Course Description Database Systems 1

Keywords: SQL, ODBC, transactions, DBMS administration

Target Group: 3rd Semester SWB Module Number: SWB 330

Workload: 5 ECTS 150 h
Divided into: Contact time 60 h Self study 60 h Exam preparations 30 h

Course language: German and English Module director: Prof. Jürgen Nonnast

Valid from: 01.03.2014

Requirements:
Advanced knowledge of operating systems

Overall Aims of the Module:
Students will acquire fundamental knowledge in information technology and in programming.

The following courses contribute to the overall aims of this module:
- Programming 1-2
- Object Oriented Systems 1-2
- Software Engineering
- Databases

Aim of this course:
Students will acquire the fundamental concepts of hierarchical, network-oriented, relational, and object-oriented data models. Students will also be able to develop various database programs.

Contents:
- Foundations of data models
- Relational algebra
- SQL: projection, restriction, queries, scalar functions, aggregate functions
- Date functions
- DML access and DDL access
- Table concatenation (Inner, Left, Right, Outer Join)
- Embedded SQL with C (Singleton Select, Cursor Select, Cursor Update)
- Examination of portable application development with SQL99
- Composition and functionality of a database management system, with special focus on multi-user systems and performance, data security, and availability

Literature:

Offered:
Every semester
Submodules and Assessment:
Type of instruction/learning: Lecture with homework/self-study
Type of assessment: Written exam (90 minutes)
Hours per week: 4 SWS
Estimated student workload: 120 hours

Learning outcomes:
Students will be able to develop database programs within given requirements. They will learn about the functionality and the operations of database management systems and will be capable of evaluating such systems.

Type of instruction/learning: Laboratory exercises
Type of assessment: Attendance certificate
Hours per week: 1 SWS
Estimated student workload: 30 hours

Learning outcomes:
Students will be able to implement the theoretical operational concepts.

Overall Assessment:
Written exam, non-graded attendance certificate