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:

> Baklarz, Zikopoulos: DB2 9 DBA Guide, Reference, and Exam Prep, IBM Press, 2007.
> E. Sanders: DB2 9 Fundamentals: Certification Study Guide, MC Press Online, 2007.
> E. Sanders: DB2 9 Database Administration: Certification Study Guide MC Press Online, 2007.

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