COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Software Quality and Security	

Academic staff	Core academic unit(s)
Coordinating: Dr. Liudvikas Kaklauskas **Other: –**	Šiauliai Academy, Regional Development Institute

Study cycle	Type of the course unit
Bachelor studies	Mandatory

Mode of delivery	Semester or period when it is delivered	Language of instruction
Auditorium	6th semester	Lithuanian and English

Requisites	
Prerequisites: Finished the main modules of program systems	**Co-requisites (if relevant):–**

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
5	134	56	78

Purpose of the course unit		
Be able to assess the quality of software based on quality measures (SQA), formal review, statistical quality assurance methods, quality models, standards (ISO 9000, CISQ, etc.). To know and apply solutions for ensuring the reliability and security of IP, to ensure security in the computer network, to be able to test it		
Learning outcomes of the course unit	**Teaching and learning methods**	**Assessment methods**
BK1.3. Consistently explain how business, industrial, economic and social contexts affect professional practice, defined by ethical norms and regulated by legal requirements, including data protection, intellectual property rights, contracts, product safety	Theoretical lecture, laboratory work, defense of laboratory work, search of scientific literature	Defense of laboratory work, test (exam)
BK1.4. Apply knowledge of program systems, creating secure and other relevant criteria-compliant informatics applied solutions to solve relevant problems of professional activity.	Theoretical lecture, laboratory work, defense of laboratory work, search of scientific literature	Defense of laboratory work, test (exam)
DK2.3. To analyze the data, information and solutions needed to solve the actual problem of the professional activity of program systems using effective methods according to various criteria.	Theoretical lecture, laboratory work, defense of laboratory work	Defense of laboratory work, test (exam)
DK2.4. Critically evaluate the data, information, results and created solutions collected and obtained during the research	Theoretical lecture, laboratory work, defense of laboratory work	Defense of laboratory work, test (exam)

with reasoned conclusions and recommendations.		
DK3.7. Evaluate the quality of the application system, its individual components and the user interface.	Theoretical lecture, laboratory work, defense of laboratory work	Defense of laboratory work, test (exam)

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. Software quality, design and compliance quality. Software Quality Measures (SQA).	3				4			**8**	Analysis of scientific literature on software quality assessment
2. Formal review of the Software, its objectives, implementation.	3				4			**11**	Preparation and defense of laboratory works
3. Statistical methods of quality assurance.	3				4			**9**	Preparation and defense of laboratory works
4. Software quality models, regulation, standards (ISO 9000, CISQ, etc.).	3				4			**10**	Preparation and defense of laboratory works
5. Reliability and security of Software. Cryptographic solutions, certificates and other security measures.	4				5			**12**	Preparation and defense of laboratory works
6. Ensuring IP security in the computer network. Principles and technologies of safe PE design.	4				5			**13**	Preparation and defense of laboratory works
7. Security testing and Software validation.	4				6			**14**	Preparation and defense of laboratory works
Total	24				32			78	

Assessment strategy	Weight %	Deadline	Assessment criteria
Defense of laboratory work (G)	50%	At a fixed time during the semester	The completed laboratory works and their defense are evaluated (the evaluations of each laboratory work and its defense are averaged and multiplied by a weighting factor of 7.143%, a total of 7 laboratory works)
Exam (E)	50%	At a set time during the session	A test consisting of closed and open type questions is take

Author (-s)	Publishing year	Title	Issue of a periodical or volume of a publication	Publishing house or web link
Required reading				
R. Šeinauskas	2013	Programinės įrangos ir aparatūros testavimo principai, mokomoji knyga.		Kaunas, Technologija, 2013
ISO/IEC	2021	ISO/IEC 25010:2011		http://www.iso.org/iso/catalogue_detail.htm?csnumber=35733
V.Jusas, T.Blažauskas, Š.Packevičius.	2011	Programų sistemų apsaugos inžinerija.		TEV

Hower R.	2021	Software QA and Testing Resource Center		http://www.softwareqatest.com/
Tutorialspoint	2021	Software Testing - QA, QC & Testing.		https://www.tutorialspoint.com/software_testing/software_testing_qa_qc_testing.htm
Recommended reading				
A. Lockhart.	2004	Network security hacks.		O'Reilly
Tutorialspoint	2021	Security Testing		https://www.tutorialspoint.com/software_testing_dictionary/security_testing.htm