



## OBJECTIVES AND TASKS, CONTENT OF THE SUBJECT "NETWORK TECHNOLOGIES" IN HIGHER PEDAGOGICAL EDUCATION

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### **Annotation:**

In the article, the current state of teaching "Network technologies" in higher pedagogical educational institutions, the conditions for increasing its effectiveness, it was found that the methodical support that meets the requirements of the time is insufficient, and it is necessary to improve the methodical support of teaching students. showed.

**Keywords:** Network technologies, computer communications, hardware support, (e-mail), (FTP), Web technologies and multimedia technologies

The subject "Network technologies" is taught in the 5th semester of the 3rd stage of higher pedagogical education. The total volume of the subject is 180 hours, of which 30 hours are lectures, 30 hours are practical training, 30 hours are laboratory training, and 90 hours are independent training. A total of 6 credits are allocated for science.

The purpose of teaching science is to teach my students how to solve problems in the field of networking, to give them enough knowledge to become a specialist as a future science teacher.

The task of science is to provide students with information about computer networks, to show the role of information technology in the life of each person and in the development of society, to reveal the possibilities of regional, local and global computer networks, in what cases and for what purposes the information in computer networks is used. It consists in forming concepts, providing knowledge on how to create information that can be placed on the global network.

Content of science:

**MODULE 1.** Network technologies and computer communications.

Topic 1. Understanding of the science of "network technologies".

The goals and tasks of science. The concept of network technologies, the structure and use of a network. Technical equipment used in science.

Topic 2. Computer communications and their types.





Computer communications: communication channel and communication processor, information transfer medium, modulation and demodulation of channel bandwidth, modems and connection settings.

## **MODULE 2.** Types of computer networks and their structure

Topic 3. Types of computer networks.

Their classification. Types of computer networks and connections. Features of regional, local and global network from the concept of computer network, types and types of connections.

Topic 4. Structure and use of computer networks.

Characteristics of data exchange processes, hardware support of data exchange. Network services. Network Technology: Understanding Network Technology, Bridges and Gateways. Computer network architecture, network topologies, network system model, data transfer protocols, IP, TCP protocols. Network operating systems.

Topic 5. Access to a local computer network. Local network topology.

Local computer networks, their organization and use. Installation and management of local computer networks. Access to a local computing network. Local computing network founders and connection types. Local network topology. Information exchange process in the local network, methods of local network organization. Accessing the local network and searching for information from it.

Topic 6. The history of the emergence of the Internet. The structure of the Internet network.

Searching for the location and connection of information in the intranet network. The main features of placing a web page on an intranet and using it. Global computer networks, signs of the emergence of the Internet. The history of the creation and development of the Internet network, the Internet as a technology and information resource. Structure and systematicity of addressing on the Internet. Organization of information exchange. Methods of connecting to the Internet.

Topic 7. Internet services and its software. Protocols.

Types of Internet services and connections. Browsers and connection types. Familiarity with Internet Explorer, Opera and other browsers. Organization of Internet services, e-mail technology (e-mail), file exchange technology (FTP), information search technology (WWW), Internet and Intranet. HTML language as a tool for creating Internet information resources, Java Script (VBScript) as a tool for creating interactive resources. Protocols and their types.

Topic 8. SMM platforms.





About SMM (Social media marketing - social media marketing), Facebook network, YouTube site, Telegram network, Instagram network, moving SMM in the Internet system, managing SMM projects. Opening a YouTube channel, managing SMM projects. Creating a Facebook page, managing SMM projects. Opening a channel on the Telegram network.

**MODULE 3.** Web technologies and multimedia technologies.

Topic 9. Understanding of web technologies.

Understanding of web technologies. Web 1.0, Web 2.0, Web 3.0, Web 4.0 technologies and connection possibilities.

Topic 10. Using networks when working with multimedia.

Multimedia network applications and types. A stream stored in video data.

Topic 11. Transmissions in multimedia network technologies.

NTTR - transmissions. Adaptive transmissions. Content distribution networks. IP telephony. Exploring VoIP applications using Skype. Protocols for real-time communication. Support for multimedia services at the network level.

**MODULE 4.** Network security and data protection.

Topic 12. Basics of network security.

Concept of network security, types of risks in the network.

Topic 13. Methods of data protection.

Fundamentals of cryptography. Public key encryption. Message and digital signature integrity. Cryptographic hash functions. Message authentication code. Secure email. Security at the network level: IPsec and virtual, Operational security: firewalls and intrusion detection systems.

**MODULE 5.** Mobile communication tools and e-government

Topic 14. Mobile communication tools, mobile communication system and mobile internet, turning mobile phone into Wi-Fi modem via Hotspot.

IOT (internet of things) technologies. Sensors are smart technologies. Concept of VR, types, working in VR environment. AR technology, types. QR code, work in AR environment. Mobile app concept, mobile app development software.

Topic 15. Electronic government and national information resources.

Electronic signature and electronic document exchange. Electronic commerce and electronic payment systems.





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