COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Service-oriented architecture	

Academic staff	Core academic unit(s)
Coordinating: dr. V. Giedrimas **Other:**	Šiauliai Academy

Study cycle	Type of the course unit
First cycle	Mandatory

Mode of delivery	Semester or period when it is delivered	Language of instruction
Auditorium	4th semester	Lithuanian/ English

Requisites	
Prerequisites: Programming languages Object oriented programming	**Co-requisites (if relevant):**

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
5	133	56	77

Purpose of the course unit
To acquaint students with operating systems and their families, structure and principles of operation. Cultivated competences: • BK1 Application of knowledge • DK1 Application of knowledge of program systems • DK3 PS Special Abilities

Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Knows service-oriented architecture, features of service programming.	Interactive lecture	Exam
You will learn to design and implement information systems based on service architecture, search for software services, evaluate, develop, and integrate them.	Case analysis (case studies), Interactive lecture, Laboratory works	Exam, defense of laboratory work
You will learn to plan and implement Infrastructure Engineering (DevOps) services and ensure their security.	Case analysis (case studies), Work in groups, Interactive lecture	Group homework

Content	Contact hours							Individual work: time and assignments	
	Lectures	Tutorials	Seminars	Workshops	Laboratory work	Internship	Contact hours, total	Individual work	Tasks for individual work
Basic concepts of distributed application systems	2				0		2	2	Exam
Service architecture	2				2		4	8	Exam
REST services	4				2		6	8	Defense of laboratory work, Exam
Hypermedia services	0				2		2	3	Defense of laboratory work, Exam
Microservices	4				6		10	8	Defense of laboratory work, Exam
Multipoint systems	2				2		4	8	Defense of laboratory work, Exam
Mobile and Internet of Things (IoT) services	4				4		8	8	Defense of laboratory work, Exam
Infrastructure engineering (DevOps) services	4				4		8	8	Exam, Group homework
Security of software services	4				2		6	12	Defense of laboratory work, Exam, Group homework
The role of software services in the process of information systems integration	2				4		6	12	Exam, Group homework
Total	**28**				**28**		**56**	**77**	

Assessment strategy	Weight %	Deadline	Assessment criteria
Group homework	20%	16th week of studies	It is given in the first week of studies and is carried out in stages. Most of the month is devoted to 8-10 topics. The following aspects of work are evaluated: Structure and scope of work: the structure of the written work is clear and logical, there are all the necessary parts (introduction, where the topic, goals, tasks, methods, empirical material are presented; teaching, where the analysis and interpretation of the empirical material is presented; conclusions), the work is of adequate volume (0.5 points); Analysis and conclusions: the analysis is very detailed, the conclusions are justified, formulated on the basis of empirical material (2 points); if the analysis is done but not detailed, the conclusions are not always justified, 1 point is awarded, no points are awarded for a superficial analysis. Scientific style and research culture: proper handling of sources and citations; wording and style meet the requirements of a scientific work (0.5 points). Assessment without written work - 0 points.

Defense of laboratory work	30%	Every second week	Laboratory works and their defense are evaluated. A total of 8 laboratory works	
Exam	50%	During the exam session	The exam test in the Moodle environment consists of 20 open and closed type questions, each graded with half a point. The grade of the exam is equal to the sum of the collected points.	

Author (-s)	Publishing year	Title	Issue of a periodical or volume of a publication	Publishing house or web link
Required reading				
Oquendo, F., Leite, J., Batista, T.	2016	Software Architecture in Action		Springer
Papazoglou, M.	2012	Web services and SOA: principles and technology. 2nd ed.		Pearson Education.
Earl, T.	2016	Service-Oriented Architecture: Analysis and Design for Services and Microservices (2nd Edition).		Prentice Hall.
Recommended reading				
Familiar, B.	2015	Microservices, IoT, and Azure: Leveraging DevOps and Microservice Architecture to Deliver SaaS Solutions		Apress
Grady Booch	2007	Object-Oriented Analysis and Design with Applications. 3rd Edition		Addison-Wesley Professional;
Chawla, H., Kathuria, H.	2019	Building Microservices Applications on Microsoft Azure: Designing, Developing, Deploying, and Monitoring.		Apress
Webber, J. et al.	2010	REST in Practice: Hypermedia and Systems Architecture,		O'Reilly.