Syllabus of the course

«*Architecture of computers and computer networks*»

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, third semester*
ECTS credits	*5*
Workload	*Lectures - 24 hours.*
	Laboratory studies - 24 hours.
	Self study- 102 hours.
Assessment system	*Grading including Exam*
Department	*Department of Information Systems, auditorium 413 of the main building, phone: (057) 702-18-31, website: http://www.is.hneu.edu.ua/*
Teaching staff	*Dmytro Yuriyovych Holubnychyi, PhD in Technics, Associate professor*
Contacts	*dmytro.holubnychyi@hneu.net*
Course schedule	*Lectures: according to the schedule* *Practical studies: according to the schedule*
Consultations	*At the Department of Information Systems, offline, according to the schedule, individual, PNS chat.*

Learning objectives and skills:

formation of a system of theoretical knowledge and acquisition of practical skills and abilities to reveal the basic elements of the architecture of modern computer technology and technologies, concepts, methods of design and operation of computer networks and their administration using system utilities and specialized software

Structural and logical scheme of the course

Prerequisites	Post-requisites
Higher mathematics	Databases
Discrete mathematics	Internet programming
Programming	Object-oriented programming (course project)
	Application and data security
	Distributed and parallel computing

The content of the course

Module 1: *Computer architecture*

Topic 1. General information about computer architecture

Topic 2. Architecture of computer processors

Topic 3. Computer memory architecture

Topic 4. Architecture of supercomputers

Topic 5. Architecture of SIMD and MIMD class systems

Topic 6. Architecture of quantum computers and calculations

Module 2: *Computer network architecture*

Topic 7. Basic concepts and characteristics of computer networks

Topic 8. Physical and channel layer protocols

Topic 9. Setting up the network operating system

Topic 10. Network and transport level protocols

Topic 11. Routing in computer networks
Topic 12. Protocols, mechanisms and technologies of quality service in networks

Teaching environment (software)

Microsoft office, AIDA64, CPU-Z, Passmark Perfomance Test, Passmark KeyboardTest, Keyboard Test Utility, VisualRoute, Cisco Packet Tracer, LanCalculator, Solarwinds, Wireshark

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 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, and essay writing.

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.