

## Instructor — Led

### Course Length: Five days

#### At the end of the course, students will be able to:

- Write Java servlets
- Create robust web applications using Struts, session management, filters, and database integration
- Write JSP pages
- Create easy to maintain JSP pages using the Expression Language, JSP Standard Tag Library (JSTL), and the Struts Tiles framework
- Create robust web applications that integrate Struts and JSP pages

### Prerequisites

- Write Java applications, demonstrating significant programming ability
- Integrate existing Java code (for example, reuse existing classes created by other team members)
- Design Java applications
- Functionally describe the benefits of an n-tier architecture
- Write a web page using HTML

### Course Outline

#### Module 1: Introduction to Web Application Technologies

##### Topics:

- Describe Internet services
- Describe the World Wide Web
- Distinguish between web applications and web sites
- Describe Java servlet technology and list three benefits of this technology compared to traditional Common Gateway Interface (CGI) scripting
- Describe JavaServer Pages technology and list three benefits of JSP pages technology over rival template page technologies
- Describe the Java 2 Platform, Enterprise Edition (J2EE platform)

#### Module 2: Developing a View Component

##### Topics:

- Design a view component
- Describe the Hypertext Transfer Protocol
- Describe the web container behavior
- Develop a view servlet
- Configure and deploy a servlet

#### Module 3: Developing a Controller Component

##### Topics:

- Design a controller component
- Create an HTML form
- Describe how HTML form data is sent in the Hypertext Transfer Protocol (HTTP) request
- Develop a controller servlet
- Dispatch from a controller servlet to a view servlet

#### Module 4: Developing Dynamic Forms

##### Topics:

- Describe the servlet life cycle
- Customize a servlet with initialization parameters
- Explain error reporting within the web form
- Repopulating the web form

#### Module 5: Sharing Application Resources Using the Servlet Context

##### Topics:

- Describe the purpose and features of the servlet context
- Develop a servlet context listener to initialize a shared application resource

#### Module 6: Designing the Business Tier

##### Topics:

- Describe the Analysis model
- Design entity components
- Design service components

### **Module 7: Developing Web Applications Using Struts**

*Topics:*

- Design a web application using the Struts MVC framework
- Develop a Struts action class
- Configure the Struts action mappings

### **Module 8: Developing Web Applications Using Session Management**

*Topics:*

- Describe the purpose of session management
- Design a web application that uses session management
- Develop servlets using session management
- Describe the cookies implementation of session management
- Describe the Uniform Resource Locator (URL)-rewriting implementation of session management

### **Module 9: Using Filters in Web Applications**

*Topics:*

- Describe the web container request cycle
- Describe the Filter API
- Develop a filter class
- Configure a filter in the web.xml file

### **Module 10: Integrating Web Applications With Databases**

*Topics:*

- Understand what a database management system (DBMS) does
- Design a web application to integrate with a DBMS
- Configuring a DataSource and Java Naming and Directory Interface (JNDI) API

### **Module 11: Developing JSP Pages**

*Topics:*

- Describe JSP technology
- Write JSP code using scripting elements
- Write JSP code using the page directive
- Write JSP code using standard tags
- Write JSP code using the Expression Language (EL)
- Configure the JSP environment in the web.xml file

### **Module 12: Developing JSP Pages Using Custom Tags**

*Topics:*

- Understand the job roles involved in web application development
- Understand the rationale in using custom tags
- Develop a JSP page using an existing custom tag library

### **Module 13: Developing Web Applications Using Struts Action Forms**

*Topics:*

- Describe the components in a Struts application
- Develop an ActionForm class
- Develop a JSP page for a View form
- Configure the View forms

### **Module 14: Building Reusable Web Presentation Components**

*Topics:*

- Describe how to build web page layouts from reusable presentation components
- Include JSP segments
- Develop layouts using the Struts Tiles framework