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| Discipline „Internet Servers and Services”, code: 34 |
| Annotation: The course “Internet Servers and Services” aims to introduce the students to the principles of modern Internet services. Knowledge about the features of the most widely used services, such as DNS, DHCP, NAT, Web Services, e-mail are given. Particular attention is paid to the problems associated with network attacks and the protection of network communications as well as the implementation of firewall and VPN infrastructures. There are also issues related to virtual infrastructures and cloud computing and services. |
| Main issues of the syllabus content:* Internet Architecture. Basic concepts. Organizations (IANA). Standards (RFC). Client-server model. Access to Internet services.
* Server Operating Systems. OS Linux. Microsoft Windows Server OS. Administering services.
* Autonomous systems. Routing between autonomous systems. BGP routing protocol.
* Dynamic device configuration. Architecture. DHCP servers and clients. DHCP processes and interaction.
* Translating Internet Addresses (NAT). Static NAT. Dynamic NAT.
* Domain name system (DNS). Basic concepts. Host names. Resolving addresses into names. Alternative naming services (HOSTS.TXT, WINS, NIS).
* DNS Servers. BIND DNS. Zones and resource records. Master and slave servers. Caching. Forwarding. Subdomains. DNS security. Dynamic DNS.
* Remote access to services. Remote Access Architecture. TELNET. Remote login. SSH, SSL.
* Remote Access. PPP protocol. PPPoE protocol. Remote Desktop Protocol.
* Virtual private networks (VPNs). Concepts and solutions. VPN of the types client-network and network-network. VPN implementation - tools and devices.
* Web Architecture. Web servers and clients. HTTP protocol. HTTP proxies.
* Apache Web Server. Architecture. Configuration.
* E-mail. Architecture. SMTP protocol. Mail servers. Transport agents. POP and IMAP protocols.
* Virtualization. Virtual Infrastructures. Virtualization platforms (Oracle VirtualBox, Microsoft Hyper-V, VMware ESXi, Xen).
* Cloud Services. Cloud infrastructures. Cloud business models (IaaS, PaaS, SaaS).
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