Syllabus of the course
"Distributed Data Storage"

Specialty	*F3 Computer sciences*
Study Program	*Computer sciences*
Level (Bachelor, Master, PhD)	*Second (master's) level of higher education*
Course status	*Mandatory*
Teaching language	*English*
Intended stage in the study program	*1 year, 1 semester*
Number of ECTS credits	*5*
Workload	*Lectures – 18 hours.*
	Tutorials – 0 hours.
	Laboratory studies – 32 hours.
	Self study – 100 hours.
Assessment method	*Grading*
Department	*Department of Cyber Security and Information Technologies, main building, 412 aud., tel. +380577020674 (additional 304), website of the department: http://www.kafcbit.hneu.edu.ua/*
Teaching staff Course coordinator	*Volodymyr Aleksiyev, Doctor of Technical Science, Professor*
Contact details of the teacher	*vlax@hneu.edu.ua*
Course schedule	*Lecture: according : according to the schedule* *Laboratory classes: according to the schedule*
Consultations	*At the Department of Cybersecurity and Information Technologies, full-time, according to the schedule of consultations, individual* by *Zoom, chat in PLS (personal learning systems).*

***The purpose** of the course: development of a system of theoretical knowledge and acquisition of practical skills and abilities to deploy, configure and administer systems based on distributed data storage technologies and design appropriate reliable and cost-effective systems for storing large volumes of data*

Structural and logical scheme of the course

Prerequisites	Postrequisites
	Cloud computing
	Coursework: Development of computer information systems Comprehensive training Diploma Work

Course content

Content module 1. *Distributed file systems and modern database systems.*

Topic 1. Distributed data storage technologies for solving the problems of processing large volumes of data.
Topic 2. Distributed file-like storages based on SAN and NAS technologies. Cloud folders.
Topic 3. Object data stores. Clustered file systems.
Topic 4. Scaling data storage systems and creating knowledge bases on relational DBMS platform.
Topic 5. Non-relational database technologies.

Content module 2. *Application and features of design solutions based on distributed data storages.*

Topic 6. Monitoring the state of distributed computing systems and data warehouses based on open-source software.
Topic 7. Features of the development of web applications and web services using distributed data storage technologies.
Topic 8. Distributed storage technologies in cloud computing.
Topic 9. Prospects for the development of distributed data storage systems and technologies.

Teaching environment (software)

Distance learning tools: Website of personal learning systems: https://pns.hneu.edu.ua. Library: http://library.hneu.edu.ua Repository: http://www.repository.hneu.edu.ua. Auditoriums of the university (Kharkiv, Nauki Ave. 9A).
Multimedia equipment: projector, laptop/computer, Internet access, software: Microsoft Windows, Microsoft Office, Virtualbox, Ubuntu Linux Server 22.04 LTS, Ubuntu Ceph, TrueNAS, MySQL/MariaDB, MongoDB Database.

Assessment system

The S. Kuznets KhNUE uses a 100-point cumulative system for evaluating the learning outcomes of higher education students.

Current control is carried out during lectures, laboratory classes and is aimed at checking the level of readiness of the higher education student to perform specific work and is evaluated by the amount of points scored.

The final grading includes semester control, which is conducted in the form of a test.

The maximum possible number of points for the current control during the semester for the discipline, the form of control of which is credit - 100 and the minimum possible number of points - 60.

The current control includes the following control measures: defense of laboratory reports; current control works; individual work on topics.

More detailed information on the assessment and accumulation of points in the discipline is provided in the work plan (technological map) for the discipline.

Course policies

The teaching of the discipline is based on the principles of academic integrity. Violations of academic integrity include academic plagiarism, fabrication, falsification, cheating, deception, bribery, and biased assessment. For violations of academic integrity, students are held to the following academic responsibility: re-assessment of the relevant type of academic work.

More detailed information on competencies, learning outcomes, teaching methods, forms and methods of assessment, and independent work is provided in the Work Program of the discipline.