

## DESCRIPTION OF THE STUDY SUBJECT

### Title

<b>NETWORK OPERATING SYSTEMS, THEIR ADMINISTRATION</b>
--

### Scope of the subject

Semester	Mode of studies	Structure*				Total number of hours	Number of credits	Group and type of subjects
		L	Lw	C	S			
VI	Full-time	24	42	12	84	162	6	Subjects for deepening in the branch
VI	Part-time	10	26	42	84	162	6	

\*L – lectures, PS – practical activities, seminars, LW – laboratory work, PR – practice, CP – course paper, C – consultations, S – self-study

### Aim of the subject

To design, carry out maintenance of computer networks, to configure and administer network operating systems. To understand processes taking place in computer networks, to be able to manage them and allocate resources for network customers, find faults in the network, effectively remove them and perform the network productivity analysis.

### Necessary background knowledge for studying the subject

Students shall have heard subjects basics of programming, computer networks and telecommunications, management of operating systems, computer hardware, network protocols, network hardware.

### Content of the subject

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
1. Windows Server family network operating systems. DHCP, DNS, HTTP and other network services, their installation, adjustment and management. Active Directory.	4	-	-	2	6
Laboratory work No. 1. Installation and management of DHCP, DNS, HTTP and other services.	-	6	1	8	15
2. Linux / Unix family network operating systems. DHCP, DNS, HTTP and other network services, their installation, adjustment and management. Samba.	4	-	-	2	6
Laboratory work No. 2. Installation and management of DHCP, DNS, HTTP and other services.	-	4	2	11	17
<b>Preparation for the defence of laboratory works and their defence No. 1</b>	-	2	1	5	8
3. Tools for analysis of computer network traffic, transmitted information and used standards. Peculiarities of network designing.	5	-	-	2	7
Laboratory work No. 3. Development and adjustment of the network domain.	-	6	2	8	16
4. Network maintenance tools. Maintenance of network services.	2	-	-	2	4
Laboratory work No. 4. Installation of network maintenance tools in Windows / Linux operating system.	-	6	1	8	15
<b>Preparation for the defence of laboratory works and their defence No. 2</b>	-	2	1	5	8
5. Planning and implementation of the network security assurance tool. Windows security assurance solutions. Application of iptables and other security assurance solutions in Linux network operating systems.	5	-	-	2	7
Laboratory work No. 5. Installation and adjustment of network security services in Windows / Linux operating systems.	-	8	2	14	24
<b>Preparation for the defence of laboratory works and their defence No. 3</b>	-	-	-	-	-
6. Processes management. Problems of selecting the network address field and ways of solving them. Network monitoring and adjustment tools. Reserve copying. Measures for prevention of network failures.	4	-	-	2	6
Laboratory work No. 6. Assurance of work stability of Windows / Linux operating systems.	-	8	2	13	23
<b>Preparation for the defence of laboratory works and their defence No. 4</b>	-	-	-	-	-
<b>Total number of hours</b>	<b>24</b>	<b>42</b>	<b>12</b>	<b>84</b>	<b>162</b>

### Assessment of learning outcomes

Ten-point criteria-based assessment system as well as cumulative assessment using individual cumulative index (ICI) are applied. The overall grade is the sum of grades for the defence of laboratory works (DLw) multiplied by weighted coefficients.

ICI = 0,2 DLw1 + 0,3 DLw 2 + 0,3 DLw 3 + 0,2 DLw 4

### Recommended literature

Key literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house	Number of copies and/or internet link		
				ŠSC library	Other premises	Other libraries *
1.	2011	Plėštys R., Kavaliūnas R., Vilutis G. ir kt. Kompiuterių tinklai	Technologija	4	-	2
2.	2010	Mikalauskienė A., Brazaitis Z. Informacinių sistemų sauga	Vilniaus universiteto leidykla	2	-	2
3.	2008	Garla E., Dubovskaja V. Kompiuterių tinklų projektavimas	Vilniaus kolegija	4	-	3
Additional literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house and/or internet link			
1.	2014	Kaklauskas L. Nuotolinis kursas – „Tinklo operacinės sistemos, jų administravimas“.	<a href="http://moodle.svako.lt">http://moodle.svako.lt</a>			
2.	2014	Vasu Jain. Unix tutorial.	<a href="http://www.ee.surrey.ac.uk/Teaching/Unix/">http://www.ee.surrey.ac.uk/Teaching/Unix/</a>			
3.	2014	Machtelt Garrels. Introduction to Basic Unix System Administration.	<a href="http://tille.garrels.be/training/unix/&gt;">http://tille.garrels.be/training/unix/&gt;</a>			
4.	2014	Unix - User Administration	<a href="http://www.tutorialspoint.com">www.tutorialspoint.com</a>			
5.	2014	Windows - Administration Tutorials.	<a href="http://www.tutorialspoint.com">www.tutorialspoint.com</a>			
6.	2014	Koenig Learning Center. Windows Server 2012 Tutorial - Central Management through Server Manager. Interaktyvus, žiūrėta 2014-09-20	<a href="http://www.youtube.com/watch?v=5ksB1JmpFRA&amp;list=PLcbiNNmaZ_93iHJuHTKIU_YgZhmbEAU5e">http://www.youtube.com/watch?v=5ksB1JmpFRA&amp;list=PLcbiNNmaZ_93iHJuHTKIU_YgZhmbEAU5e</a>			
7.	2014	System Administration (Windows)	<a href="http://msdn.microsoft.com">msdn.microsoft.com</a>			
8.	2005	Kaklauskas L. Kompiuterių tinklai, 2 dalis.	ŠU leidykla			
9.	2003	Kaklauskas L. Kompiuterių tinklai, 1 dalis.	ŠU leidykla			

\* ŠAVB – Šiauliai Region Povilas Višinskis Public Library, ŠU – library of Šiauliai University

### Required material resources and their short description

<ul style="list-style-type: none"> <li>• <b>Equipment (devices):</b> computers (16 units), computers connected to the local network and connected to the Internet, multimedia projector, 2-3 routers, 3-5 switches, server.</li> <li>• <b>Software:</b> network emulator with the possibility of designing a computer network, VmWare or VirtualBox or analogous programs for emulation of virtual operating systems. OS Windows Server 2012 or later, Unix or Linux, Novell Netware.</li> </ul>
--

### The description prepared by:

Associate Professor Dr. Liudvikas Kaklauskas