Course Name: 
Course in JSP
Course Code: P5

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Course in JSP

1. **Introduction:**
   This course teaches in detail the advanced components of the Java Programming Language.

2. **Eligibility:**
   XII th & above

3. **Duration:**
   80 Hours. Two and half hours each day
   - Theory  20  hours
   - Practical  60  hours

4. **Course Details:**

<table>
<thead>
<tr>
<th>Type of course</th>
<th>Syllabus</th>
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<tbody>
<tr>
<td>Professional IT Course</td>
<td>Programming Concepts</td>
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<td>o Flowcharts</td>
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<td>o Algorithms</td>
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<td>o Data Flow Diagrams</td>
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<td>o Software Life Cycle</td>
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**Introduction to Web Application Technologies**

- Web Application Technologies
  - HTTP Client-Server Architecture
  - Web Site Structure
- Web Sites and Web Applications
  - Execution of CGI Programs
  - Advantages and Disadvantages of CGI Programs
  - Execution of Java Servlets
  - Advantages and Disadvantages of Java Servlets
  - Using Separate Processes or Using Threads
- Java Servlets
- JavaServer
- Web Application — Three—Tier Architecture

**Model-View—Controller (MVC) Architecture in a Web Application**

- Model 2 Architecture
- Model 2 Frameworks
- Java EE Containers
- Java EE Architecture Example
- Job Roles
- Web Application Migration

**Developing a View Component**

- Designing a View Component
Types of View Components
Soccer League Case Study
List Leagues Analysis Model
List Leagues Page Flow

HTTP Revisited
Hypertext Transfer Protocol
HTTP GET Method
HTTP Request
HTTP Request Headers
HTTP Response
HTTP Response Headers

Web Container Architecture
Request and Response Process
Sequence Diagram of an HTTP GET Request

Developing a Simple HTTP Servlet
List Leagues Architecture Model
The HTTPServlet API
The ListLeaguesServlet Class

Configuring and Deploying a Servlet
Soccer League Web Application Structure
Configuring a Servlet Definition
Configuring a Servlet Mapping
Complete Deployment Descriptor
Web Application Context Root
Sun Java™ System Application Server Deployment
WAR Files for Deployment
Activating the Servlet in a Web Browser

Developing a Controller Component
Designing Controller Components
Types of Controller Components
Add a New League Analysis Model
Add a New League Page Flow
Form Verification
Soccer League Web Structure

Creating an HTML Form
Add a New League Web Form
The form Tag
Textfield Component
Drop-Down List Component
Submit Button
Complete HTML Form

How Form Data Is Sent in an HTTP Request
Form Data in the HTTP Request
HTTP GET Method Request
HTTP POST Method Request
HTTP GET and POST Methods

Developing a Controller Servlet
Add a New League Use Case Revisited
Servlet API to Retrieve Form Parameters
Developing the AddLeagueServlet Servlet

Dispatching From the Controller to a View
Add a New League Use Case
Request Scope
Using a Request Dispatcher
Developing the AddLeagueservlet Code
Developing the SuccessServlet Code

Developing Dynamic Forms
Servlet Life Cycle Overview
Servlet Class Loading
One Instance Per Servlet Definition
The init Life Cycle Method
The service Life Cycle Method
The destroy Life Cycle Method
Using Initialization Parameter to Customize the Add a New League Form
Handling Errors in a Web Form
Repopulating Web Forms

Sharing Application Resources Using the Servlet Context
Purpose of the Servlet Context
Soccer League Demonstration
Servlet Context
Developing a Servlet Context Listener

Designing the Business Tier
Describing the Analysis Model
Domain Entities
Designing a Service Component
  Entity Service
  Facade Service

Developing Web Applications Using Struts
Struts Framework
  Model-View-Controller Pattern
  Front Controller Pattern
  Struts MVC Framework
Developing a Struts Action Class
  Struts Act ion Class API
  Creating an Action Class
Configuring the Struts Action Mappings
  Configuring the Infrastructure Controller
  Configuring Action Mappings
  Installing the Struts Library Files

Developing Web Applications Using Session Management
HTTP and Session Management
Designing Web Applications to Use Session Management
Using Session Management in a Web Application
Using Cookies for Session Management
Using URL-Rewriting for Session Management

Using Filters in Web Applications
Web Container Request Cycle
  Web Container Request Processing
  Applying Filters to an Incoming Request
  Applying Filters to a Dispatched Request
Filter API
Developing a Filter Class
   The PerformanceFilter: Class
   The init Method
   The doFilter Method
   The destroy Method
Configuring the Filter
   Declaring a Filter in the web.xml File
   Declaring a Filter Mapping in the web.xml File

**Integrating Web Applications With Databases**
Mapping Sample Data Structures into Database Entities
Designing a Web Application
   Domain Objects
   Database Tables
   Data Access Object (DAO) Pattern
   DAO Pattern Advantages
   JDBC™ API
Developing a Web Application Using a Database
   Traditional Approaches to Database Connections
   Using a DataSource and the JNDI API
   Configuring a DataSource and the JNDI API

**Developing JSP Pages**
JavaServer Pages Technology
   How a JSP Page Is Processed
   Developing and Deploying JSP Pages
Writing JSP Scripting Elements
   Comments
   Directive Tag
   Declaration Tag
   Scriptlet Tag
   Expression Tag
   Implicit Variables
Using the page Directive
Using Standard Tags
Using Expression Language (EL) Elements
Configuring the JSP Environment

**Developing JSP Pages Using Custom Tags**
The Java EE Job Roles Involved in Web Application Development
Designing JSP Pages with Custom Tag Libraries
   Contrasting Custom Tags and Scriptlet Code
   Developing JSP Pages Using Custom Tags
   Custom Tag Library Overview
   Custom Tag Syntax Rules
   JSTL Sample Tags
Using a Custom Tag Library in JSP Pages
   Using an Empty Custom Tag
   Using a Conditional Custom Tag
   Using an Iterative Custom Tag
   JSTL Tags

**Developing Web Applications Using Struts Action Forms**
Struts Application Components
Course Code: P5

Building Reusable Web Presentation Components
- Complex Page Layouts
  - Presentation Segment Overview
  - Organizing Presentation Segments
- Including JSP Page Segments
  - Using the include Directive
  - Using the jsp : include Standard Action
  - Using the jsp : param Standard Action
- Developing Layouts Using Struts Tiles
  - Layout JSP File
  - Tiles Layout
  - Content Body

Introducing JavaServer™ Faces Technology
- Introducing JavaServer Faces Technology
- Components of a JavaServer Faces Technology-Based Web Application
- Comparison of JavaServer Faces Technology With Struts Framework
- Key JavaServer Faces Concepts
- UI Component Model
- UI Component Classes

Quick Reference for HTML
- HTML and Markup Languages
  - Creating an HTML Document
  - Tag Syntax
  - Comments
  - Spaces, Tabs, and New Lines Within Text
  - Character and Entity References
- Creating Links and Media Tags
  - The A Element and the HREF Attribute
  - The IMG Element and the SRC Attribute
  - The APPLET Element
  - The OBJECT Element
- Text Structure and Highlighting
- HTML Forms
  - The FORM Tag
  - HTML Form Components
  - Input Tags
<table>
<thead>
<tr>
<th>Text Fields</th>
<th>Submit Buttons</th>
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<tbody>
<tr>
<td>Reset Button</td>
<td>Checkboxes</td>
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<tr>
<td>Radio Buttons</td>
<td>Password</td>
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<td>Hidden Fields</td>
<td>The SELECT Tag</td>
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<td>The TEXTAREA Tag</td>
<td>Creating HTML Tables</td>
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<tr>
<td>Advanced HTML</td>
<td>JavaScript™ Programming Language</td>
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<tr>
<td>CSS</td>
<td>Frames</td>
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**Quick Reference for HTTP**
- HTTP Overview
- Request Structure
  - HTTP Methods
  - Request Headers
- Response Structure
  - Response Headers
  - Status Codes

**Quick Reference for the Sun Java System Application Server**
- Sun Java System Application Server Overview
- Installing the Sun Java System Application Server
- Starting and Stopping the Application Server
- Application Configuration
- Logging and Log Files

**Quick Reference for the Ant Tool**
- Ant Overview
- Build File Structure
  - Projects
  - Targets
  - Tasks
  - Properties
- Ant Special Features
  - Patterns
  - The fileset Element
  - Filtering
  - The filter Task
- Basic Built-in Ant Tasks
  - The copy Task
  - The delete Task
  - The mkdir Task
  - The echo Task
  - The javac Task
  - The javadoc Task
  - The jar Task
ITKC COURSE DETAILS

Complete Ant Build File
Executing Ant
Installing Ant

Quick Reference for UML
UML Fundamentals
General Elements
   Packages
   Stereotypes
   Annotation
   Constraints
   Tagged Values
Use Case Diagrams
Class Diagrams
   Class Nodes
   Inheritance
   Interface Implementation
   Association, Roles, and Multiplicity
   Aggregation and Composition
   Association Classes
   Other Association Elements
Object Diagrams
Collaboration Diagrams
Sequence Diagrams
Statechart Diagrams
Transitions
Activity Diagrams
Component Diagrams
Deployment Diagrams

Quick Reference for XML
Introduction to XML
Basic Syntax
   Well-Formed XML Documents
   Validity and DTDs
   DTD-specific Information
Schemas

Project Work

5. Fee:
   Rs. 4000/- (exclusive of all taxes)