COURSE UNIT DESCRIPTION

Course unit title	Course unit code
Computer Networks for Professionals: Routing	**ITKTP**

Lecturer(s)	Department where the course unit is delivered
Coordinator: Eduardas Kutka	Department of Computer Science II Faculty of Mathematics and Informatics Vilnius University

Cycle	Type of the course unit
First	Optional

Mode of delivery	Semester or period when the course unit is delivered	Languages of instruction
Face-to-face	6th semester	Lithuanian and English

Prerequisites
Computer networks

Number of ECTS credits allocated	Student's workload	Contact hours	Individual work
5	134	64	70

Purpose of the course unit: programme competences to be developed

Generic competences to be developed

- Ability to resolve problems *(BK4)*
- Ability to use information and communication technologies *(BK5)*

Subject-specific competences to be developed

- Ability to evaluate the need of the organization for hardware based on working principles of different computer architectures and various devices *(DK7)*
- Ability to ensure information security using management and security mechanisms of operating systems and software *(DK8)*

Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Ability to define problems of complex computer networks and find solutions to the problems	Literature reading, Analysis of examples, Consulting Preparation of project, Preparation of presentation, Problem solving.	Defence of the project, Tests, Topic Presentation, Final exam.
Ability to distinguish positive and negative aspects of product support, installation, compatibility with other equipment, know components of the hardware		
Ability to distinguish modern computer network components and their operating principles		
Ability to operate and manage a complex computer network and evaluate organization's needs for new hardware, new routing protocols (OSPF, EIGRP, BGP) or new addressing scheme (IPv6).		
Ability to test and troubleshoot computer network equipment, write requirements specification		
Implement infrastructural information security measures		

Course content: breakdown of the topics	Individual work: time and assignments

	Lectures	Tutorials	Seminars	Laboratory work (LW)	*Consultations during LW*	**Contact hours**	**Individual work**	**Assignments**
Routing Services in complex Networks	2			2	*3*	**4**	**3**	Reading literature, self-assignments Test no. I Topic presentation
Configuring the EIGRP	5			4		**9**	**9**	
Configuring the OSPF	5			4		**9**	**9**	
Manipulating Routing Updates	3,5			3	*3*	**6,5**	**7**	Reading literature, self-assignments, Test no. II, Topic presentation
Implementing Path Control	3,5			3		**6,5**	**7**	
Implementing a BGP Solution for ISP Connectivity	5			4		**9**	**9**	
Implementing Routing Facilities for Branch Offices and Mobile Workers	4			3	*2*	**7**	**6**	Reading literature, self-assignments Test no. III, Project, Topic presentation, Final exam
Implementing IPv6 in the Enterprise Network	4			3		**7**	**7**	
Project				6	*3*	**6**	**8**	
Preparation for Final exam and taking Final exam							**5**	
Total	**32**			**32**	*11*	**64**	**70**	

Assessment strategy	**Weight %**	**Deadline**	**Assessment criteria**
3 Tests (virtual learning environment)	25%	during the semester	Tests in virtual learning environment. Complete or partial correctness of responses.
Project	30%	during the semester	Compliance with the requirements, the ability to argue decisions, answering questions, make minor changes. Middle sized project can be made by one student; large project can be made by 2-4 student groups.
Topic presentation	10%	during the semester	Ability to prepare slides, fluent language, answering questions
Final exam	35%	during session	Tests in virtual learning environment. Complete or partial correctness od responses

Author	**Publishing year**	**Title**	**Issue No or volume**	**Publishing house or Internet site**
Required reading				
Wendell Odom	2010	CCNP ROUTE 642-902 Official Certification Guide		Cisco Press
Optional reading				
Andrew S. Tanenbaum, David J. Wetherall.	2011	Computer networks	5th ed.	Pearson, 2011
Scott Empson, Hans Roth	2011	CCNP ROUTE Portable		Cisco Press

		Command Guide		
Diane Teare	2011	Implementing Cisco IP Routing (ROUTE) Foundation Learning Guide: Foundation learning for the ROUTE 642-902 Exam		Cisco Press.