

Study programme(s): Information Technologies				
Level: Bachelor				
Course title: Software Engineering for Database Systems				
Lecturer: Jovana D. Vidaković				
Status: elective				
ECTS: 7				
Requirements: Databases 1				
Learning objectives Introduce principles, elements and work methods of data warehouse systems.				
Learning outcomes <i>Minimum:</i> After successful completion of this course students are able to model data warehouse database schema, extract, transform and load data from database to DW database, as well as to generate aggregate data in DW database. <i>Desirable:</i> After successful completion of this course students are able to design OLTP database schema as well as data warehouse database schema, extract, transform and load data from OLTP database to DW database, as well as to generate aggregate data in DW database. Students are also able to analyze data across different dimensions and use OLAP data analysis. They can use techniques and tools for generating reports and understand the Data Warehouse system architecture, as well as methodologies of Data Warehouse design.				
Syllabus <i>Theoretical instruction</i> In theoretical part of this course students are introduced with: 1. Characteristics, aims and fields of application of DW systems; 2. DW system development; 3. DW system architecture; 4. General structure and design of DW system database; 5. Methods and techniques of initial loading and later refreshing of DW database; Extraction, transforming and loading data into DW database (ECTL processes); 6. Generation of aggregate data and reports in DW databases. <i>Practical instruction</i> In practical part of this course, students will be introduced to tools that can execute all tasks explained on the theoretical part of the course. According to the relational database schema, students will design DW database schema. They will create ECTL processes for extraction and transforming data from operational database and loading transformed data into the DW database. Students will create materialized views that contain aggregate data, as well as different kinds of reports.				
Literature <i>Recommended</i> 1. W.H.Inmon, "Building the Data Warehouse", Wiley Computer Publishing, 2005. 2. M. Golfareli, S. Rizzi, "Data Warehouse Design: Modern Principles and Methodologies", Mc Graw-Hill, 2009.				
Weekly teaching load				
Lectures: 2	Exercises: 1	Practical Exercises: 2	Student research: 0	Other:
Teaching methodology Classical teaching methods using computer equipment are applied during theoretical part of course. Practical exercises are performed in computer laboratory where students are introduced with tools through practical work. Through practical examples and labs, they will understand theoretical concepts taught during theoretical part of the course.				
Grading method (maximal number of points 100)				
Pre-exam obligations	points	Final exam	points	
Project	60	Oral exam	40	