

Subject code: P.4(3)	Subject name: Testing mobile applications and computer games		
Study load: 4 ECTS	Load of contact hours: 64	Study semester: Autumn	Assessment: Exam
Objectives:	The goal of this course is to gain basic level software testing skills with specialization on mobile applications and computer games, studying of real commercial projects, knowledge the theory and gaining of practical experience in quality assurance processes. At the end of the course, the student should be able to perform the functions of quality assurance engineer, working in a professional team.		
Course outline:	<p>Topics covered:</p> <ol style="list-style-type: none"> 1. Software testing basics. 2. Agile software development. Quality assurance in agile projects. 3. Features of testing for client-server applications. 4. Mobile application types and architecture features. 5. Challenges and risks of mobile application testing. 6. Testing in computer games and gambling industry. 7. Common test types applicable for mobile application testing. 8. Common test types applicable for game testing. 9. Simple functional testing - methodology and features. 10. Installation testing for mobile apps and games. 11. Security testing for mobile apps and games. 12. Performance testing for mobile apps and games. 13. Usability and UI testing for mobile applications: overall principles, common patterns, and interface guidelines. 14. Usability for computer games. 15. Globalization and localization testing. 16. Configuration testing: overall principles. 17. Device-specific and configuration testing for mobile applications. 18. Configuration testing for computer games. 19. Mobile application platforms, tools and environment. 20. Automation approaches and frameworks for mobile application testing. 21. Key concepts and metrics for computer games. 22. Balance testing and playtesting. Test techniques for games. 23. Game test automation and other ways to make game testing more effective. 24. Acceptance level of game testing: alpha- and beta-testing. 25. Test approaches and test strategy for mobile apps. 26. Test management in agile projects. 27. Quality assurance for agile projects. 28. Game testing process features and quality assurance for game development projects. 		

	Contact lessons will be divided into two parts: lectures and testing workshops with individual and team tasks.
Learning Outcomes:	In the end of the course students have achieved following skills: <ol style="list-style-type: none"> 1. Understand and review business and technology drivers for mobile apps and computer games in order to create a test strategy. 2. Understand and be able to identify the key challenges, risks and expectations associated with testing a mobile application or a computer game. 3. Be able to apply common and specific test types and levels for mobile applications and computer games. 4. Be able to carry out the activities required specifically for mobile application testing as part of the main activities of the test process. 5. Understand specific quality attributes that require testing within the game industry. 6. Understand and be able to apply typical software development and testing methodologies for computer games. 7. Be able to identify and use suitable environments and appropriate tools for mobile applications and computer games testing. 8. Understand methods and tools specifically to support test automation for mobile applications and computer games.
Assessment Methods:	Assessment is split into several parts: tests, individual tasks, and group project during course.
Teacher(s):	Irina Kusnetsova
Prerequisite subject(s):	The course “Software testing technologies” for bachelors
Compulsory Literature:	Luis Levy, Jeannie Novak, Game Development Essentials: Game QA & Testing, Cengage Learning 2010. Ajay Balamurugadas, Sundaresan Krishnaswami, Mobile Testing: Ready Reckoner
Replacement Literature:	ISTQB Mobile Application Testing Foundation Level Syllabus, Version 2019. Daniel Knott, Hands-On Mobile App Testing: A Guide for Mobile Testers and Anyone Involved in the Mobile App Business, Addison-Wesley Professional 2015. Charles P. Schultz, Robert Bryant, Tim Langdell, Game Testing: All in One, 2 nd Edition, Mercury Learning and Information 2012. ISTQB Agile Tester Foundation Level Extension Syllabus, Version 2014. ISTQB Gambling Industry Tester Specialist Syllabus Version 2019.
Participation requirements:	Lower limit of lectures attendance is 70%, each test and individual task and project must be presented by end of the course.
Independent work:	Tasks 3-9 are executed for mobile app or game chosen individually for each student.

	<ol style="list-style-type: none"> 1. API testing 2. Sprint test plan in mobile application development project. 3. Security checklist for the mobile application. 4. Load models for the performance testing of the application - mobile or game. 5. Checklist for usability testing of the game. 6. The list of configurations for the mobile application configuration testing. 7. Automate smoke tests for mobile application. 8. Test types for the game with common description of methodologies or/and check list. 9. Union results of the previous tasks and create detailed test plans for both: the game and the mobile application. 10. Final group project - quality assurance plan for project (game or mobile app development).
Grading criteria scale or the minimal level necessary for passing the subject:	<p>Points distribution: Tests: 30 points Individual Tasks: max 5 points for each Group project: 20 points Bonus: 1 point for each homework done.</p> <p>Criteria “excellent” >=90 “good” 70-89 “satisfactory” 50-69 “bad” <50</p>
Information about the course:	Room ____, on ____ at ____
1) Date 1	<p>Lecture 1 Software testing basics. Agile software development. Quality assurance in agile projects.</p> <p>Homework: game bug report: describing bug in favourite or famous computer game. Bug report for mobile application.</p>
2) Date 2	<p>Game Design Workshop 1 Features of testing for client-server applications. Task 1: API testing. Task 2: Sprint test plan in mobile application development project.</p>
3) Date 3	<p>Lecture 2 Mobile application types and architecture features. Challenges and risks of mobile application testing. Testing in computer games and gambling industry. Common test types applicable for mobile application testing. Common test types applicable for game testing.</p> <p>Homework: risks list for the game with priorities and ideas about mitigation.</p>
4) Date 4	Game Design Workshop 2

	Task 1-2: check and analyse the results.
5) Date 5	<p>Lecture 3 Simple functional testing - methodology and features. Installation testing for mobile apps and games. Security testing for mobile apps and games. Performance testing for mobile apps and games.</p> <p>Homework: checklist for installation testing of the game.</p>
6) Date 6	<p>Game Design Workshop 3 Task 3: Security checklist for the mobile application. Task 4: Load models for the performance testing of the application - mobile or game.</p>
7) Date 7	<p>Lecture 4 Usability and UI testing for mobile applications: overall principles, common patterns, and interface guidelines. Usability for computer games. Globalization and localization testing. Configuration testing: overall principles. Device-specific and configuration testing for mobile applications. Configuration testing for computer games.</p> <p>Homework: checklist for configuration testing of the mobile app: which tests are needed to include.</p>
8) Date 8	<p>Game Design Workshop 4 Task 3-4: check and analyse the results. Task 5: Checklist for usability testing of the game. Task 6: The list of configurations for the mobile application configuration testing.</p>
9) Date 9	<p>Lecture 5 Mobile application platforms, tools and environment. Automation approaches and frameworks for mobile application testing.</p>
10) Date 10	<p>Game Design Workshop 5 Task 5-6: check and analyse the results. Task 7: Automate smoke tests for mobile application.</p>
11) Date 11	<p>Lecture 6 Key concepts and metrics for computer games. Balance testing and playtesting. Test techniques for games. Game test automation and other ways to make game testing more effective. Acceptance level of game testing: alpha- and beta-testing.</p> <p>Homework: plan and criteria for beta-testing of the game.</p>
12) Date 12	<p>Game Design Workshop 6 Task 7: check and analyse the results. Task 8: Test types for the game with common description of methodologies or/and check list.</p>
13) Date 13	<p>Lecture 7 Test approaches and test strategy for mobile apps. Test management in agile projects.</p>

14) Date 14	Game Design Workshop 7 Task 8: check and analyse the results. Task 9: Union results of the previous tasks and create detailed test plans for both: the game and the mobile application.
15) Date 15	Lecture 8 Quality assurance for agile projects. Game testing process features and quality assurance for game development projects.
16) Date 16	Game Design Workshop 8 Classroom test: Final course test Students' presentations for task 10: quality assurance plan for project (game or mobile app development).