

**Course Description:** This advanced course shows JSP and servlet programmers how to build web applications using the Apache Struts framework. Students learn the Struts architecture and see how it captures a great deal of pre-existing best practice: in model/view/controller action mappings, form beans and custom tags for working with HTML forms, input validation, and the Tiles view-building framework. Two chapters near the end of the course cover configuration techniques and other advanced topics.

**Who Should Attend:** This course is for experienced Java programmers.

**Prerequisites:** Students should have experience with Java programming, Servlets programming, and JSP Basic knowledge of XML is recommended but not essential.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Use Struts actions and action mappings to take control of HTTP requests/responses.
- Manage HTML form input and output with form beans, and use these beans to simplify data handling in the controller.
- Use JSTL and Struts custom tags to build robust and reusable JSP presentation logic.
- Support multiple client locales with various internationalization techniques.
- Define validation rules for input forms, and provide clear user feedback.
- Build complex presentations using decoupled, reusable tiles, screens and layouts.

### Course Outline:

#### Struts Architecture

MVC and Model 2  
Command Pattern  
Jakarta Struts  
More XML, Less Java!  
Action Mappings  
JavaBeans in Struts  
Working with Forms  
Validation  
Presentation Technology  
Tiles

#### Action Mappings

Command Pattern for Web Applications  
ActionServlet  
Action  
ActionMappings  
Struts Configuration  
Selecting a Forward  
Global Forwards  
Global Exception Handlers  
Declarative Exception Handling

#### Forms

Working with HTML Forms  
Action Forms (Form Beans)  
Relationship to Input  
Relationship to Actions  
Relationship to the Model  
Relationship to Output  
DynaActionForm and Map-Backed Forms  
Validation  
Coarse-Grained Form Beans

#### Struts Tag Libraries

Building View Components  
Struts Tag Libraries  
Attributes and Struts Expressions  
Building Forms  
<html:form>  
<html:text> et. al.  
Forms and Form Beans  
Scope and Duration of Form Data  
Managing Hyperlinks  
Error Messages  
Logic Tags

#### The JSP Standard Tag Library

JSTL Overview  
JSP Expression Language  
Core Tags  
Formatting Tags  
XML Tags

SQL Tags  
Mixing JSTL, EL, Scripts and Actions

#### Internationalization And Localization

i18n in Java  
i18n in Actions  
i18n in JSTL  
i18n in Validation

#### Input Validation

Validation in Web Applications  
Validation in Struts  
The Struts Validator Plug-In  
Validating ActionForm Subtypes  
Configuring Validation  
Standard Validators  
Rules  
Is <html:form> Necessary?  
Reporting Errors  
Multi-Page Validation  
Client-Side Validation  
Limitations on the Client Side  
Implementing a Validator  
Implementing ActionForm.validate

#### Chapter 8. Advanced Configuration

Struts Configuration in Depth  
Wildcards  
Extensions  
The Configuration Object Model  
Subclasses and <set-property>  
Plug-Ins  
Integrating Other Frameworks  
Role-Based Security  
Chaining Actions  
The ComposableRequestProcessor Class  
Configuring Command Chains  
Modules

#### Under The Hood

Global Objects  
Specialized Struts Actions  
The Utility Package  
The Commons BeanUtils Class  
Form Beans as Adapters to the Business Tier  
Reusing Validation Rules  
Graceful Validation

#### Tiles

Consistent Look and Feel  
Reusable Layouts and Content  
The Tiles Framework  
Instantiating Layouts  
Body-Wrap Insertions

Tiles and Stylesheets  
Working with Tiles Attributes  
The Tiles Context  
Definitions  
Aggregation and Inheritance  
The Tiles Plug-In  
Forwarding to Definitions  
Performance Considerations

#### Appendix B: Quick Reference