DESCRIPTION OF STUDY MODULE*

Study programme	**Applied Informatics and Programming**		
Study module	**COMPUTER NETWORK AND IS SECURITY**	**Credits in total**	**5**

Learning outcomes

- He (she) knows and able to explain the basic concepts associated with the computer network and security.
- Able to predict, identify and assess the computer networks problems, responsible for information systems hardware efficient operation and data security, paid to work effectively as a team.
- Able to understand the decision-ethics, learn to evaluate modern computer networks of economic, social and security aspects, specify the quantitative and qualitative characteristics.
- He (she) has ability to work in a team, and to interact and communicate with other IT professionals.
- Self-studying visual material, examine samples.

Aims of study module

The purpose is to familiarize the students with the whole of technical, programming and organizational means of computer networks, communication links, principles of data transmission, protocols and their standards, structure of networks and technologies, architecture of local and global networks, specifics of group work in networks and teach the students about how to create applied programs and scenarios for work on the network.

Annotation of a study module

During the class, the students are familiarized with the whole of technical, programming and organizational means of computer networks, communication links, principles of data transmission, protocols and their standards, structure of networks and technologies. The networks' architecture, networking operational systems and the specifics of group work in networks are explained. The global computer networks are reviewed, students are taught how to create applied programs or scenarios for the work on the network. When carrying-out lab works, the students learn how to model data signals, configure peripheral equipment, diagnose collisions and optimize high-speed. After completing the class, the students will be able to detect information attacks on the network, carry-out the monitoring of network's perimeter safety and be able to utilize various programming and technical information safety means.

Topics of the subject

1. Computer network concept
2. Computer network types and models
3. The concept of computer communication media
4. Signal transformations computer in networks
5. Computer network topology
6. Cable network
7. Computer network equipment
8. Computer network architecture
9. Information security
10. Information systems security
11. Security algorithms and solutions
12. Networked cryptography

Procedure for assessment of knowledge and competences

Applicable criterion: ten-point scale, and the cumulative assessment scheme: practical laboratory work (folder method) is 20%, the midterm works - 10% every, the project (network configuration using Cisco Packet Tracer program) - 10% and 50% of the final exam assessment, which is calculated by the weighted average method:

$$G = L*0,2 + K1*0,1 + K2*0,1 + P*0,1 + E*0,5.$$

Subject final rating calculated only if all the tasks and works completely done and evaluate the positive point.

Main literature

1. Tannenbaum A. (2010). Computer Networks, 5th Edition, New Jersey: Prentice Hall PTR,.
2. Kaklauskas, L. (2003-2005). Kompiuterių tinklai. 1-2 dalis. Šiauliai: ŠU leid. 238 p. ISBN 9986-38-413-3
3. Lučinskij M., Poderskis P., Tumėnas P.(2007). Duomenų saugos pradmenys. K., Smaltijos leidykla. 160 p.

* Short form