

## Developing Applications for the Java EE 6 Platform (FJ-310-EE6)

**Duration:** 5 Days

### What you will learn

The Developing Applications for the Java(TM) EE Platform course provides students with the knowledge to build and deploy enterprise applications that comply with Java(TM) Platform, Enterprise Edition 6 technology standards. The enterprise components presented in this course include Enterprise JavaBeans(TM) (EJB(TM)) technology, the Java Persistence API, servlets, and JavaServer Pages(TM) (JSP(TM)) technology, JavaServer Faces(TM) (JSF(TM)), RESTful and SOAP web services, and the Java technology clients that use them.

Students gain hands-on experience through labs that build an end-to-end, distributed business application. The labs explore session EJB components, which implement the Session Facade pattern and provide a front-end to entity components using the Java Persistence API. The labs also explore message-driven EJB components, which act as Java Message Service (JMS) consumers. Students create user interfaces using servlets, JSP technology (JSP pages), and JavaServer Faces (JSF). Basic web services using SOAP and RESTful techniques will be created. Students learn how to assemble an application and how to deploy an application into an application server (Java EE platform runtime environment). Students perform the course lab exercises using NetBeans(TM) Integrated Development Environment (IDE).

Students who can benefit from this course

- \* Sun(TM) Certified Java technology programmers who want to develop enterprise applications that conform to the Java EE platform standards.
- \* Students with Java Programming experience interested in broad overview of the Java EE platform.
- \* Students planning to pursue one or more of the Enterprise Java EE6 certification exams.

This course counts towards the Hands-on course requirement for the Java EE 5 Enterprise Architect Certification. Only instructor-led inclass or instructor-led online formats of this course will meet the Certification Hands-on Requirement. Self Study CD-Rom and Knowledge Center courses DO NOT meet the Hands-on Requirement.

### Prerequisites

#### *Required Prerequisites*

Experience with the Java programming language

Familiarity with object serialization

Familiarity with relational database theory and the basics of structured query language (SQL)

Familiarity with the use of an IDE

#### *Suggested Prerequisites*

Java Programming Language, Java SE 6

## Course Objectives

Describe the application model for the Java EE platform and the context for the model  
Select the correct Java EE Profile for a given application  
Develop and run an EJB technology application  
Develop basic Java Persistence API entity classes to enable database access  
Develop a web-based user interface using Servlets, JSPs, and JSF  
Develop simple web services for the Java EE platform

## Course Topics

### Survey of Java EE Technologies

Describe the different Java platforms and versions  
Describe the needs of enterprise applications  
Introduce the Java EE APIs and services  
Certifications Paths  
Introducing Applications Servers  
Enterprise Modules

### Enterprise Application Architecture

Design Patterns  
Model View Controller  
Synchronous and Asynchronous communication  
Network Topologies and Clustering  
Layering (client,presentation,service,integration,persistence)

### Web Technology Overview

Describe the role of web components in a Java EE application  
Define the HTTP request-response model  
Compare Java servlets, JSP, and JSF  
Brief introduction to technologies not covered in detail

### Developing Servlets

Describe the servlet API  
Servlet configuration through annotations and deployment descriptors  
Use the request and response APIs  
Servlets as controllers

### Developing With JavaServer Pages Technology

Evaluate the role of JSP technology as a presentation mechanism  
Author JSP pages  
Process data received from servlets in a JSP page  
Brief introduction to the JSTL and EL

### JavaServer Faces

The JSF model explained  
Adding JSF support to web applications  
Using the JSF tag libraries  
Configuring JSF page navigation  
JSF Managed beans  
JSF Conversion, Validation, and Error Handling

## **EJB Overview**

EJB types: Session Beans

EJB types: Message Driven beans

Java Persistence API as a replacement for Entity EJBs

Describe the role of EJBs in a Java EE application

EJB lite

## **Implementing EJB 3.0 Session Beans**

Compare stateless and stateful behavior

Describe the operational characteristics of a stateless session bean

Describe the operational characteristics of a stateful session bean

Describe the operational characteristics of a singleton session bean

Create session beans

Package and deploy session beans

Create session bean clients

## **The Java Persistence API**

The role of the Java Persistence API in a Java EE application

Object Relational Mapping

Entity class creation

Using the EntityManager API

The life cycle and operational characteristics of Entity components

Persistent Units and Packaging

## **Implementing a Transaction Policy**

Describe transaction semantics

Compare programmatic and declarative transaction scoping

Use the Java Transaction API (JTA) to scope transactions programmatically

Implement a container-managed transaction policy

Support optimistic locking with the versioning of entity components

Support pessimistic locking of entity components

Using transactions with the web profile

## **Developing Asynchronous Java EE Applications and Messaging**

The need for asynchronous execution

JMS technology introduction

List the capabilities and limitations of Java EE components as messaging producers and consumers

JMS and transactions

JMS administration

## **Developing Message-Driven Beans**

Describe the properties and life cycle of message-driven beans

Create a JMS message-driven bean

## **Web Service Model**

Describe the role of web services

Web service models

List the specifications used to make web services platform independent

Describe the Java APIs used for XML processing and web services

## **Implementing Java EE Web Services with JAX-WS and JAX-RS**

Describe endpoints supported by the Java EE 6 platform

Developing Web Services with Java  
Creating Web Service Clients with Java

**Implementing a Security Policy**

Exploit container-managed security  
Define user roles and responsibilities  
Create a role-based security policy  
Use the security API  
Configure authentication in the web tier