

Hands-on course , 3
day(s)
Ref : TES

Participants

This course is for developers/
testers, lead contractors
and type approvers, project
owners, and type approval
managers who seek to control
their testing processes.

Pre-requisites

Basic knowledge of software
development.

Next sessions

Validating and Testing Software

In this course, you'll discover best practices aimed at improving software testing and validation processes. You'll see how tests help demonstrate the product's compliance with its specifications and how to implement them throughout the development process.

OBJECTIVES

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

1) Introduction to software testing

2) Management processes related to testing

3) The approach to testing

4) Unit tests

5) Integration testing

6) Validation testing

7) Add-ons

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).

Workshop

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.

Workshop

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.

Workshop

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.

Workshop

Measuring structural coverage.

5) Integration testing

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

Workshop

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.

Workshop

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.