Syllabus of the educational discipline
« ORGANIZATION OF DATABASES »

Cycle of Higher Education	*First cycle of higher education (Bachelor's degree)*
Field of Study	*12 Information Technologies*
Specialty	*123 Computer engineering*
Educational program	*Computer systems and networks*
Discipline status	*Compulsory*
Teaching language	*English*
Year of studies, semester	*2 year (3 semester)*
Number of credits ECTS	*4 credits*
Distribution by types of trainings and hours of study	*Lectures, Laboratory studies, Independent training*
Form of final assessment	*Test*
Teacher	*Marina K. I., assistant lecturer of the department of computer systems and network*
Teacher's contacts	*kateryna.marina@uzhnu.edu.ua*
Course Schedule	*According to the timetable*

The purpose of the discipline - to give a terminological foundation, to teach students the basics of database design and features of their operation, to teach the language of definition and manipulation of data that are in the database, the usage of the considered theoretical and practical methods to solve engineering and technical problems and problems of applied nature.

As a result of studying the discipline the student must:

know:

- functions, advantages and disadvantages of database management systems (DBMS); data models; database architecture; basic concepts, approaches and stages of database design; basics of relational database design using the entity-linkage model; basics of SQL language; database administration; basics of database security

be able to:

- design databases using the entity-relationship model by means of the graphical language ERWin; design relational databases based on the principles of normalization; use SQL language to define and manipulate data in MySQL and MS SQL Server DBMS. design relational databases using HeidiSQL program tools

Prerequisites for learning

Programming, Object-Oriented Programming

Content of the educational discipline

Topic 1. Information systems and database management systems
Topic 2. Data Models. Relational data model
Topic 3. Relational database query languages
Topic 4. Client-server technologies.
Topic 5. Distributed databases.
Topic 6. Database logic design
Topic 7. Physical database design.
Topic 8. Database security.
Topic 9. Current trends in database development.
Topic 10. MySQL database management system

Course page on the Moodle platform (personal training system)	*Syllabus of the educational discipline, hyperlinks to electronic publications of the discipline, recommended literature, students' attendance, lecture materials, presentations, questions for self-control, methodical materials for laboratory works, tests, tasks for checking students' knowledge.* https://moodle.uzhnu.edu.ua

Recommended literature

1. *Thomas M. Connolly Database Systems: A Practical Approach to Design, Implementation and Management. - Addison-Wesley; Pck edition, 2004. - 1374p.*
2. *Walter Shields SQL QuickStart Guide: The Simplified Beginner's Guide to Managing, Analyzing, and Manipulating Data With SQL. - ClydeBank Media LLC; Illustrated edition, 2019. - 249p.*
3. *C. J. Date Database Design and Relational Theory: Normal Forms and All That Jazz. - O'Reilly Media; 1st edition, 2012. - 278p.*

Assessment system of learning outcomes

The ECTS grade that a student receives after studying a credit module of a discipline is determined according to the student's rating. A student's credit module rating consists of the points the student receives during the semester for the following types of work:

1. Modular control work (MCW) duration of 2 acad. hours each. The maximum number of points for the MCW is 50 points.

2. Performance of laboratory works.

During the semester, students perform laboratory works(maximum number of points - 40)

Scores on individual and independent work of students are awarded for: preparation of essays, modernization of tasks, creative approach to task performance, performance of tasks to improve didactic materials on the discipline: 0-10 points for each module.

Each module is assessed a maximum of 100 points. At the end of the discipline a rating score is derived as the arithmetic average of the points from the two modules.

ECTS and national grading scale

<table>
<tr><th>Mark scale</th><th>ECTS</th><th>Exam</th><th>Test</th></tr>
<tr><td>90 - 100</td><td>A</td><td>Excellent</td><td rowspan="5">Satisfied</td></tr>
<tr><td>82 - 89</td><td>B</td><td rowspan="2">Good</td></tr>
<tr><td>74 - 81</td><td>C</td></tr>
<tr><td>64 - 73</td><td>D</td><td rowspan="2">Satisfactory</td></tr>
<tr><td>60 - 63</td><td>E</td></tr>
<tr><td>35 - 59</td><td>FX</td><td>“Unsatisfactory” with possibility to pass the exam again</td><td>“Not satisfied” with possibility to pass the exam again</td></tr>
<tr><td>1 - 34</td><td>F</td><td>“Unsatisfactory” with obligatory repeated study of the discipline</td><td>“Not satisfied” with obligatory repeated study of the discipline</td></tr>
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