Course title	Databases I
Course code	DatZ3005
Branch of science	Computer Science
Credit points	2
ECTS credit points	3
Total number of auditory hours	**32**
Number of seminars and practical	
	32 *classes*

Course developer (s)

Vija Vagale, lecturer

Background knowledge

DatZ1037, Algorithms and Data Structures I [IT, 1th, sem. 2]

DatZ2008, Algorithms and Data Structures II [IT, 2th, sem. 3]

Course summary

The course is designed for professional higher education Bachelor study program "Information Technologies" (42,481) students. To acquaint students with large amounts of data storage capabilities, relational database design principles and the basic concepts..

Learning outcomes

Course the students learned and were able to demonstrate:

knowledge and understanding of:

• organize your data in a relational database; • database design, normal forms; skills:

• create tables in the database;

• fill tables;

• edit data tables;

• sort and group data in a table;

• select data from one table;

• select data from multiple tables.

Course plan

Course structure: practical work – 32 hours

Seminars / practical work / laboratory work themes:

1. Introduction to databases. Database management systems.
2. MS SQL Server 2012 Management Studio check, architecture and objects.
3. Data types. Operations.
4. Defining the table and filling.
5. Keys: potential alternatives, primary, and external. Database diagram creation.
6. Operator select. Simple relational operations. Sources of data (from, view, select).
   Selection rules Where and Having.
7. Data sorting and grouping functions.
8. Null practical application.
9. Null role connections and assembly functions.
10. Comparison operators.
11. Connections. Cartesian, internal, external, and overall connectivity.

12.	Recursive queries. Subqueries.
13.	Analytical functions.
14.	Introduction to built-in functions.
15.	Data selection.
16.	Create a table from existing and new tables together. ***Requirements for acquiring credit points*** Differentiated test.

Visit the class required 10% of the total mark. The individual tasks at work and get work – 90% of the total mark.

Contents of the course

Databases theoretical foundations.
Database management system for MS SQL Server 2012 Management Studio.
The design of the database.
Create a database. Manipulate data in the database.

Course textbooks

1.C. J. Date. An Introduction to Database Systems 8.th edition, 2004
2.H. Garcia-Molina, J. D. Ullman, J. Widom. Database Systems: The complete book (2nd edition), 2009 http://infolab.stanford.edu/~ullman/dscb.html
3.Алан Бьюли . Изучаем SQL, 2007. 4.A. Silberschatz, H. F. Korth, S. Sudarshan. Database system concepts. Sixth Edition, McGraw-Hill, 2011. http://www.db-book.com/

Additional literature

1.C. J. Date. An Introduction to Database Systems 8.th edition, 2004
2.H. Garcia-Molina, J. D. Ullman, J. Widom. Database Systems: The complete book (2nd edition), 2009 http://infolab.stanford.edu/~ullman/dscb.html
3. SQL. Энциклопедия пользователя. Ханс Ладани, Киев-1998. 624 с. 5.Хомоненко А.Д., Цыганков В.М., Мальцев М.Г. Базы данных: Учебник для высших учебных заведений. 2004. – 736 с

Periodicals and other sources of information

1.http://datubazes.wordpress.com/2007/12/03/datubaze/ Datu bāzu resurss latviski
2.http://www.functionx.com/sqlserver
3.http://technet.microsoft.com/enus/library/bb545450.aspx
3. http://databases.about.com/od/sqlserver/a/Introduction-To-Sql-Server-2012.htm

Notes / Remarks

A professional higher education bachelor degree study programme "Information technology "(42481) Part B – field professional specialisation course