# OSGi – Dynamic Module System for Java


**Abstract**

OSGi is a dynamic module system for Java. The OSGi Service Platform provides a standardized, component-oriented environment for distributed services.

The OSGi technology provides a service-oriented architecture that enables auto-discovery, easy deployment, loose coupling and manageable dependencies.

Organizations using the OSGi technology benefit from reduced development costs (due to out-of-box component services), easier manageability (because of dependencies framework) and more business opportunities (because of the large adoption of OSGi and its dynamic and reusable nature).

The course contains many examples and hands-on exercises, by means of which the material is demonstrated and practiced.

**Target Audience**

Java developers, team leaders and project managers.

**Prerequisites**

Familiarity with the Java language.

**Content:**

**Introduction to OSGi (2 hours):**

The motivation behind OSGi.
What is an OSGi bundle?
Hiding the implementation.
Overview of OSGi Engines.

**Managing Dependencies (4 hours):**

Import and Export.
Required Packages.
Managing Versions.
Bundle Repositories.

**Dynamic Bundles (6 hours):**

Bundle Lifecycle.
Dependency Injection.
Working with Services.
Using the ServiceTracker.

**Multi-threading and Concurrency (3 hours):**

Recap of multi-threading in Java.
Thread-safety with OSGi.
Common Pitfalls.

**Notifications and Events (3 hours):**

The Observer pattern in OSGi.
The Whiteboard pattern.
Event Admin.
Asynchronous Events.

**Component-Oriented Environment (3 hours):**

Introduction to Components.
Spring Modules.
Declerative Services.
iPOJO.

**OSGi in Real-World (3 hours):**

Building Bundles.
TDD with OSGi.
Migrating to OSGi.
Best Practices and Use-cases.

**Duration:** **3 days.**