

DESCRIPTION OF STUDY MODULE*

Study programme	Applied Informatics and Programming		
Study module	DATABASES	Credits in total	4

Learning outcomes
<ul style="list-style-type: none"> - Know the essential database concepts. - Appointed database elements. - Able to design optimal database adapted to customer requirements - Able to create different user groups databases which automating the relevant data collection, storage, processing of reports. - Able to construct SQL instructions to create queries that meet user needs. - Able to develop and apply the instructions of PHP to create database interface and manipulate with data - Able to independently select the appropriate information to complete a task, plan your time so that the tasks to be implemented in a timely manner.
Aims of study module
The aim of the subject - to teach students to create simple databases, which meet business or customer demand and optimize processes, by appropriately using SQL language instructions and the functional capabilities of database management systems.
Annotation of a study module
The aim of the course is to provide students with the knowledge of database (DB) theory elements, principles of DB projection and programmatic implementation, database models, data normalization and normal forms. Also, students are introduced to the capabilities of database management systems (DBMS), purposes of tables and queries; various tools of data management for databases, SQL language syntax and essential expressions. After the analysis of respective topics students receive independent work assignments. For assignments students can use literature. During the practical activities database development stages are implemented using MySQL and PHP tools. In the process of the individual assignments students perform all particular stages of DB creating.
Topics of the subject
<ol style="list-style-type: none"> 1. Database technology evolution. Information system. The value of information. 2. DB architecture - external, logical, inner levels. DB development cycle. 3. DB conceptual design. Entity-relationship model. 4. Functional analysis of the data. The data flow analysis method for DB creation. Entity life cycle method. 5. The relational data model and its realization. Normalization, normal forms. 6. DB practical implementation - specific DB tables creation and linking. 7. Control tasks: Creating Database tables fields. Working with data. 8. The use of the PHP language to work with the database. 9. Work with the database in PHP support. 10. Database Management. Relational algebra queries formation. 11. Relational Database, the practical realization - request. 12. MySQL users. 13. Large database importing, exporting. 14. Control tasks: PHP use interface with DB concluded. Queries.
Procedure for assessment of knowledge and competences
Applicable decimal grading scale and the cumulative assessment: Final evaluation = CW*0.4 + IP1*0.1 + E(IP2)*0.5, here CW – control works, IP – individual project, E – exam.
Main literature
<ol style="list-style-type: none"> 1. Baronas, R. (2003). <i>Duomenų bazių sistemos SQL / Database systems SQL</i>. Kaunas. Prieiga per internetą (http://www.mif.vu.lt/~baronas/dbvs/book/ -) 2. Gilfillan, I. (2003). <i>MySQL 4 vadovas = Mastering MySQL 4 / Ian Gilfillan; [vertė Rasa Racevičiūtė ... [et al.].</i> Kaunas: "Smaltijos" leidykla. XVIII, 630 p. 3. Mačernis, M. (2016). <i>Duomenų bazių valdymas: nuo teorijos iki MySQL / Database management: from theory to MySQL</i>. Mokojoji knyga. Vilnius. ISBN-13: 978-132655498-9 4. Meloni, J. C. (2007). <i>PHP, MySQL ir Apache</i>. Smaltija. 624 p. 5. Paliulis, E. (2008). <i>Duomenų bazių projektavimo metodika ir kūrimas naudojant MYSQL/ Database design and development methodology using MYSQL</i> : mokojoji knyga ir laboratoriniai darbai. Šiauliai: Šiaulių universiteto leidykla. 109 p. 6. Sekliukis, V. (2006) <i>Informacinės sistemos ir duomenų bazės/ Information systems and databases: Vadovėlis</i>. Kaunas.

* Short form