

# Validating and Testing Software

**Hands-on course of 3 days - 21h**

**Ref.: TES - Price 2024: CHF2 180 (excl. taxes)**

## EDUCATIONAL OBJECTIVES

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

Discover the challenges of testing and the references used in this field

Outline and implement an approach to testing

Understand the concept of unit tests and the notion of structural coverage

Learn about the integration testing process as a whole

Design functional validation tests and report their results

## THE PROGRAMME

last updated: 01/2018

### 1) Introduction to software testing

- What is a test? Bugs and their cost. Testability. Testing and the life cycle. The concept of V&V.
- Functional testing vs. structural testing. Test coverage. Non-regression tests. The profession of a tester.
- References, maturity of processes (TMMI, TPI).

*Hands-on work* : Discovering a case study, application to be developed.

### 2) Management processes related to testing

- Managing requirements, specifications, and traceability.
- Managing anomalies and change requests.
- Managing configuration and changes.
- Peer review.

*Hands-on work* : Reviewing the requirements and specifications.

### 3) The approach to testing

- The five fundamentals.
- The project process and testing. The global approach.
- The testing plan and its adaptations. The testing strategy.
- The risk-based approach. Estimating.
- Platforms. Testing and databases.
- Preparing, executing, and evaluating tests.
- Delivery documentation. Follow-up.

*Hands-on work* : Getting started with the test management tool.

### 4) Unit tests

- The unit test process. Test Driven Development (TDD). xUnits.
- Limit testing, robustness testing, and random testing. Dynamic analysis. Structural coverage.
- Static analysis. Reading code.

*Hands-on work* : Measuring structural coverage.

### 5) Integration testing

- The integration testing process.
- Continuous integration.

## 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.

## 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](mailto:psh-accueil@ORSYS.fr) to review your request and its feasibility.

- Integration strategies (upward, etc.)
- Random testing. The role of the integrator.

*Hands-on work : Integration testing. Test reports, coverage reports, metrics.*

#### 6) Validation testing

- The validation testing process. The genesis of the version (feature freeze).
- People involved in validation.
- Intuitive anomaly searching, ad hoc testing. Exploratory testing. Partition testing. Graphs.
- Statistical, ergonomical, usability, and stress testing.

*Hands-on work : Designing validation tests. Running tests and returning results.*

#### 7) Add-ons

- Project report, acceptance clauses, acceptance testing.
- Setting up corrective and adaptive maintenance.
- Outsourcing tests, TPAA. Tools.

## DATES

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### REMOTE CLASS

2025 : 24 Mar, 05 May, 09 Jul, 15  
Oct