

**FACULTY OF ENGINEERING
STUDY COURSE DESCRIPTION**

Course Title:	Computer Systems and Administration				
Course code (LAIS):					
Study programme:	Information Technologies				
Level of Study programme:	<input type="checkbox"/>	1st level professional higher education			
	<input checked="" type="checkbox"/>	Professional Bachelor			
	<input type="checkbox"/>	Professional Master			
	<input type="checkbox"/>	Academic Master			
	<input type="checkbox"/>	PhD level			
Type of Study programme:	<input checked="" type="checkbox"/>	Compulsory course (Part A)			
	<input type="checkbox"/>	Professional specialization courses (Part B, compulsory)			
	<input type="checkbox"/>	Professional specialization optional courses (Part B, optional)			
	<input type="checkbox"/>	Elective courses (Part C)			
Course Workload:	Credits	ECTS	Academic hours	Contact hours	Independent work hours
	4	6	160	64	96
Course Author/ Tutor:	Nauris Metlans				
	Guest lecturer, mg.sc.comp.				
	nauris.metlans@va.lv				
	Consultation: according to the schedule for each semester				
Study Form:	Full time studies				
Study year, semester:					
Language:	English				
Prerequisites for the Course:	Prerequisites not necessary				
Course Summary:	Purpose of course is to introduce students to data networks and their implementation technologies. Also, this course is aimed at students learning network administration basics.				
Assessment:	Exam				
Requirements for Credits:	Final grade is calculated from:				
	<ul style="list-style-type: none"> - Practical work assessment 40% - Exam assessment 60% - Students final grade must be at least 4 - Final assessment is weighted by factors shown 				
Abiding by the Academic Ethics	Students must abide by the academic and research ethics, Vidzeme University of Applied Sciences Ethics Regulations, incl.:				
	<ul style="list-style-type: none"> - study papers must be independently developed; - the study work should reference all statements, ideas and data used that have been authored by someone else; - appropriate data acquisition methods should be used in the acquisition of data, the research ethics must be respected, empirical data must be collected independently and cannot be distorted or falsified; - the examination must be carried out by the student independently, without the use of supporting materials and/or consultations with other students, unless the lecturer states otherwise. <p>In the event of non-compliance with the academic and research ethics, punishment is imposed in accordance with the ViA Ethics Regulations and the study course must be re-taken, unless the punishment is extramarital.</p>				
Learning Outcomes; the evaluation methods and criteria	Learning Outcomes			The evaluation methods and criteria	
	Knowledge				
	Network use cases, their scale assessment, network devices			Test, Exam	
Network protocols and communication methods, OSI and TCP/IP network models			Test, Exam		

	Physical access to networks	Test, Exam
	Logical access to networks	Test, Exam
	Network layer and addressing	Test, Exam
	TCP/IP network addressing	Test, Exam
	IPv4 and IPv6 addressing schemes and address assignment	Test, Exam
	Subnetting and subnet creation	Test, Exam
	Transport layer protocols	Test, Exam
	Application layer protocols	Test, Exam
	Routing	Test, Exam
	Skills	
	Network structure, layering and each layer tasks	Test, Exam
	Network device access and configuration	Practice
	IPv4 and IPv6 usage in networking	Practice
	Subnetting	Practice
	Network creation basics and addressing	Practice
	Dynamic and static routing	Practice
	Router basic configuration	Practice
	Competency	
	Different network topology usage	Practice, Exam
	Network layers and their purpose	Practice, Exam
	Network creation and addressing	Practice
	Communication protocol usage in networking	Practice, Exam
	Network creation, administration and maintenance	Practice
Course Compulsory literature:	1. Andrew, S. Tanenbaum. (2003). Computer Networks, Fourth Edition, Pearson Education, 962	
Course additional literature:	1. Troy McMillan. (2012). Cisco Networking Essentials, John Wiley & Sons, Inc., 450 2. https://en.wikipedia.org/wiki/Computer_network 3. http://en.wikipedia.org/wiki/OSI_model 4. https://en.wikipedia.org/wiki/Static_routing 5. https://en.wikipedia.org/wiki/Dynamic_routing	
Course confirmation date:		
Date of course description update:		

Study Course Plan:

Date	Theme	Academic hours		Study Form/ Organization of independent work of students and task description
		Contact hours	Independent work hours	
<i>The date is specified before the implementation of the course</i>				
	Introduction to networks	4	4	Lecture, Practice – students are searching on Internet for different network use cases
	OSI and TCP/IP network models and protocols	8		Lecture

	Physical and logical network access	6	4	Lecture, Practice – students makes physical and logical computer connection to network
	Network layer and addressing	5	8	Lecture, Practice – students do IP address calculations, conversion to different numbering systems. Students do IP parameter calculations from given IP parameters
	IPv4 and IPv6 addressing	8	14	Lecture, Practice – students compare addressing schemes, creates different addressing scheme network models, and calculates IP parameters. Creates LAN schemes and their addressing schemes
	Subnetting	8	12	Lecture, Practice – students makes calculations on IP addressing to create subnetworks from given networks
	Transport layer	6	12	Lecture, Practice – students install different network maintenance applications and configures network transport parameters
	Application layer	4	10	Lecture, Practice – students install different network applications, learns its network usage and protocols
	Network creation	4	16	Lecture, Practice – students plan network, creates its theoretical model, creates network and do its basic configuration, administration and maintenance
	Static routing	2	12	Lecture, Practice – students creates static addressing schemes and calculates routes
	Dynamic routing	2	12	Lecture, Practice – students configure different dynamic routing protocols
	Connecting and configuring router	4	16	Lecture, Practice – students connect to



				network routers and makes its basic configuration
	Exam		3	Exam
		Hours total:	64	96