



COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Technological Solutions for Smart Services	

Academic staff	Core academic unit(s)
Coordinating: E. Daunys	Šiauliai Academy
Other:	

Study cycle	Type of the course unit
First	Mandatory

Mode of delivery	Semester or period when it is delivered	Language of instruction
Face-to-face	Autumn	English

Requisites	
Prerequisites: object oriented programming, service oriented architecture. Computer architecture, Computer networks.	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		
Provide competence to manage smart services, integrate them into existing software systems, or implement new ones based on them. Developing competencies: BK1 Application of knowledge DK2 Ability to conduct software system research DK3 Special skills		
Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Will be able to explain the role of Smart Services in information systems.	Interactive lecture, Recommended literature.	Exam
Will know the architecture of smart devices and their dedicated operating systems.	Interactive lecture, Recommended literature.	Exam, test, laboratory work
Will be able to use specialized programming and software quality management tools for smart devices and create applications specific to a particular subject area.	Individual consultations, Interactive lecture, Laboratory work.	Exam, Individual homework

Will know the distribution possibilities of applications for smart devices and will be able to take advantage of the opportunities in the smart application market.	Case analysis (case studies), Interactive lecture, Laboratory work.	Exam, Individual homework
Will be able to integrate cloud computing, Internet of Things, and voice assistant elements into software systems.	Case analysis (case studies), Interactive lecture, Laboratory work.	Exam, Individual 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
1. Concept of Smart Services. The role of smart services in information systems.	2				0		2	2	Exam
2. Concept of a Smart Device and Its Architecture.	2				0		2	4	Exam, Individual homework, Defense of laboratory work.
3. Key Operating Systems for Smart Devices.	2				0		2	6	Individual homework, Defense of laboratory work.
4. Fundamentals of Programming for Apple Devices.	4				4		8	15	
5. Basics of Programming for Devices with the Android Operating System.	4				4		8	15	
6. Data Storage Solutions.	2				4		6	6	
7. SQLite and Core Data Object Stores.	2				4		6	6	
8. Software Market for Smart Devices.	2				4		6	2	
9. Elements of Cloud Computing.	2				4		6	6	
10. Internet of Things Elements.	2				2		4	4	
11. Voice-Controlled Systems.	4				2		6	6	
Total	28				28		56	77	

Assessment strategy	Weight %	Deadline	Assessment criteria
Laboratory Work Defense	20	Every other week	The completed laboratory assignments and their defense are evaluated. A total of 12 laboratory assignments are considered.
Presentation of Individual Homework Results	30	In the 16th week	This assessment is conducted in stages:

			<ul style="list-style-type: none"> ● Completion and Technical Integrity of Smart Solutions (applications for smart devices or other software utilizing smart devices and/or services). ● Innovativeness of Utilized Technologies and Originality of Solutions. ● Practical Benefit for Potential Users.
Exam	50		During the exam session, the test consists of 20 open-ended and closed-ended questions, with each question evaluated at half a point. The exam score is equivalent to the total points earned.

Author (-s)	Publishing year	Title	Issue of a periodical or volume of a publication	Publishing house or web link
Required reading				
Neuburg, M.	2021	Programming iOS 14		O'Reilly
Mednieks, Z. et al.	2012	Programming Android, 2nd Edition		O'Reilly
Costa, R.	2021	Programming Google Cloud		O'Reilly
Recommended reading				
Google				https://developers.google.com/assistant/sdk/overview
Gupta, N. et al.	2021	Smart and Sustainable Intelligent Systems		Wiley-Scrivener
Jie Zheng et al.	2021	IoT as a Service		Springer