Publication date : 04/22/2024

Course : Automatic testing and continuous integration in C++

Practical course - 4d - 28h00 - Ref. AOI
Price : 2430 € E.T.

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This course presents and implements an application testing process in a C++ environment. You'll see how each stage of the testing process can be automated. You'll learn how to check the effectiveness of your unit tests and write system tests. You will set up continuous integration.

Teaching objectives

At the end of the training, the participant will be able to:

- Set up the content and follow-up of the automation project
- Define test plan coverage and organize the test repository
- Implement specific tools to automate unit tests in C++
- Automate GUI, Web Service and scalability tests
- Mettre en place l'intégration continue et analyser le reporting des résultats

Intended audience

Software quality and test managers, developers, test automation engineers.

Prerequisites

Basic knowledge of C++ programming is required.

Practical details

Hands-on work

General tools: Testlink, Selenium, Mantis, Hudson or Jenkins, SVN, SOAP UI.

Teaching methods

C++-specific tools: Make, Gcov, Googletest (GTest) or CppUnit, AutoIT (windows), QTtest.

Course schedule

PARTICIPANTS

Software quality and test managers, developers, test automation engineers.

PREREQUISITES

Basic knowledge of C++ programming is required.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

1 A reminder of the testing process

- Definition. Test levels: unit, integration, systems and acceptance, confirmation and non-regression.
- Different testing techniques. The testing process.
- Development and test cycles.
- Test strategy. The benefits of end-to-end strategies.
- Automation decision. What follow-up?

Storyboarding workshops

Definition of the tasks involved in successfully automating a C++ application.

2 Analysis and design

- Presentation of testing techniques.
- Requirements, test, test condition, test case, test procedure, prerequisites.
- What is a cover?
- Presentation of an open-source testlink tool.
- Best practices: coverage, valuation, test writing.

Hands-on work

Implementation of the test repository. Overview of open source and pay tools for test management, presentation of other tools (TFS).

3 Unit test automation

- Unit testing: what is a driver?
- Using plugs to automate tests.
- Coverage types: instruction, branch, condition, decision.

Hands-on work

Implementation of Google's unit testing framework in C++ (GTest) and a test plug. Code coverage verification with Gcov.

4 System test automation

- Organize test execution: test environments, anomaly manager.
- Automate system tests.
- API and WebService testing. GUI testing. Load testing.
- Best practices in automation.
- Introducing Selenium for the Web.
- Solutions for other types of HMI.

Hands-on work

Automated HMI/Web testing with AutoIT/Selenium/QTTest. Web Service test automation with SOAP UI. Implementation of load tests with SOAP UI.

5 Continuous integration

- Continuous integration: principles and benefits.
- Introduction to Hudson or Jenkins, presentation of plug-ins.
- Results reporting.

Hands-on work

Implementation with Hudson SVN and Make. Reporting of coverage and test results, integration with Testlink.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

6 Conclusion

- How to set up automation.
- "Keyword testing": demonstration with robot framework.
- Choice of tools. Open source or paid tools?

Dates and locations

REMOTE CLASS
2026 : 17 Mar., 2 June, 13 Oct.

PARIS LA DÉFENSE
2026 : 17 Mar., 2 June, 13 Oct.