Level: bachelor		
Course title: Databases 2 (code: I241)		
Status: mandatory for the module of *Information technology,* optional for the module of *Computer science*		
ECTS: 8		
Requirements: Introduction to programming, Data structures and algorithms 1		
Learning objectives To teach students about the principles of developing the client-server and multi-tier applications which use databases, to explain methodology of connecting applications which use database, as well as to teach principles on which functioning of classical and distributed DBMS is based.		
Learning outcomes *Expected:* Successful students should be able to create application (based on JDBC interface) which establishes the basic communication with illustrative database. *Desired:* Successful students should be able to demonstrate understanding of the basic principles of ODBC and JDBC interface applied on the example of JDBC application which manages the illustrative database. In addition, students should be able to demonstrate in-depth understanding of the principles on on which functioning of classical and distributed DBMS is based.		
Syllabus *Theoretical part:* Client-server architecture. Multi-tier architecture. Principles of connecting application with database. ODBC and JDBC interfaces. Other technology. Methodology of normalizing relation data model. Principles of physical organisation data into databases. Details dealing with managing transactions in DBMS. Distributed DBMS. Connection of applications using databases. Data Warehouse systems. Web services. *Practical part:* Normalization of relation data model is practised on concrete examples. Principles of creating and maintaining physical data structure in databases are also practised. Students practice principles of creating the JDBC application by doing exercises on a computer.		
Weekly teaching load		
Total hours	**Lectures:** 2	**Practical lessons:** 3