



## Introduction to JEE Web Essentials | Learn Servlets/JSPs, MVC, EL, JPA & More

Learn the basics needed to design modern dynamic web applications that are robust, efficient, secure and maintainable

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### Course Snapshot

- **Course:** Introduction to JEE Web Essentials | Learn Servlets/JSPs, MVC, EL, JPA & More (TT5102)
- **Duration:** 2 days
- **Skill-Level :** Introduction to JEE essential for experience Java developers
- **Audience:** Experienced programmers with practical, current Java development experience to at least a basic level.
- **Language/Tools:** JEE focused using TomEE and Eclipse. Other compliant IDEs are available. Please inquire for details.
- **Hands-on Learning:** This course is approximately **50% hands-on**, combining expert lecture, real-world demonstrations and group discussions with machine-based practical labs and exercises. Student machines are required.
- **Delivery Options:** This course is available for **onsite private classroom presentation, live online virtual presentation**, or can be presented in a **flexible blended learning format** for combined onsite and remote attendees.
- **Public Schedule:** This course has active dates on our live-online open enrollment **Public Schedule**.
- **Customizable:** This course agenda, topics and labs can be further adjusted to target your specific training skills objectives, tools and learning goals. Please inquire for details.

### Overview

Java Enterprise Edition (JEE) is a powerful platform for building web applications. The JEE platform offers all the advantages of developing in Java plus a comprehensive suite of server-side technologies. This course tells you what you need to know to design and build your own web applications. You'll learn the details of the key JEE technologies and how to leverage the strengths of each, with special focus on Servlets and JSPs. At the same time, you'll be learning about the big picture of JEE and how to design web applications that are robust, efficient, secure, and maintainable. If you want to deliver an application on the web, you'll find this course essential.

**Introduction to JEE Web Essentials** is a two-day hands-on training course geared for experienced Java developers new to Enterprise Development in Java, who need to get up and running with essential dynamic web development skills. This course provides core JEE knowledge and skills that can be used as the foundation for developing production-quality web applications to a basic level.

### Learning Objectives

Students will leave the course armed with the basic skills required to design and build scalable, secure, maintainable web applications - leveraging our extensive experience in the delivery of scalable enterprise applications with complex web interfaces based on JEE technologies.

Throughout this training, students will explore with common web application design problems and given the tools you will need to solve them, such as JEE design patterns. You will also be exposed to a range of JEE and web technologies such as Servlets, JSPs, JSTL and advice on when and how to use them. Students will also learn about the capabilities of servlets, their advantages, servlet architecture, and session management. Developers will also learn about managing resources, deployment, and application models, how to use custom tags, and how to build robust and capable web applications using servlets and other components.

The course begins with a discussion of web application architecture. A major part of the course is spent on the various web components that are used to implement dynamic web applications. Students will learn not only specific topics and APIs but also how to fit the pieces together into a complete application.

Topics covered include:

- JEE Application Architecture
- Servlets
- Java Server Pages (JSP), EL, and JSTL

**Need different skills or topics?** If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional Java, JEE and Java for Web application development, design, testing, services, application security and other related topics that may be blended with this course for a track that best suits your needs. Our team will collaborate with you to understand your needs and will target the course to focus on your specific learning objectives and goals.

### Audience & Pre-Requisites

This is an introductory level training course, designed for experienced OO developers (such as C++ or SmallTalk) that need to extend their skills in web development and understand the basic architecture of a JEE web application and/or implement a web application, taking advantage of what JEE brings to the table.

**Take Before:** Students should have incoming skills aligned with the topics in the course(s) below, or should attend these as a pre-requisite:

- TT2104 Core Java Programming for OO Experienced Developers – 4 days

### Related JEE Foundation Courses

- TT5102: JEE Web Essentials | Quick Start to Servlets/JSPs, MVC, EL, JPA & More – 2 days
- TT5100: Mastering JEE Web Application Development | Servlets/JSPs, JNDI, EL, JPA, WebSockets, Security & More – 5 days
- TT5140: Java Web Developer Foundation – 5 days
- TT5112: Next-Level Java Enterprise Development | CDI, Java API WebSockets, JavaBean Validation, JSF & More – 2 days
- TT5165: Exploring Java Messaging Services (JMS) – 2 days

**Follow On Courses:** Our Java & JEE developer tracks include a wide variety of follow-on courses and learning paths for leveraging Java and JEE for next-level development, web development, reactive development, services and microservices, testing / TDD, application security and more. Please see our **Java & JEE Developer Training Suite & Learning Paths** list of courses or inquire for recommendations based on your specific role and goals.

**Enhanced Learning Services:** Please also ask about our **Pre-Training Class OnRamp & Prep / Primer** offerings, **Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services and Extended Learning Support & Post Training** services.

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### Course Topics / Agenda

*Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We'll work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.*

#### Session: Developing Java EE applications

##### Lesson: Enterprise Development

- Enterprise Application Software
- Requirements of Enterprise applications
- Scalability, Load Balancing, Fail Over
- Resource pooling

##### Lesson: Java EE Core Components

- Overview of Java EE Core Components
- Web Tier Components
- Application Tier
- Deployable Units
- Deployment Descriptors

- The Java Naming and Directory Interface (JNDI)
- Tutorial: Working with Eclipse (JEE Version) and Apache TomEE 7x
- Tutorial: Working with TomEE 7

#### Session: JEE Dynamic Web Applications

##### Lesson: Introduction to Servlets

- The Servlet Interface
- The Web Container
- Creating HTML Output Using Servlets
- The @WebServlet Annotation
- Interaction Between web.xml and Annotations

- The @WebInitParam Annotation

#### Lesson: Form processing using Servlets

- Using HTML5 Forms with Servlets
- Processing Request Parameters
- HttpServletRequest Methods
- HttpServletResponse Methods

#### Lesson: Java Server Pages

- Java Server Pages ( JSPs)
- The Relationship Between JSPs and Servlets
- The JSP lifecycle
- The role of JSPs in Java EE 7

#### Lesson: Implementing MVC in JEE

- Model View Control

- Using the RequestDispatcher
- Handling Requests
- The Request Scope
- Handling Request Attributes
- The Expression Language (JSR 341)
- EL in Template text

**Lesson: Session Management**

- Sessions in Web Applications
- The HttpSession object
- Session Management in Java EE
- Handling Cookies
- URL-Rewriting

**Session: JEE Servlet Filters and Listeners****Lesson: Servlet Filters**

- Introduce Servlet Filters
- Modify the request data
- Modify the response data
- The @WebFilter annotation
- Define Filter Mappings
- Move functionality out into a decorator pattern

**Session: Expression Language 3.0 (EL)****Lesson: Overview of EL**

- The Expression Language (JSR 341)
- Value and Method Expressions
- Immediate and Deferred Evaluation Syntax
- Read and Read/Write expressions

**Lesson: The EL language**

- EL Operators
- EL Reserved Words
- EL Implicit objects
- Referencing Objects using EL

**Session: Using Resources****Lesson: JEE DataSources**

- DataSources in JEE
- Setup a DataSource
- Using CDI to inject a DataSource

**Lesson: Overview of JPA**

- Introduce the Java Persistence API (JPA)
- Benefits of Using an ORM framework
- Hibernate and JPA

**Student Materials:** Each student will receive a **Student Guide** with course notes, code samples, software tutorials, diagrams and related reference materials and links (as applicable). Our courses also include step by step hands-on lab instructions and solutions, clearly illustrated for users to complete hands-on work in class, and to revisit to review or refresh skills at any time. Students will also receive the project files (or code, if applicable) and solutions required for the hands-on work.

**Classroom Setup Made Simple:** Our dedicated tech team will work with you to **ensure your classroom and lab environment is setup, tested and ready to go** well in advance of the course delivery date, ensuring a smooth start to class and seamless hands-on experience for your students. We offer several flexible student machine setup options including **guided manual set up** for simple installation directly on student machines, or **cloud based / remote hosted lab solutions** where students can log in to a complete separate lab environment minus any installations, or we can supply **complete turn-key, pre-loaded equipment** to bring ready-to-go student machines to your facility. Please inquire for details, options and pricing.

All courses can be presented **onsite** or **online**, or in a **combined / flex / blended learning format**, tailored to target your specific audience, needs and learning goals. We also offer focused, flexible **short courses, self-paced learning** options, **recorded sessions** and more. We train beginner to advanced skills in all areas we cover, and offer **New Hire / Cohort Training, Boot Camps, Skills Immersion Programs, Reskilling Programs, Skills Migration & Transition Programs**, and more. We collaborate with you to ensure all courses are truly targeted to meet your specific needs and learning skills, maximizing your valuable training time, as well as your important budget.

Please also visit our extensive **Public Training Schedule** for training for smaller groups or individuals. Please contact us for course details, **Corporate Rates** and **Special Discount Offers**.

**For more information** about our dedicated training services, collaborative coaching services, courseware licensing and development services, public course schedule, training management services, partner programs, or to see our complete list of course offerings and special offers please visit us at [www.triveratech.com](http://www.triveratech.com), email [Info@triveratech.com](mailto:Info@triveratech.com) or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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