

<b>Study programmes:</b> Master studies - Informatics				
<b>Course name:</b> R373 - Distributed and Object Databases				
<b>Lecturers:</b> Saša Malkov and other lecturers at Department of computer Science				
<b>Status:</b> Optional				
<b>ECTS:</b> 8				
<b>Attendance prerequisites:</b> -				
<b>Course aims:</b> Mastering general knowledge about distributed and object databases.				
<b>Course outcome:</b> Upon completion of the course, the student is familiar with the concept and application of distributed and object databases.				
<b>Course content:</b>				
<ul style="list-style-type: none"> <li>- Distributed data processing and distributed databases.</li> <li>- Basic principles, concepts and architecture of distributed databases. Replication.</li> <li>- The concept of transaction processing, concurrency control, database recovery, security and protection in distributed databases. Two-phase commit. Protocols and optimizations.</li> <li>- Designing distributed databases. Designing fragmentation and replication. Algorithms.</li> <li>- Object Databases. Theoretical and practical aspects of object databases. Object-relational databases.</li> <li>- CAP theorem. Relationship between ACID and BASE transaction models.</li> <li>- Non-relational databases. NoSQL database. Examples.</li> <li>- Extended data model for advanced applications. Deductive and temporal databases.</li> <li>- Mobile databases.</li> </ul>				
<b>Literature:</b>				
1. Ozsu, Valduries, Principles of Distributed Database Systems, 3.ed, Springer, 2011. (2.ed, Prentice Hall, 1999.)				
2. Chaudhri, Zicari, Succeeding with Object Databases, 2001.				
3. Date, Darwen, Foundation for Object/Relational Databases: The Third Manifesto, 1998.				
4. Bernstein, Newcomer, Principles of Transaction Processing, 2.ed, 2009.				
5. Date, C.J.: An Introduction to Database Systems, Addison-Wesley, 8.ed, 2004.				
6. Selected papers				
(The lecturer can choose another relevant current literature)				
<b>Number of hours:</b> 7	<b>Lectures:</b> 2	<b>Tutorials:</b> 3	<b>Laboratory:</b> -	<b>Research:</b> 2
<b>Teaching and learning methods:</b> Frontal lectures, group and individual tutorials and exercises.				
<b>Assessment (maximal 100 points)</b>				
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>	
Lectures	-	Written exam	-	
Exercises / Tutorials	-	Oral exam	-	
Colloquia	25	Written-oral exam	55	
Essay / Project	20 (project)			