluating existing user interfaces will be brought up and trained practically.

As a closure of the course an individual work is carried out in which all the modules are represented.

Module 1 Data Modeling 1.5 credits
Theoretical and practical application of data modeling.
In this module the concepts objects, relations, keys, index, tables and attributes are handled. Conceptual, logical and physical models. Rules for normalization. Referential integrity. Volume calculation. Database growth analysis.

Module 2 Data Base 3 credits
Theoretical and practical application of data base construction and SQL, Structured Query Language.
The module handles creation of tables, attributes, keys and referential integrity. Practical application of knowledge gained from module 1.

Module 3 Human -Computer Interaction 4.5 credits
Theoretical application in seminar form concerning user interface development. Theoretical and practical evaluation of user interfaces.

Module 4 Individual Project 6 credits
Concluding work with application of knowledge from all previous modules. The student is expected to work individually and show that he/she possess practical and theoretical knowledge of the aforementioned areas.

Type of Instruction

During the course Internet will be used to distribute information and it can be taken both as a campus and a distance course.

On campus the teaching consists of lectures, seminars, exercises and individual work. The same goes for distance students but seminars, examinations and information is carried through by the use of MSN, Skype, Adobe Connect and the HELP student platform.

Examination

The course is assessed with the grades U, 3, 4 or 5.

The grounds for grading are determined by laborative work, seminars, AKS hand in and presentation of the individual work. Examination is made continually during the time which the goes is given for each module. Laborative work and seminars are obligatory and are graded with the grades fail or pass. Handing in the AKS and presenting the individual work is obligatory and determines the final grade of the course. On request, students may have their credits translated to ECTS-marks. Such a request must be sent

to the examiner before the grading process starts.
Further opportunities for examination after course completion are offered within six weeks within ordinary term dates.

Course Evaluation

A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

Required Reading and Additional Study Material

Required Reading

Axelsson, Lars & Hidefjäll, Martin (1993) *Praktisk datamodellering.* ISBN 91-44-38001-1
Cooper, Alan (2004) *The Inmates are Running the Alysum* ISBN-13: 978-0-672-32614-1, ISBN-10: 0-672-32614-0

Web-based materials are provided on the course website.

The Required Reading and Additional Study Material are subject to changes.