

DESCRIPTION OF THE STUDY SUBJECT

Title

DATABASE MANAGEMENT

Scope of the subject

Semester	Mode of studies	Structure*				Total number of hours	Number of credits	Group and type of subjects
		L	Lw	C	S			
II	Full-time	22	44	12	83	161	6	Compulsory subjects of the study field
II	Part-time	6	30	42	83			

*L – lectures, PS – practical activities, seminars, LW – laboratory work, PR – practice, CP – course paper, C – consultations, S – self-study

Aim of the subject

To design, develop and administer relational databases meeting the user's needs. Add various SQL queries using specialized cells of databases. To use the obtained SQL results in forms and reports.

Necessary background knowledge for studying the subject

Students shall have heard the subject basics of algorithmization.

Content of the subject

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
1. Database management systems, their peculiarities, specificity.	2	-	-	1	3
2. Tools of the database management system, their possibilities and use. Laboratory work: Acquaintance with tools of database management.	1	2	-	1	4
3. Relational data types, creation of the model of database tables using ER diagrams. Normalization. Communication, integral connection. Tiered data management by relations. Laboratory work: Designing of database tables.	4	4	1	5	14
4. Users' creation and rights management. Laboratory work: Creation of DBMS users and rights management.	1	2	-	2	5
5. The basic SQL query SELECT: selection, search, sorting. Laboratory work: SQL SELECT statements.	2	4	1	3	10
6. Sophisticated SELECT queries: relations, grouping, unions. Laboratory work: Creation of sophisticated SQL SELECT statements.	1	6	1	4	12
7. Amendment of data: INSERT, UPDATE, DELETE. Laboratory work: SQL INSERT, UPDATE, DELETE statements.	2	6	1	4	13
8. Execution of group queries using transactions. Laboratory work: SQL transactions.	1	2	-	1	4
9. The user's variables, temporary tables, conditions, loop statements. Functions and procedures. Laboratory work: SQL functions and procedures.	2	2	-	1	5
10. Database management automation using triggers. Laboratory work: SQL triggers.	1	2	-	1	4
11. Creation, management and editing of data forms and reports. Exporting of formatted data flows to external programs. Laboratory work: Creation of data forms and reports.	2	4	2	4	12
12. Protection of the database against losses: replications and backups. Laboratory work: DB backups, their management.	1	2	-	1	4
13. The analysis, optimization and improvement of the created database. Importing and exporting of data. Laboratory work: The analysis optimization and improvement of the database.	1	4	-	2	7
14. Documentation and description of the database. Laboratory work: Preparation of documentation of the database.	1	2	1	1	5
Preparation and defence of the project. To design the database with user rights on the given topic, to write at least 8 various SQL queries, using various means (triggers, transactions, functions). To create several forms, reports or export templates.	-	2	5	52	59
Total number of hours	22	44	12	83	161

Assessment of learning outcomes

Ten-point criteria-based assessment system as well as cumulative assessment using individual cumulative index (ICI) are applied. The overall grade is the sum of marks for the project (PR) and defence of laboratory work reports (Lw) multiplied by weighted coefficients. $ICI = 0,6 PR + 0,4 Lw$

Recommended literature

Key literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house	Number of copies and/or internet link		
				ŠSC library	Other premises	Other libraries *
1.	2015	SQL Tutorial Prieiga per internetą	http://www.w3schools.com/sql/default.asp			
2.	2013	Zacharovienė E., Dėmenienė A., Laurikietytė R., Glinskienė S., Striukienė D. Duomenų bazių kūrimas Microsoft Office Access 2010	Technologija	https://www.ebooks.ktu.lt/eb/1250/duomenu-baziu-kurimas-microsoft-office-access-2010/		
3.	2011	Danikauskas T., Kapočius K., Butleris R. Duomenų bazių programavimas Microsoft SQL Server priemonėmis	Technologija	https://www.ebooks.ktu.lt/eb/886/duomenu-baziu-programavimas-microsoft-sql-server-priemonemis/		
4.	2005	Baronas R. Duomenų bazių valdymo sistemos	TEV	5	-	-
5.	2003	Gilfillan I. My SQL 4 vadovas	Smaltija	2	-	-
Additional literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house and/or internet link			
1.	2015	MySQL Prieiga per internetą	http://www.mysql.com/			
2.	2015	SQL Tutorial - Learn SQL.	http://www.sql-tutorial.net/			
3.	2013	Lisa Friedrichsen. Duomenų bazių kūrimas ir valdymas. Microsoft Access	Žara			

* ŠAVB – Šiauliai Region Povilas Višinskis Public Library, ŠU – library of Šiauliai University

Required material resources and their short description

- **Equipment (devices):** computers (16 units), computers connected into the local network and connected to the Internet, multimedia projector, printer.
- **Software:** – MS Office 2013 or later version, MS SQL Express Edition 2014 and MySQL 5.7 servers, management tools SQL Server Management Studio Express 1.0, PHPMyAdmin 4.5.

The description prepared by:

Lecturer Jovita Urnikienė