Java™ EE 5 Training

This intense course teaches Java™ programmers how to develop enterprise applications using the ease of development features introduced in Java EE 5. Students will learn how to create dynamic web applications with JSP, Java Servlets, JSTL, and JSF. They will use JAX-WS to develop SOAP based web services. Students will learn about session and message-driven EJBs, as well as the new Persistence API. They will also be introduced to JavaMail, Java Message Service, Java Transaction API, and Java Management Extensions.

Audience: Java programmers who need to learn about Java EE 5.

Prerequisites: Java Programming

1. Introduction to Java EE 5
Introduction to Java EE
Java SE Building Blocks
Servlets, JSPs, and Web Applications
Web Services
Enterprise JavaBeans
Additional Java EE APIs
Java EE Clients
POJO, Dependency Injection, and Annotations
The Java EE Platform

2. Introduction to JSP and JSTL
MVC and Web Applications
JSP As the View
JSP Scripting Elements
Expression Language
EL Operators
Request and Response
include and forwards
JSTL
Conditionals and Iteration in JSTL
JSTL Variables And Output

3. Introduction to Java Servlets and JavaBeans
Java Servlets as the Controller
HttpServlet
HTTPServletRequest
HTTPServletResponse
HttpSession
RequestDispatcher
JavaBeans as the Model
Bean Scopes
web.xml

4. JavaServer Faces
Frameworks
JSF Benefits
JSF Tag Libraries
Components
Managed Beans
Event handling
Navigation
Validators and Converters
Lifecycle
JSF Application Structure

5. JMS Messaging Concepts
What is JMS ?
Point-to-Point
Publish/Subscribe
Message Object
Session
Creating the Client

6. JavaMail
Mail Systems and JavaMail
The javax.mail Packages
Establishing a Session
The MimeMessage Class
Sending a Message
Retrieving Email Messages
Multi-part Messages

7. EJB3 Overview
The Enterprise JavaBean
EJB Benefits
Defining the Bean Interface
Defining the Bean Class
Creating a Client Servlet
Assembly and Deployment of EJBs

8. Session Beans and Message-Driven Beans
A Session Bean
Stateless Session Beans
PostConstruct and PreDestroy
Lifecycle of a Stateless Session Bean
Stateful Session Beans
Lifecycle of a Stateful Session Bean
Lifecycle Callbacks
Dependency Injection
Message-Driven Beans
MDB Lifecycle
Sending a Message

9. Introduction to the Persistence API
What is Java Persistence?
Persistence Objects and Metadata
Creating an Entity Class
The Entity Manager
Looking up Entities
The Persistence Unit
Deployment

10. Persisting Entities
EntityManager and
Persistence Context
Entity Lifecycle
Creating and Removing Entities
Transactions
Mapping Entities to Tables
Entity Relationships
Primary Keys
Lazy Loading
and Cascading

11. Transactions
Transaction Terminology
The Java Transaction API
The UserTransaction Interface
Transactions in Java EE
Bean-Managed Transactions
Container-Managed Transactions
Transaction Attributes
Transaction Rollbacks

12. Data Binding with JAXB 2.0
W3C XML Schema
XML Data Binding Basics
JAXB Architecture
Compiling Schema to Java
JAXBContext
Unmarshalling
Marshalling
Validation
Custom Binding
Declarations
Java to Schema

13. Java API for XML-Based
Web Services (JAX-WS)
JAX-WS
Creating a Web Service
Endpoint The Service
Implementation
The Service Interface
apt and wsgen
Generated Files
Packaging and Deploying the Application
A JAX-WS Client
wsimport

14. Java Management Extension (JMX)
What is a JMX?
MBeans
Creating a Standard MBean
Object Names
The MBean Server
Local Client
Remote Client
JConsole
Notifications

15. Case Study Persistence
Stateless Session Bean
Web Tier Client: HTML
Web Tier Client: Controller Servlet
Web Tier Client: Data Transfer JavaBean
Web Tier Client: JSP
Web Tier Client: web.xml
Message-Driven Bean
JMS Client
JAX-WS Endpoint
Web Service Client

16. Appendix A - Underlying Technologies:
RMI, JNDI, and JDBC
RMI
Steps to Create a Remote Object
An RMI Client
An RMI Server
RMI Utilities
JNDI Naming and Directory Services
Namespaces and Contexts
Naming Operations
Bindings
JNDI in JAVA EE
The JDBC Connectivity Model
Connecting to the Database
Creating a SQL Query
Getting the Results
Updating Database Data

17. Ant What Is Ant?
build.xml
Tasks
Properties and Property Files
Managing Files and Directories
Filesets
Java Tasks
Creating Java Archives
Specifying Paths
Miscellaneous Tasks