Study programme(s): Information Technologies

Level: Bachelor

Course title: Databases 1

Lecturer: Miloš D. Racković

Status: obligatory

ECTS: 7

Requirements:

Learning objectives

Educating student for modelling, creating and using (SQL queries) relation data model, as well as mastering principles of operating DBMS.

Learning outcomes

Minimum: At the end of the course, it is expected that student will be able to create relational data model for an illustrated example of a real system using appropriate CASE tool; based on that model he/she should be able to create database and to demonstrate few examples of SQL query.

Desirable: At the end of the course, it is expected that successful student is able to understand basic principles of modelling and creating relational data model for an illustrative example of real system using appropriate CASE tool, execution of SQL queries and functions of DBMS.

Syllabus

Theoretical instruction

Role of databases in development of information systems. Basic concept of databases. Database management systems. Basic data models. Entity-relation (ER) data model. Relational data model. Transformation of ER model into relational data model. SQL - query language for manipulating data. Transactional processing.

Practical instruction

Creating ER model for illustrative examples of systems using appropriate CASE tool. Creating relational data model by transforming ER model using appropriate CASE tool. Managing data using illustrative SQL queries.

Literature

Recommended

- Рацковић М., Шкрбић С., Видаковић Ј., „*Увод у Базе података*“, Универзитет у Новом Саду, Природно математички факултет, Департман за математику и информатику, Нови Сад, 2007.

Alternative

- Могин П., Луковић И., „*Принципи база података*“, Универзитет у Новом Саду, Факултет техничких наука, 1996
- Date C. J. „ *An introduction to database systems",* Pearson, 2003
- Coronel C., Morris S. „*Database systems: design, implementation, & management",* Cengage Learning, 2014
- Elsmari R., Navathe, S. „*Fundamentals of database systems*“, Pearson, 2015

Weekly teaching load				
Lectures:3	Exercises:0	Practical Exercises: 2	Student research:	Other:

Teaching methodology

Classical teaching methods using video beam are applied during lectures. Basic principles of databases are explained and illustrated on appropriate examples. Practical exercises involve creating ER model and its transformation into relational data model using appropriate CASE tool. Also, students learn how to create and execute SQL queries. Student is evaluated through two tests which include transformation of ER model into relational model and writing SQL queries. At the end of course each student gets practical assignment which includes creation of ER model and its transformation into relational data model. At the oral exam student must defend his/her assignment through answering questions regarding created model. Student also demonstrates his/her knowledge of basic principles of DBMS.

Grading method (maximal number of points 100)

Pre-exam obligations	**points**	**Final exam**	points
Test 1	20	oral exam	40
Test 2	20		
Project	20		