Syllabus of the course
«DATABASES»

Specialty	*121 Software Engineering*
Study Programme	*Software Engineering*
Study cycle (Bachelor, Master, PhD)	*the first (Bachelor) level of higher education*
Course status	*mandatory*
Language	*English*
Term	*second year, fourth semesters*
ECTS credits	*6*
Workload	*Lectures – 24 hours.*
	Practical studies – 0 hours.
	Laboratory studies – 36 hours.
	Self-study – 120 hours.
Assessment system	*Grading including Exam*
Department	*Department of Information Systems, 61166, Kharkiv, Nauky Av., 9a, Simon Kuznets KhNUE, main building, office 413 phone. +38(057)702-18-31 (add. 4-37) website: https://kafis.hneu.net/*
Teaching staff	*Volodymyr Mihailovich Bredikhin, PhD in Technics, Associate professor*
Contacts	*Volodymyr.Bredikhin@hneu.net*
Course schedule	*Lectures: according to the schedule Laboratory studies: according to the schedule*
Consultations	*At the Information Systems Department, offline, according to the schedule, individual, PNS chat.*

Learning objectives and skills:

The purpose of the educational discipline: to form in students a basic system idea, skills and abilities from the basics of database organization as a scientific and applied discipline, sufficient to obtain a basic level of work and programming in the SQL Server DBMS environment; theoretical training in the field of database design and DBMS use.

Structural and logical scheme of the course

Prerequisites	Postrequsites	
Programming	Software quality and testing	
Discrete mathematics	Web programming	
Algorithms and data structures	Programming the Internet	
	Program and data security	

Course content

Module 1: *Content of the academic discipline*

***Content module I**. Concept and basics of building databases*

***Topic 1.** Introduction. Database systems. Basic concepts and architecture.*

***Topic 2.** General characteristics of language means of communication with DBMS. DDL SQL language*

***Topic 3.** The SQL DML language and an overview of its capabilities*

***Topic 4.** Peculiarities of SQL implementation in the DBMS MS SQL Server*

***Topic 5**. Data models*

***Topic 6.** Relational data model.*

Content module II. *Database processing and maintenance platforms*
Topic 7. *Semantic modeling of the subject area*
Topic 8. *Normalization of the relational data model*
Topic 9. *Stages of database design. ER diagrams*
Topic 10. *Data integrity.*
Topic 11. *Transactions and data integrity. Transactions and data recovery.*
Topic 12. *Database development technology*

Teaching environment (software)

Visual Studio, SQLServer, мultimedia projector, S. Kuznets PNS, Corporate Zoom system

Assessment system

Assessment of students' learning outcomes is carried out by the University according to the cumulative 100-point system.

Current control is carried out during lectures and practical (seminar) classes and aims to assess the level of students' readiness to perform particular tasks, and is assessed by the amount of scored points.

The maximum amount during the *third* semester – 100 points; the minimum amount required is 60 points.

Current control includes the following assessment methods: assignments on a particular topic; testing; presentations.

The maximum amount during the *fourth* semester – 60 points; the minimum amount required is 35 points. Final control is carried out at the end of the semester in the form of an exam (the maximum amount is 40 points, the minimum amount required is 25 points).

Current control includes the following assessment methods: assignments on a particular topic; testing; presentations.

More detailed information on assessment and grading system is given in the technological card of the course.

Course policies

Teaching of the academic discipline is based on the principles of academic integrity.

Violation of academic integrity includes academic plagiarism, fabrication, falsification, cheating, deception, bribery, and biased assessment.

Educational students may be brought to the following academic responsibility for breach of academic integrity: repeated assessment of the corresponding type of learning activity.

More detailed information about competencies, learning outcomes, teaching methods, assessment forms, self-study is given in the Course program