

# Java EE 7 : Web application design and development

Hands-on course of 5 days - 35h

Ref.: APJ - Price 2025: 3 030 (excl. taxes)

## EDUCATIONAL OBJECTIVES

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

Set up a data access layer with JPA.

Set up a distributed architecture with EJB and JMS

Set up a presentation layer

Develop and consume REST webservice

Set up a communication channel between an HTML5 browser and a server via Websockets.

Participants

A "common theme" exercise will be carried out. The various modules will be validated by unit tests (launched with the em

## TRAINING PROGRAM

## THE PROGRAMME

last updated: 05/2024

### 1) » Introduction

- Bricks of the Java EE 7 specification.
- Best practices of design: Separating responsibilities, KISS, DRY, POJO.
- What's new compared to version 6.
- Overview of Java EE, the Spring framework.

### 2) » Work environment

- The Eclipse environment. Maven dependencies.
- Unit tests with the embedded container.
- Using webtools, getting started with the server.
- Hands-on work ▫Installing IDE and the server.

### 3) » N-tier breakdown and dependency injection

- Breakdown into layers, the POJO approach.
- Scopes and state management.
- Dependency injections.
- Interceptors.
- Hands-on work ▫Setting up an n-tier application, using CDI (dependency injection).

### 4) » Access to the data with JPA

- Relational object mapping (xml, annotations).
- Lazy loading.
- Working with API : EntityManager, etc.
- JPA-QL, API Criteria, MetaModel, EntityGraph.
- Transactions, the annotation @Transactional JTA 1.2.
- Hands-on work ▫Setting up the data access layer.

## 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 to review your request and its feasibility.

#### 5) » Distributed architecture with EJB and JMS

- Technical services of the EJB API: Security, remoting, concurrent access, asynchronous access, timers.
- Positioning of EJBs with respect to CDI beans.
- JMS for exchanging messages.
- Hands-on work ▫Setting up services with the Sessions EJB and a message exchange bus with JMS.

#### 6) » Web and JSF

- Concepts (MVP, Presenter, View).
- Facelets, taglibs, jsf-el.
- JSR303 validation.
- Implementing Ajax.
- Hands-on work ▫Implementing JSF 2.2 and Ajax.

#### 7) » REST Web Services

- JAX-RS API for RESTful web services.
- HTTP refreshers: Verbs, contentType, etc.
- CORS: Cross Origin Shared Resource. HATEOAS.
- Producing and consuming objects via the JSON processing Java API.
- Hands-on work ▫Exposing services, consuming those REST services via a Web client (AngularJS).

#### 8) » Websockets

- Real-time web concepts.
- Support by browsers, fallback mechanisms.
- Set-up on server and client sides.
- Hands-on work ▫Adding a websocket connection to the Web client.

## DATES

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### REMOTE CLASS

2025 : 20 oct.