Syllabus
of elective component of EC

Creating databases in Access

Name of discipline:	**Creating databases in Access**
Higher Education Level	**initial (first course)**
Course page in Moodle:	https://dl2022.khadi-kh.com/course/view.php?id=4181
The scope of the educational component	**4 credits (120 hours)**
Form of final control	**offset**
Consultations:	**on schedule**
Department name:	**Department of Informatics and Applied Mathematics**
Teaching language:	**English**
Course leader:	**Lebedynskyi Andrii Volodymyrovych, Doctor of Philosophy, Associate Professor**
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Summary of the educational component:
Teaching Objectives:
–   Providing students with knowledge and skills for the practical application of the Microsoft Access database management system (DBMS) in information systems.
–   Equipping students with knowledge and skills related to methods and tools for collecting, storing, processing, and utilizing data using databases.
–   Developing in students a set of professional knowledge and skills for applying databases in transportation systems.
Subject: Theoretical and methodological foundations, methodological principles of scientific directions in information systems and technologies in transportation at the modern stage.
The main tasks of studying the academic discipline are:
1) Studying methods and tools for collecting, storing, processing, and utilizing data using databases.
2) Learning the basic rules and tools for working with the Microsoft Access Database Management System (DBMS). For further practical activities, it is necessary **to know**:
   2.1) Methods and tools for collecting, storing, processing, and utilizing data using databases.
   2.2) Basic rules and tools for working with the Microsoft Access Database Management System.

Prerequisites for studying the educational component:
   –   Prerequisites: the course "Computer Science."

Competencies acquired by the learner:

General competencies:

– Skills in using information and communication technologies.

– Ability to conduct research at an appropriate level.

– Ability to generate new ideas (creativity).

Special (professional) competencies:

– Ability to use specialized software in professional activities.

– Ability to apply software products for organizing transportation.

Learning outcomes according to the educational program:

– Apply and utilize modern information and communication technologies to solve practical tasks in designing transportation technologies.

– Research transportation processes, experiment, analyze, and evaluate parameters of transportation systems and technologies.

– Pose and solve both theoretical and applied problems in the field based on physical laws and principles.

– Choose information systems for organizing transportation.

Thematic plan

Topic №	Name of topics (LC, LW, PW, SC, IW)	Number of hours
		full-time
1	LC1. Information Systems and Technologies. Definition of a Database. Database Management System (DBMS) Architecture	4
	PW1. Introduction to MS Access Database Management System (DBMS).	2
	IW1. Processing lecture materials and laboratory work.	9
2	LC2. Review of the relational data model.	4
	PW2. Creating and editing tables in MS Access Database Management System (DBMS). Establishing keys, indexes, integrity constraints. Creating a data schema.	2
	IW2. Processing lecture materials and laboratory work.	9
3	LC3. Creating a database in the Access Database Management System (DBMS)..	4
	PW3. Designing screen forms for adding data to tables.	2

	IW3. Processing lecture materials and laboratory work.	9
4	LC4. Creating custom menu options.	4
	PW4. Creating and modifying control elements and their properties.	2
	IW4. Processing lecture materials and laboratory work.	9
5	LC5. Using SQL language for working with a database.	4
	PW5. Creating the main button form for the user interface of the database and configuring it.	2
	IW5. Processing lecture materials and laboratory work.	9
6	LC6. Creating queries in the Access Database Management System (DBMS).	4
	PW6. Creating queries in design mode	2
	IW6. Processing lecture materials and laboratory work.	9
7	LC7. Reports in Microsoft Access.	4
	PW7. Creating reports in Microsoft Access.	2
	IW7. Processing lecture materials and laboratory work.	9
8	LC8. Using macros in MS Access.	4
	PW8. Creating macros for automating database tasks and configuring them.	2
	IW8. Processing lecture materials and laboratory work.	9
together	LC	32
	PW	16
	IW	72

Teaching methods:
1) verbal:
    1.1 traditional: lectures, explanations, storytelling;
    1.2   interactive (non-traditional): problematic lectures, discussions the like;
2) visual: method of illustrations, method demonstrations
3) practical:
    3.1 traditional: practical exercises, seminars;
    3.2 interactive (non-traditional): trainings, "round table", brainstorming method attacks.

Grading system and requirements:

Current academic performance

1 The current success of applicants in performing educational types of work in training sessions and performing tasks of independent work is assessed using a four-point rating scale, followed by a listing on a 100-point scale. When assessing the current performance, all types of work provided for by the curriculum are taken into account. program.

1.1 Lecture classes are evaluated by determining the quality of performance of specified tasks.

1.2 Practical occupation evaluated quality performance control or individual task, implementation and design of practical work.

1.3 Seminars are evaluated by the quality of the performance of an individual task/abstract.

2 The assessment of the current performance of applicants for higher education is carried out at each practical lesson (laboratory or seminary) on a four-point scale ("5", "4", "3", "2") and is recorded in the academic journal. academic performance.

– "excellent": the applicant perfectly mastered the theoretical material, demonstrates deep knowledge of the relevant topic or academic discipline, basic provisions;

– "good": the applicant has mastered the theoretical material well, owns the main aspects from the primary sources and recommended literature, and argues it well; has practical skills, expresses his views on certain problems, but allows certain inaccuracies and errors in the logic of the presentation of theoretical content or in the analysis practical;

– "satisfactory": the applicant basically mastered the theoretical knowledge of the educational topic or discipline, is guided by primary sources and recommended literature, but unconvincingly answers, confuses the concept, uncertainly answers additional questions, does not have stable knowledge; answering questions practical nature reveals inaccuracies in knowledge, does not know how to evaluate facts and phenomena, connect them with the future profession;

– "unsatisfactory": the applicant has not mastered the educational material of the topic (discipline), does not know scientific facts, definitions, almost does not orient himself in primary sources and recommended literature, lacks scientific thinking, practical skills formed.

3 The final score for the current activity is recognized as the arithmetic mean of the scores for each lesson, individual work, current control work according to the formula:

$$F^{curr} = \frac{F1 + F2 + ... + Fn}{n},$$

where F^{curr} – the final assessment of academic performance based on the results of the current control;

$F1, F2, ... , Fn$ – performance evaluation of the n-th measure of current control;

n is the number of current control measures.

Grades are converted into points on a conversion scale (Table 1).

Table 1 – Recalculation of the average score for current activities on a multi-point scale

4-point scale	one hundred-point scale	4 point scale	one hundred-point scale	4 point scale	one hundred-point scale	4 point scale	100 point scale
5	100	4.45	89	3.90	78	3.35	67
4.95	99	4.4	88	3.85	77	3.3	66
4.9	98	4.35	87	3.80	76	3.25	65
4.85	97	4.3	86	3.75	75	3.2	64
4.8	96	4.25	85	3.7	74	3.15	63
4.75	95	4.20	84	3.65	73	3.1	62
4.7	94	4.15	83	3.60	72	3.05	61
4.65	93	4.10	82	3.55	71	3	60
4.6	92	4.05	81	3.5	70	from 1.78 to 2.99	from 35 to 59
						re-test	
4.55	91	4.00	80	3.45	69	0 to 1.77	0 to 34
4.5	90	3.95	79	3.4	68	re-study	

Final grade

1 Exam held after studying all topics disciplines and develops by applicants for higher education during the examination session after the end of all classroom classes

2 Applicants for higher education who have completed all types of work provided for by the curriculum are allowed to take the exam. disciplines:

- attended all classroom activities (lectures, seminars, practical);
- timely completed all missed lessons;
- scored the minimum number of points for current academic performance (at least 36 points, which corresponds to the national scale "3");

If current academic performance with disciplines below 36 points applicant higher education has the opportunity to increase its current score to the minimum before the start of the examination sessions.

3 Assessment of applicants' knowledge during the exam is carried out on a 100-point scale.

Assessment of applicants' knowledge by testing is carried out on a scale:
- "Excellent": at least 90% correct answers;
- "Very good": 82% to 89% correct answers;
- "Good": 74% to 81% correct answers;
- "Satisfactory": 67% to 73% correct answers;
- "Satisfactory enough": 60% to 66% correct answers;
- "Unsatisfactory": less than 60% correct answers.

4 The final grade for an academic discipline is determined as a weighted average grade that takes into account the overall grade for current performance and the grade for passing the exam.

5 The calculation of the total final grade for the study of the academic discipline is carried out according to formula:

$$FG^{exam} = 0,6 * F^{curr} + 0,4 * E$$

where FG^{exam} is the final assessment of academic performance in disciplines, form final controls for which there is an exam;

F^{curr} – the final assessment of success based on the results of the current control (on a 100-point scale);

E – assessment based on the results of passing the exam (on a 100-point scale).

0.6 and 0.4 – odds ratio points per current academic performance and passing the exam.

6 For the performance of individual independent work and participation in scientific events, applicants are awarded additional points.

6.1 Additional points are attached to the sum of points scored by the earner of higher education for the current educational activity (for disciplines, final form control for which there is a credit), or to the final grade in the discipline, the final form of control for which is exam.

6.2 The number of additional points that are awarded for different types of individual tasks depends on their volume and significance:
- prizes in the discipline at the international / all-Ukrainian competition of scientific student works - 20 points;
- prize-winning places in the discipline at the All-Ukrainian Olympiads - 20 points;
- participation in international / all-Ukrainian competition scientific student works – 15 points
- participation in international / all-Ukrainian scientific conferences of students and young scientists - 12 points;
- participation in all-Ukrainian Olympiads in the discipline - 10 points
- participation in olympiads and scientific conferences of KhNADU in the discipline - 5 points;
- performance of individual research (training and research) tasks of increased complexity - 5 points.

6.3 The number of additional points cannot exceed 20 points.

7 The total final grade of the study of the academic discipline cannot exceed 100 points. The overall final assessment of the study of the academic discipline is determined according to the scale given in table 2.

Table 2 – The scale for assessing the knowledge of applicants based on the results of the final control in the academic discipline

Score in points	National scale		ECTS score	
	exam	offset	Grade	Criteria
90-100	Excellent	Passed	**A**	The theoretical content of the course has been mastered completely, without gaps, the necessary practical skills for working with the mastered material have been formed, all the training tasks provided for by the training program have been completed, the quality of their implementation has been assessed by a number of points close to up to maximum
80–89	Good	Passed	**B**	The theoretical content of the course has been mastered completely, without gaps, the necessary practical skills for working with the mastered material are basically formed, all the training tasks provided for by the training program have been completed, the quality of most of them has been assessed number of points close to the maximum
75-79			**C**	The theoretical content of the course has been mastered completely, without gaps, some practical skills in working with the mastered material are not sufficiently formed, all the training tasks provided for by the training program have been completed, the quality of none of them has been assessed with a minimum number of points, some kinds tasks completed with errors
67-74	Satisfactorily		**D**	The theoretical content of the course has been partially mastered, but the gaps are not significant, the necessary practical skills for working with the mastered material are basically formed, most of the training tasks provided for by the training program have been completed, some of the completed tasks, may contain errors

Score in points	National grade		ECTS score	
	exam	offset	Grade	Criteria
60–66			**E**	The theoretical content of the course has been partially mastered, some practical work skills have not been formed, many are provided for by the program education training tasks are not fulfilled, or the quality of some of them is estimated by a number of points close to to minimum.
35–59	Unsatisfactory		**FX**	The theoretical content of the course has been partially mastered, the necessary practical work skills have not been formed, most of the provided training programs for training tasks have not been completed, or the quality of their implementation has been assessed with a number of points close to the minimum; with additional independent work on the course material, it is possible to improve the quality of the implementation of educational tasks (with the possibility of repeated drafting)
0–34	Unacceptable	Not counted	**F**	The theoretical content of the course has not been mastered, the necessary practical work skills have not been formed, all completed training tasks contain gross errors, additional independent work on the course material will not lead to any significant improvement in the quality of performance. Training tasks (with a mandatory refresher course)

Course policy:
– the course provides for teamwork, the environment in the classroom is friendly, creative, open to constructive critics;
– mastering the discipline involves mandatory attendance of lectures and practical classes, as well as independent work;
– independent work provides for the study of individual topics of the academic discipline, which are submitted in accordance with the program for independent processing, or were considered briefly;
– all tasks stipulated by the program must be completed within the established term;
– if an applicant for higher education is absent from classes for a good reason, he presents completed tasks during self-training and consultation teacher;
– coursework must be defended no later than one week before the start of the examination sessions;
– when studying the course, applicants for higher education must comply with the rules of academic virtue set forth in the following documents: "Rules of academic virtue for participants in the educational process of KHNADU" (https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_dobroch_1

.pdf), "Academic Virtue. Checking the text of academic, scientific and qualifying works for plagiarism "(https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_85_1_01.pdf), "The moral code of participants in the educational process of KHNADU (https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_MEK_1.pdf).

– in case of detection of plagiarism, the applicant receives 0 points for the task and must re-perform the tasks provided for in syllabus;
– cheating during tests and exams is prohibited (including using mobile devices). Mobile devices are only allowed to be used while online testing.

Recommended literature:

1. Sytnik B.T. Osnovy informatsiinykh system i tekhnolohii: navchalnyi posibnyk. – Kharkiv: UkrDUZT, 2019. – 175 s.
2. Kirianov O.F., Moroz M.M., Boiko Yu.O. Informatsiini tekhnolohii na avtomobilnomu transporti. – Kharkiv: Drukarnia Madryd, 2015. – 270 c.
3. Symbirska L.M., Symbirskyi H.D., Levterov A.I. Informatsiini systemy i tekhnolohii: Navchalnyi posibnyk dlia samostiinoho vyvchennia. Kharkiv: KhNADU, 2014. – 132 s.
4. Symbirska L.M., Symbirskyi H.D., Levterov A.I. Informatsiini systemy i tekhnolohii: Navchalnyi posibnyk (laboratornyi praktykum). – Kharkiv: KhNADU, 2014. – 113 s.

Additional sources:

1. Sistuk V.O. Opornyi konspekt lektsii z dystsypliny «Suchasni informatsiini tekhnolohii na transporti» dlia studentiv spetsialnosti 274 «Avtomobilnyi transport» vsikh form navchannia. – Kryvyi Rih, DVNZ «KNU», 2018. –51 s. №279 vid 19.04.2018.
2. Kostikova M.V., Shevchenko V.A., Levterov A.I., Symbirskyi H.D. Metodychni vkazivky dlia vykonannia praktychnykh i samostiinykh robit z dystsypliny "Informatsiini systemy i tekhnolohii". [Elektronnyi resurs] – Kharkiv, KhNADU. – 2022. – 87 c. - Failovyi arkhiv KhNADU: http://files.khadi.kharkov.ua/dorozhno-budivelnij-fakultet/informatyky-i-prykladnoi-matematyky.html.

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