

Economics and Informatics

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Course Code	
Form of evaluation	Exam, practical work
Credit point (ECTS credit points)	6 ECTS
Prerequisites	Computer science basics, Information and business processes

Objective	Purpose of the course is to introduce students to data base and website development. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.
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Learning outcomes

- Be able to design data base conceptual model according to the problem description.
- Be able to work with data base management system MS Access.
- Be able to create database tables and describe the properties of the tables.
- Be able to create simple and complex queries in MS Access.
- Be able to design the user interface and realize it practically describing user forms in MS Access.
- Be able to create a user form based on one or more tables, one or more queries.
- Be able to create simple and complex reports.
- Be able to describe the functionality of the user forms, describing the buttons using macro.
- Be able to realize the search function in data base by one or more parameters.
- Be able to perform data import and export.
- Be able to create website using cloud-based web development platform.
- Be able to properly design and build a business website.

Organization mode of students individual assignment

- Practical works. A student will create data base and website.
- Preparation for the exam.

Evaluation of learning outcomes

Practical works (60%); Exam (40%)

Course outline

Week	Topic and subtopic	Type (lecture, seminar, laboratory work)
1	Importance of data, data management, and data management systems. Different issues involved in the design and implementation of a database system. Data base modeling. ER diagrams.	lecture
1	Modeling of a real problem using a database. Conceptual design: ER diagrams, functional dependencies.	laboratory work
2	Physical and logical database design modeling, database modeling, relational, hierarchical, and network models.	lecture
2	Modeling a real problem using a database. Conceptual design: ER diagrams, functional dependencies.	laboratory work
3	Introduction to database management systems (DBMS). DBMS MS Access. Introduction to MS Access objects: Tables, Queries, Forms, Reports. Creating tables and adding records. Integrity rules. Designing table structures. Working with Data.	lecture
3	MS Access objects: tables in detail - table designs, Table modifications, table wizards. Defining primary keys. Creating and editing MS Access tables.	laboratory work
4	Data entering in MS Access tables. Creating a relationships within a database.	laboratory work
4	Data manipulation language to query, update, and manage a database. Data definition commands. Data manipulation commands. Select queries. Advanced data definition commands. Advanced select queries.	lecture
5	MS Access objects: Queries in detail - query design, simple queries, query syntax, formulas within queries, specialized queries, query wizards. Creating and editing MS Access queries.	laboratory work
5	MS Access objects: Queries in detail - query design, simple queries, query syntax, formulas within queries, specialized queries, query wizards. Creating and editing MS Access queries.	laboratory work
6	Structured Query Languages (SQL). Retrieve data using SQL. Formulate SQL queries that use functions. More complex SQL - multiple tables, linking, functions.	lecture
6	Structured Query Languages (SQL). Retrieve data using SQL. Formulate SQL queries that use functions. More complex SQL - multiple tables, linking, functions. Creating and editing MS Access SQL queries.	laboratory work
7	MS Access objects: Forms in detail – autoforms, form design, form wizards. Simple user forms and complex user forms. Forms based on the one table or more tables. Forms	lecture

	based on the one query or more queries. Subforms. Entering data using a form.	
7	MS Access objects: Forms in detail – autoforms, form design, form wizards. Simple user forms and complex user forms. Forms based on the one table or more tables. Forms based on the one query or more queries. Subforms. Creating and editing MS Access forms.	laboratory work
8	User Interface model. User interface model design. MS Access objects: Macro.	lecture
8	MS Access objects: Macro in detail – Actions, program flow. Creating and editing MS Access macros.	laboratory work
9	MS Access objects: Macro in detail – Actions, program flow. Creating and editing MS Access macros.	laboratory work
9	MS Access objects: Reports in detail - report wizard, report design, label reports, specialized report features and options.	lecture
10	MS Access objects: Reports in detail - report wizard, report design, label reports, specialized report features and options. Creating and editing MS Access reports.	laboratory work
10	Integrating MS Access with MS Office applications: Integrating MS Access with MS Word, MS Excel. MS Access with HTML documents and the web. Converting databases from previous versions of MS Access and other customized tools and utilities.	lecture
11	Students complete database development.	laboratory work
11	Data base presentations.	laboratory work
12	Creating Website without code. Fully operational website with “drag and drop tools”. How to choose a website building platform.	lecture
12	Design website using Wix or Mozello. Design website functional model. How to choose a domain name.	laboratory work
13	Templates for websites. Website content description.	laboratory work
13	Website content description.	laboratory work
14	Text/Graphics and Web buttons. Website navigation.	laboratory work
14	Search engine.	laboratory work
15	Installing plugins to get more functionality.	laboratory work
15	Students complete website development.	laboratory work
16	Website presentations.	laboratory work
16	Course summary.	lecture

Basic literature

- [1] R. Ramakrishnan, “Database Management Systems . pdf,” 2000.
- [2] tutorialspoint.com, “DBMS Tutorial,” *www.tutorialspoint.com*. [Online]. Available: <https://www.tutorialspoint.com/dbms/>. [Accessed: 19-Jan-2017].
- [3] “Access Tutorial.” [Online]. Available: <https://www.techonthenet.com/access/>. [Accessed: 19-Jan-2017].

- [4] "Microsoft Access Tutorial." [Online]. Available: http://www.quackit.com/microsoft_access/tutorial/. [Accessed: 19-Jan-2017].
- [5] "Mozello - the easiest way to create a website, blog or online store!" [Online]. Available: <http://www.mozello.com/>. [Accessed: 19-Jan-2017].
- [6] "Free Website Builder | Create a Free Website," *Wix.com*. [Online]. Available: <http://www.wix.com>. [Accessed: 19-Jan-2017].

Supplementary literature

Other source of information