

This intense four-day course teaches Java™ programmers how to develop enterprise applications using the ease of development features introduced in Java EE 5 and 6. Students will learn how to create dynamic web applications with JSP, Java Servlets, JSTL, and JSF. Next, they will learn how to send and receive asynchronous messages with the Java Message Service. Students then learn about session and message-driven EJBs, as well as the Java Persistence API and Java Transaction API. The course ends with XML topics including data binding with JAXB and developing SOAP based web services with JAX-WS.

**Course Objectives:**

- Describe the architecture and use of Java EE technologies.
- Write web applications that combine Java Servlets, JavaServer Pages, and JavaBeans using the Model-View-Controller architecture.
- Develop web applications using the component-based and event-driven JavaServer Faces framework.
- Send and receive asynchronous messages with the Java Message Service.
- Describe the Enterprise JavaBean architecture.
- Write session and message-driven EJBs.
- Access a relational database with the Java Persistence API.
- Handle transactions with the Java Transaction API.
- Map XML content to domain-specific objects with JAXB.
- Integrate legacy systems with JAX-WS web services.

**Audience:** Java programmers who need to learn about Java EE 6.

**Prerequisites:** Java Programming.

**Number of Days:** 4 days

<p><b>1 Course Introduction</b>          Course Objectives          Course Overview          Using the Workbook          Suggested References</p>	<p><b>2 Introduction to Java EE</b>          Introduction to Java EE          Java SE Building Blocks          Web Applications          Web Services          Enterprise JavaBeans          Additional Java EE APIs          POJO, Dependency Injection, and Annotations          The Java EE Platform</p>	<p><b>3 Introduction to JSP and JSTL</b>          MVC and Web Applications          JSP As the View          JSP Scripting Elements          Request and Response          Expression Language          EL Operators          include and forwards          JSTL          Conditionals and Iteration in JSTL          JSTL Variables and Output</p>	<p><b>4 Introduction to Java Servlets and JavaBeans</b>          Java Servlets as the Controller          HttpServlet</p>
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	<ul style="list-style-type: none"> <li>HttpServletRequest</li> <li>HttpServletRequestResponse</li> <li>HttpSession</li> <li>RequestDispatcher</li> <li>JavaBeans as the Model</li> <li>Bean Scopes</li> <li>WAR File</li> </ul>		
<b>5</b>	<b>Introduction to JavaServer Faces</b>		
	<ul style="list-style-type: none"> <li>Frameworks</li> <li>JSF Benefits</li> <li>JSF Tag Libraries</li> <li>Components</li> <li>Managed Beans</li> <li>Event handling</li> <li>Navigation</li> <li>Validators and Converters</li> <li>Lifecycle</li> <li>JSF Application Structure</li> </ul>		
<b>6</b>	<b>JMS</b>		
	<ul style="list-style-type: none"> <li>Messaging Concepts</li> <li>What is JMS ?</li> <li>Point-to-Point</li> <li>Publish/Subscribe</li> <li>Message Object</li> <li>Session</li> <li>Creating the Client</li> </ul>		
<b>7</b>	<b>EJB3 Overview</b>		
	<ul style="list-style-type: none"> <li>The Enterprise JavaBean</li> <li>EJB Benefits</li> <li>A Simple EJB</li> <li>Local and Remote EJB Access</li> <li>Creating a Client</li> <li>Assembly and Deployment of EJBs</li> <li>Creating a Client</li> <li>Assembly and Deployment of EJBs</li> </ul>		
<b>8</b>	<b>Session Beans and Message-Driven Beans</b>		
	<ul style="list-style-type: none"> <li>A Session Bean</li> <li>Stateless Session Beans</li> <li>PostConstruct and PreDestroy</li> <li>Lifecycle of a Stateless Session Bean</li> <li>Stateful Session Beans</li> <li>Lifecycle of a Stateful Session Bean</li> <li>Lifecycle Callbacks</li> <li>Singleton Session Beans</li> <li>Lifecycle of a Singleton Session Bean</li> </ul>		
			<ul style="list-style-type: none"> <li>Dependency Injection</li> <li>Message-Driven Beans</li> <li>MDB Lifecycle</li> <li>Sending a Message</li> </ul>
		<b>9</b>	<b>Introduction to the Java Persistence API</b>
			<ul style="list-style-type: none"> <li>What is Java Persistence?</li> <li>Persistence Objects and Metadata</li> <li>Creating an Entity Class</li> <li>The Persistence Unit</li> <li>The Entity Manager</li> <li>Looking up Entities</li> <li>Deployment</li> </ul>
		<b>10</b>	<b>Persisting Entities</b>
			<ul style="list-style-type: none"> <li>EntityManager and Persistence Context</li> <li>Managed and Detached Entities</li> <li>Creating and Removing Entities</li> <li>Bulk Updates and Deletes</li> <li>Transactions</li> <li>Mapping Entities to Tables</li> <li>Primary Keys</li> <li>Entity Relationships</li> <li>Cascading</li> </ul>
		<b>11</b>	<b>Transactions</b>
			<ul style="list-style-type: none"> <li>The Java Transaction API</li> <li>The UserTransaction Interface</li> <li>Transactions in Java EE</li> <li>Bean-Managed Transactions</li> <li>Container-Managed Transactions</li> <li>Transaction Attributes</li> <li>Transaction Rollbacks</li> </ul>
		<b>12</b>	<b>Data Binding with JAXB 2.0</b>
			<ul style="list-style-type: none"> <li>W3C XML Schema</li> <li>XML Data Binding Basics</li> <li>JAXB Architecture</li> <li>Compiling Schema to Java</li> <li>JAXBContext</li> <li>Unmarshalling</li> <li>Marshalling</li> <li>Validation</li> <li>Custom Binding Declarations</li> </ul>
		<b>13</b>	<b>Java API for XML-Based Web Services (JAX-WS)</b>
			<ul style="list-style-type: none"> <li>JAX-WS</li> <li>Creating a Web Service Endpoint</li> <li>The Service Implementation</li> </ul>

- The Service Interface
- Generating Artifacts
- Generated Files
- Packaging and Deploying the Application
- A JAX-WS Client
- wsimport
- 14 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
- 15 Appendix A – Underlying Technologies: RMI and JDBC**
- RMI
- Steps to Create a Remote Object
- An RMI Client
- An RMI Server
- RMI Utilities
- The JDBC Connectivity Model
- Connecting to the Database
- Creating a SQL Query
- Getting the Results
- Updating the Database Data
- 16 Appendix B - JavaMail**
- Mail Systems and JavaMail
- The javax.mail Packages
- Establishing a Session
- The MimeMessage Class
- Sending a Message
- Retrieving Email Messages
- Multi-part Messages