



### COURSE UNIT DESCRIPTION

Course unit title	Code
<b>TESTING AND QUALITY ASSURANCE OF INFORMATION SYSTEMS</b>	

Annotation

Lecturer(s)	Department, Faculty
<b>Coordinating:</b> Lect. Jurgita Lasytė  <b>Other:</b>	Kaunas Faculty Institute of Social Sciences and Applied Informatics

Study cycle	Type of the course unit
Bachelor	Compulsory

Mode of delivery	Semester or period when it is delivered	Language of instruction
Auditorium	6	EN

Requisites	
<b>Prerequisites:</b> None	<b>Co-requisites (if relevant):</b>

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
5	130	52	78

Purpose of the course unit: programme competences to be developed
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To develop the ability to understand and analyse theoretical and practical knowledge of software systems testing; the ability to understand and apply software testing methods, types, techniques, the ability to explain the execution process; the ability to apply basic testing and quality assurance tools.

Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Will be able to independently create test cases, properly document the testing process.  Will be able to design and implement tests for component testing, component and system integration testing, regression testing, acceptance testing, alpha, beta testing, performance testing, stability testing, usability testing, security testing, internationalization and localization testing.  Will be able to apply automated testing tools in the testing process.	Lectures, Labs, Individual work, active learning methods (group discussion; situation analysis, document analysis) individual homework and reading	Labs, Midterm exam, Final exam (in written form)

Course content: breakdown of the topics	Contact hours							Individual work: time and assignments	
	Lectures	Consultation	Exam	Workshops	Laboratory work	Internship/work placement	Contact hours, total	Individual work	Assignments
1. Software testing methods. Testing principles. Testing process. Manual testing. Automated testing	2				2		4	4	Practical manual testing tasks and labs  Midterm exam  Familiarize with test automatization tools for UI, API, performance
2. Test cases. Their content, compilation strategies. Tests, test sets.	2				6		8	15	
3. Types of software testing. Black Box Functional, Performance, Usability, Regression, Smoke, Parallel, Recovery, Installation, Compatibility, Configuration, Compliance, Error-Handling, User Interface, System, User Acceptance, White Box, individual software modules (Unit), security (Security), Mutation tests, others	2				2		4	13	
4. Test documentation. TC, defect descriptions. Testing vision, strategy, plan, testing tools. TC control tools, defect management tools, automatic testing tools.	2				8		10	15	
5. Specification based techniques. Structure-based techniques. Experience-based techniques.	2				4		6	10	
6. Software testing techniques and strategies. Static testing techniques. Dynamic testing techniques.	2				4		6	10	
7. Testing team. Roles, their properties. Measuring the effectiveness of an organizational structure tester. Test management. Planning, monitoring and managing progress.	2				4		6	10	
8. Quality assurance. Agile testing. Agile	2				2		2		
Consultation		2					2		
Exam			2				2		
<b>Total</b>	<b>16</b>	<b>2</b>	<b>2</b>		<b>32</b>		<b>52</b>	<b>78</b>	

Assessment strategy	Weight %	Deadline	Assessment criteria
Midterm Exam (K)	20	10 or 11 week	Theoretical knowledge of lectures 1–4 is assessed. The colloquium consists of <b>10</b> questions from the theoretical material presented in topics 1-4. The colloquium is in test form, 10 point scale, the answers to each question are evaluated according to 20% of the final evaluation of the colloquium.
Lab Work No.1 (LD1)	25	9th week	Evaluation criteria: number of performed laboratory tasks, validity of the conclusions of the performed tasks, quality of the job description and compliance with the requirements of the task. First lab work is evaluated 25% of final grade, second lab work – 20%. Students must show application under test, otherwise both lab works are not accepted. Laboratory tasks done by/with AI are not accepted, and graded 0. If suspicions arise that student used AI, student will need to explain and validate his tasks, to make sure tasks are done by student. For first lab work grade also includes a test.
Lab Work No.2 (LD2)	20	Till 12th week	
Exam (E)	35	During the session	The exam includes theoretical and practical material of the whole subject, assessment on a <b>10-point scale</b> according to VU assessment criteria. During the exam, <b>10 test questions</b> are given. The answers to the exam questions are evaluated proportionally ( <b>10% each</b> ).

			<i>A student who (1) throughout the semester consistently fails to demonstrate <b>progress in achieving the expected learning outcomes of a subject (module)</b> during the practical classes (seminars, exercises, laboratory work, etc.) and (2) fails to complete all interim assessment requirements and tasks within the time specified in the course description, is not allowed to participate in the examination session.</i>
Final Grade: LD1*0,2+K*0,25+LD2*0,2+E*0,35=1			

Author	Publishing year	Title	Issue of a periodical or volume of a publication; pages	Publishing house or internet site
<b>Required reading</b>				
James D. McCaffrey	2009	Software Testing: Fundamental Principles and Essential Knowledge		BookSurge Publishing.
Rex Black	2015	Advanced Software Testing - Vol. 1 (2nd Edition): Guide to the ISTQB Advanced Certification as an Advanced Test Analyst (2nd Edition)		Rocky Nook
Angelina Samaroo	2015	Software Testing: An ISTQB-BCS Certified Tester Foundation Guide (3rd Edition)		BCS
James A. Whittaker	2012	How Google Tests Software (1st Edition)		Addison-Wesley Professional.
Kshirasagar Naik	2008	Software Testing and Quality Assurance: Theory and Practice (1st Edition)		Wiley-Spektrum. Prieiga: <a href="https://books.google.lt/books?id=neWaoJKSkvgC&amp;pg=PT14&amp;lpg=PT14&amp;dq=software+testing+and+quality+assurance+book&amp;source=bl&amp;ots=cqjQF xUgs&amp;sig=eH0Bpos8sA_52b8eby5L3US-Irk&amp;hl=lt&amp;sa=X&amp;ved=0ahUKEwjuteLdgdTKAhXj73IKHc2hCXI4ChDoAQgxMAM#v=onepage&amp;q=software%20testing%20and%20quality%20assurance%20book&amp;f=false">https://books.google.lt/books?id=neWaoJKSkvgC&amp;pg=PT14&amp;lpg=PT14&amp;dq=software+testing+and+quality+assurance+book&amp;source=bl&amp;ots=cqjQF xUgs&amp;sig=eH0Bpos8sA_52b8eby5L3US-Irk&amp;hl=lt&amp;sa=X&amp;ved=0ahUKEwjuteLdgdTKAhXj73IKHc2hCXI4ChDoAQgxMAM#v=onepage&amp;q=software%20testing%20and%20quality%20assurance%20book&amp;f=false</a>
Glenford J. Myers	2011	"The Art of Software Testing" (3rd Edition)		John Wiley & Sons, Inc
Cem Kaner, James Bach, and Bret Pettichord	2002	"Lessons Learned in Software Testing"		John Wiley & Sons, Inc
Gennadiy Alpaev	2017	Software testing Automation Tips. 50 Things automation Engineer should know		Apress

Lisa Crispin, Janet Gregory	2008	Agile Testing: A Practical Guide for Testers and Agile Teams 1st Edition		Addison-Wesley Professional
Lisa Crispin, Janet Gregory	2014	More Agile Testing: Learning Journeys for the Whole Team		Addison-Wesley Professional
Panagiotis Leloudas	2023	Introduction to Software Testing A Practical Guide to Testing, Design, Automation, and Execution		Apress
KC Martin	2021	The Agile Software Tester Software Testing In the Agile World		Independently published