# Functional Software Testing. Program Contents. 108 academic hours

## Module 1

*1. Introduction*
- A bit of history: the importance of testing, quality assurance, and control.
- Psychology of testing: professional and personal qualities of a tester, the role of a tester in a team.
- Why testing is necessary?
- Principles of testing.
- Introduction to the main terminology of testing.

*2. Types and methods of testing*
- Levels of testing.
- Types of testing.
- Testing methods.
- General concepts of ISTQB.

*3. Principles of business communication*
- Emails.
- Meetings and one-on-one conversations.
- Calls and instant messaging services.

*4. Testing requirements and documentation*
- The importance of testing documentation and requirements.
- Types and levels of requirements.
- Ways to identify requirements.
- Properties of good requirements, issues in requirements.
- How to test requirements.

*5. Test design*
- Types of tests.
- Documentation of tests and test scenarios.
- Steps and guidelines for test cases development.

*6. Managing tests and test scenarios*
- Regression testing.
- Variants of test suites design.
- Test management tools.

*7. Defect report*
- Defect, defect report.
- Attributes of a defect report, creating good defect reports.
- Defect report life cycle.
- Recommendations for creating defect reports.

*8. Reporting on test results*
- Test results report, its purpose.
- Structure of the test results report.
- Using the test results report.
- Common mistakes in creating test results reports.
- Metrics.

*9. Final lesson for Module 1*
- Test.

**Module 2**

*1. Principles of web-based technologies*
- Principles of web-oriented application architecture.
- Web content, its sources, and formation methods.
- Validation of user data.
- Sources of errors.
- Test environment for web-oriented applications.

*2. Basics of databases*
- General information about relational databases.
- Normalization and denormalization.
- Basic rules for writing SQL queries.

*3. Test plan. Teamwork specifics*
- What is a test plan.

- Test plan sections.
- Components of a successful project.
- Project management tools.

*4. Form testing, compatibility testing*
- Types of forms.
- Key form checks.
- Verification of form fields.
- Standard test cases for form fields.
- Understanding compatibility testing and cross-browser testing.

*5. Testing tools, automated testing*
- Developer tools.
- Test automation.
- Basics of Record and Playback technology.
- Recording and playback of tests using Selenium IDE/Katalon Recorder.

*6. Test design techniques*
- Domain testing.
- Working with variables and "multidimensional values".
- Pairwise testing.
- Developing tests based on usage scenarios.
- Using cause-and-effect diagrams, decision tables, and state transition diagrams in test scenario development.

*7. Basics of REST web services testing*
- JSON data format.
- Principles of REST APIs.
- Testing of REST web services.
- Performance testing.
- Apache jMeter.

*8. Basics of SOAP web services testing*
- XML data format.
- Principles of SOAP web services.
- Testing of SOAP web services.

*9. Final lesson Module 2*
- Test.

**Module 3**

*1. Estimating effort in testing*
- General questions about effort estimation.
- Effort estimation based on test cases.
- Other estimation methods, effort estimation in Agile.

*2. Continuous integration, command line, bat/cmd files*
- Continuous integration (CI).
- Console, command line.
- Using bat/cmd files.

*3. Preparing the Windows workstation*
- Virtual machines, their usage in testing.
- Creating virtual machines.
- Basic administration skills.

*4. Software development methodologies*
- Main methodologies used in software development.
- SDLC concept.
- Classic methodologies.
- Agile methodologies.

*5. Mobile testing specifics*
- Overview of major mobile platforms.
- Types of mobile applications.
- Specifics of conducting tests for mobile platforms.

*6. Localization, Internationalization, Accessibility*
- Internationalization testing specifics.
- Localization testing specifics.
- Basics of accessibility testing.

*7. Thesis defense*
- Presentation.
- Discussion of the work done.

*8. Final lesson for Module 3*
- Final Test.

*9. Mock job interview.*