Course Unit Descriptor

Study Programme: Information Technologies

Course Unit Title: Software Engineering for Database Systems

Course Unit Code: IT611

Name of Lecturer(s): Jovana Vidaković

Type and Level of Studies: Bachelor Academic Degree

Course Status (compulsory/elective): Elective

Semester (winter/summer): Winter

Language of instruction: Serbian (primary), English (secondary)

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 7

Prerequisites: Databases 1

Course Aims:

Introduce principles, elements and work methods of data warehouse systems.

Learning Outcomes:

Minimum:

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.

Desirable:

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:

Theory

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.

Practice

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.

Required Reading:

Recommended

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 Contact Hours: 5	**Lectures:** 2	**Exercises:** 1	**Practical work:** 2

Teaching Methods:

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.

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation		written exam	
Practical work/Project	60	oral exam	40
Preliminary exam(s)		…….	
Seminar(s)			

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.