

Study Program: Informatics				
Type and level of studies: Bachelor studies				
<b>Course name:</b> Databases				
<b>Lecturer:</b> Denić M. Nebojša				
Status: Compulsory				
ECTS: 7				
Attendance Prerequisites: Basic, high-school level knowledge in informatics.				
<b>Course aims</b> Enabling students to project relational databases on a conceptual and implementational level.				
<b>Course outcome</b> The students are able to project relational databases on a conceptual and implementational level, as well as through using query languages. The students are able to perform as database administrators, and to use database management systems and their services.				
<b>Course content</b>				
<i>Theoretical part</i> Basic terms and notions. Data structure. Database conception. Data modeling. Basic data models. Conceptual models, Object oriented models. The entity and linker model and its association with the object data model. Relational model. The structure of the relational model. Relational model operations. Relational query language. Relational databases. ER and EER model, entity and referential integrity, relational algebra and relational calculus. Database query languages. A general view of database languages, the SQL standard of relational databases. SQL development, data types and commands. Mapping conceptual schema to relational schema. Programming in relational databases. Incorporating nonprocedural queries into procedural languages. Relational Database Design. Database design algorithms, functional dependencies, normal forms, multi-value dependencies. Transaction processing. Transactions, failure and recovery. Data memorization and indexing. Normal forms - designing relations by normalization. Designing logical and physical database structure and setup. Introduction to Distributed Databases. Distributed data storage, distributed query processing. Physical design of databases. File structure. Space for tables and segments. BP User Objects. Data types. Memory structure.				
<i>Practical part</i> Exercises. Microsoft Access, MySQL, SQL. Designing and illustrating ER data models using the appropriate tools. Practicing the design a relational data model by translating the ER data model into a suitable tool. Data manipulation via illustrative SQL queries; Other forms of teaching, Study research work				
<b>Literature:</b>				
1. Rebeka Riordan, <i>Projektovanje baza podataka</i> , Mikro knjiga, Beograd, 2006.				
2. Anthony Molinaro, <i>SQL Cookbook</i> , O'Reilly, 2005.				
3. Лазаревић, Б. и др., <i>Базе података</i> , (2006)ФОН, Београд				
<b>Number of active classes</b>				Other classes
Lectures: 2	Practica 1 classes: 3	Other forms of teaching:	Students' research work	
<b>Teaching methods</b> Lectures are in accordance with the topic in <i>course content</i> , computer practice and independent student research work.				
<b>Assessment (maximum 100 points)</b>				
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>		<b>points</b>
activity during lectures	<b>10</b>	written exam		<b>15</b>
practical classes	<b>10</b>	oral exam		<b>25</b>
term test(s)	<b>20</b>	.....		
seminar(s)	<b>20</b>			
<b>Total</b>	<b>60</b>			<b>40</b>