Subject code	Credits
INF2022	6

Course title in Lithuanian

DUOMENŲ BAZĖS

Course title in English

DATABASES

Short course annotation in Lithuanian (up to 500 characters)

Dalyko kursas supažindina su pagrindinėmis duomenų bazių sistemų (DBS) sąvokomis ir joms keliamais reikalavimais, projektavimo etapais, konceptualiais modeliais, klasikiniais duomenų organizavimo modeliais, reliaciniu duomenų modeliu, reliacinės algebros pagrindais, duomenų bazių normalizacija, užklausų kalbos SQL pagrindais ir jos taikymu duomenų bazėse, duomenų bazių valdymo sistemų vertinimo kriterijais ir jų vystymosi tendencijomis.

Short course annotation in English (up to 500 characters)

Course examines general concepts and requirements of database systems, levels of data representation, stages of design, conceptual modelling, classical data models, relational model, fundamentals of relational algebra, relational normal forms, fundamentals of SQL query language and its application in databases, assessment criterions of databases' management systems and their development trends.

Prerequisites for entering the course

Programming fundamentals

Course aim

Course aim is to provide basic knowledge of database systems and to develop practical experience in designing and implementing of databases.

Content

No	Content (topics)
1.	Main Concepts of Database Systems.
2.	Database efficiency criteria.
3.	Data representation levels
4.	Conceptual modelling.
5.	Classical Models of Data Organization.
6.	Relational data model.
7.	Fundamentals of Relational Algebra.
8.	Relational calculus.
9.	Database normalization.
10.	Data Retrieval Methods and Application in Database Systems.
11.	SQL basics.
12.	Data Integrity.
13.	SQL statements in the applications and their execution phases.
14.	Database management systems review and development trends.

Distribution of workload for students (contact and independent work hours)

Lectures	45 hours
Laboratory work	30 hours
Individual students work	85 hours
Total:	160 hours

Structure of cumulative score and value of its constituent parts

Final written exam (50%), mid-term written exam (17%), and assessments of laboratory (practical) work (33%).

Recommended reference materials

No.	Publication year	Authors of publication and title	Publishing house	Number of copies in		
				University library	*Self-study rooms*	*Other libraries*
Basic materials						
1.	2008	Sekluckis V.,	Technologija	100		

		Gudas S., Garšva G. Informacijos sistemos ir duomenų bazės. Kaunas.					
2.	2005	Baronas R. Duomenų bazių valdymo sistemos. Vilnius	TEV	3	5	
3.	2003	Ian Gilfillan. MySQL 4 vadovas. Kaunas.	Smaltija			
Supplementary materials						
4.	2013	SQL with Guru99 by Krishna Rungta	Smashwords	http://www.e-booksdirectory.com/details.php?ebook=9125		
5.	2012	Daiva Kalvaitienė Duomenų bazių projektavimas. Marijampolė	Piko valanda	http://www.esparama.lt/es_parama_pletra/failai/ESFprodukt ai/2012_Duomenu_baziu_projektavimas.pdf		
6.	2008	Paradauskas B., Nemuraitė L. Duomenų bazės ir semantiniai modeliai. Kaunas	Technologija			

Course programme designed by

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